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DATE & TIME

Tuesday 8th October – 9am – 5pm
Wednesday 9th October – 9am – 5pm and 6pm – 9pm
Thursday 10th October – 9am – 5pm

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- | | |
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| ■ EDM | ■ CAD/CAM |
| ■ Machining Centres | ■ Laser Cutting |
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Mazak brings seven machines to AMB with focus on productivity and sustainability

Mazak is excited to announce its participation in the AMB exhibition 2024 in Stuttgart, where it will showcase seven cutting-edge machines with highlights including multi-tasking capabilities, advanced automation, innovative auto gear technology and comprehensive remote service and support for increased productivity.

Mazak's theme for AMB is 'Innovation through partnership, shaping the future together'. Through close cooperation with customers, Mazak develops cutting-edge solutions and technologies that position their clients for long-term success.

Making its world debut is the first in a new range of turning centres that will offer customers increased levels of productivity and efficiency. A central component of the show will be the company's Go Green environmental manufacturing initiative, highlighted by the new NEO range of machines that have been designed to help customers achieve a more sustainable future with higher productivity, accuracy and environmental performance.

There will be two NEO machines on display at AMB that have been purposely designed with a range of technological advancements to be able to deliver up to a 30 percent reduction in energy consumption compared to the original models.

The VARIAXIS i-700 NEO, a high-rigidity, next-generation 5-axis machining centre has an exceptionally wide machining area making it ideal for large workpieces, as well as a tilting/rotary table for high-accuracy machining over an extended period. The VARIAXIS is equipped with the advanced SmoothAi CNC.

The HCN-4000 NEO, which will be displayed with a 20,000-rpm high-speed, high-output spindle for maximum productivity will be exhibited with a two-pallet changer that ensures it can machine workpieces on the first pallet while a second pallet is prepared.

Gear machining will form an important part of Mazak's stand with a specialist gear-cutting machine on show. The INTEGREG i-250H ST AG seamlessly brings together Mazak Multi-Tasking technology with gear cutting and measurement capability. The INTEGREG is capable of three



different gear machining methods, gear skiving, hobbing and endmilling, making it ideal for both high-mix, small-volume production and large production batches.

The QUICK TURN 250 MSY with Turn Assist and equipped for skiving applications, will also be on display.

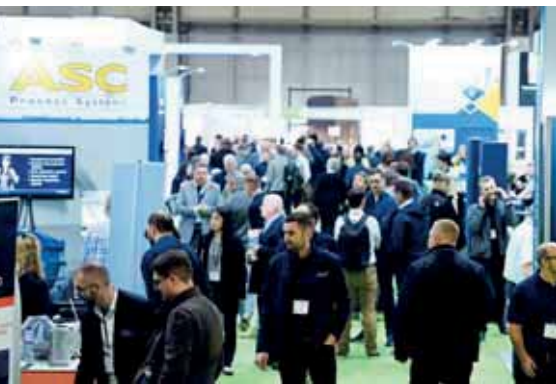
Visitors to the Mazak stand will be able to witness a live digital twinning demonstration involving a CV5-500 5-axis machining centre. The process will be shown to create an identical digital copy of the machine in an office environment.

Yamazaki Mazak UK Ltd Tel: 01905 755755
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Hall 7 - Stand: 7C11

Visitor registration open for Advanced Engineering 2024

Visitor registration is now open for Advanced Engineering, the UK's annual gathering of engineering and manufacturing professionals. Now in its 15th year and being hosted on October 30th and 31st, 2024, the event is keeping the same format that reaped success from last year's exhibition, having



received high praise from exhibitors and visitors in regards to the cross-industry floor layout. Anyone interested in attending this year can register for a free ticket on the Advanced Engineering website.

This year's show will expand on the success of two forums introduced last year, the Main Stage and the Advanced Materials & Technologies (AMT) forum. The Main Stage will feature keynotes and key industry players, while the AMT forum will delve deeper into end user case studies across all sectors.

Such expansions have been made to compliment the success of the annual show's rebrand in 2023, having presented a fresh look for visitors. The event featured a new cross-industry floor layout, which was previously divided into several zones, allowing a broader range of exhibitors from a variety of industries that included newly added sectors like marine, motorsport, construction, medical, rail and sport.

Over 8,800 visitors were able to explore both events, which included 400 exhibitors from AE and 202 from its co-located show, Lab Innovations, all with a single badge. Among the visitors were representatives from well-known companies like Airbus, Rolls-Royce, IBM, Boeing, McLaren, BAE Systems, Catapult HVM, the Department for International Trade and Jaguar Land Rover.

"The overwhelmingly positive feedback from 2023 confirmed that the changes made worked, with exhibitors and visitors having found that the new approach created a more collaborative atmosphere for better interaction and networking," explains Alison Willis, director at Easyfairs, the organiser of Advanced Engineering.

Addressing the skills gap

Aspiring engineers can kick-start their careers at Advanced Engineering

According to Make UK, 85 percent of jobs that will exist in 2030 haven't been invented yet. What will they be and who will do them? Come and find out at Advanced Engineering.

From developing renewable energy solutions to integrating AI into manufacturing processes, engineers play a crucial role in shaping the world we live in. Engineers don't just help solve today's problems, they also anticipate and address the challenges of tomorrow.

However, the industry is currently facing significant skills shortages, a challenge driven by trends like an ageing population, the transition to net zero and broader economic changes.

These pressures have heightened the demand for skilled professionals, yet the UK supply still faces disruption. "Our members across the UK tell us that finding the people with the right skills is becoming harder," says Claire Walker, co-executive director of policy and campaigns at the British Chambers of Commerce (BCC). "Brexit and the uncertainty for the future of non-British workers has only added to their worries."

A joint report from the Open University and the BCC in 2022 highlighted the extent of this crisis. The report found that almost three-quarters of organisations are experiencing increased workloads on existing staff due to skills shortages while four out of five are facing reduced output, profitability,

or growth, with nearly a third turning down work or unable to bid for new projects due to staff shortages.

Initiatives like the "Mind the Skills Gap" campaign are attempting to address these challenges by advocating for better education and training opportunities. That's important, but aspiring engineers should be proactive in reaching their career goals too. Resources and tools like the Engineers Insight vlog can be useful assets for those looking to explore career options, find mentors and gain industry insights.

Likewise, for those seeking a more hands-on approach to entering the industry, attending Advanced Engineering is the way to go. The exhibition is the UK's largest annual



gathering of engineering and manufacturing professionals and brings together industry leaders, experts and aspiring engineers.

This event offers a unique platform to explore the latest advancements in engineering, attend informative workshops and network with potential employers. Whether you're a student, a recent graduate or a professional looking for a career change, the trade show provides invaluable opportunities to learn and connect with the engineering community.

Easyfairs UK Ltd
Tel: 020 3196 4300

www.advancedengineeringuk.com



Building for the future at Colchester Machine Tool Solutions

Apprenticeship Programme is an ongoing success

At Colchester Machine Tool Solutions, its longstanding investment in apprentices has borne remarkable fruit, reinforcing its commitment to nurturing the next generation of engineers. As a leading designer, manufacturer and supplier of quality, precision manual and CNC machine tools, it understands that its strength lies in its people. Its apprenticeships have not only equipped young talent with the skills needed for a successful career but have also enriched the organisation with innovative ideas and dedicated professionals.

Ryan McMaster stands as a testament to the transformative power of the apprenticeship programme. Since completing his apprenticeship in 2012, he has thrived in various roles, including machine tool assembly, field service and production planning. Today, he is the esteemed operations manager. Reflecting on his journey, Ryan McMaster says: "The apprenticeship at Colchester gave me a solid foundation and the confidence to explore various aspects of the business. The support and opportunities provided have been instrumental in my career growth."

Similarly, Tom Robinson, who completed his apprenticeship in 2013, has enjoyed a dynamic career trajectory. Starting as a CNC machinist, he advanced to an application engineer and is now an influential area sales manager. "Colchester's apprenticeship programme opened many doors for me," he says. "The hands-on experience and the mentorship I received were invaluable. It's been a rewarding journey and I'm proud to be part of a company that invests in its people."

Liam Walker, who completed his

apprenticeship in 2021 and went on to earn his Higher National Diploma (HND) in 2024, has progressed from machine tool assembly to his current role as an electrical design engineer. "The continuous learning opportunities at Colchester have been fantastic," he shares. "Completing my HND was a significant milestone, and the company's encouragement and resources made it possible."

Another success story is Jake Cockcroft, who completed his apprenticeship in 2022 and his Higher National Certificate (HNC) in 2023. Initially working in machine tool assembly, he is now training to become a field service engineer. "The transition from assembly to field service has been exciting," he says. "The company's commitment to my development has been evident every step of the way."

Joe Simpson, who finished his apprenticeship in 2022 and his HNC in 2023, has moved from machine tool assembly to leading a pioneering project to integrate a new laser marking machine build and test area. "Leading this project has been a highlight of my career," he comments. "Colchester's trust in my abilities and their support for innovative projects are what set this company apart."

Currently in his first year of an electrical/mechanical apprenticeship, Kai Pearson represents the latest wave of talent at Colchester. Working within the machine tool assembly area, he is on a promising path. "I'm excited about the future and the opportunities ahead," Kai Pearson states. "The apprenticeship programme is providing me with a strong start in my career."

Colchester encourages its apprentices to

further their education even after completing their apprenticeships. The company supports their pursuit of additional qualifications such as HNC, HND and even degree-level studies. By offering financial assistance, flexible work schedules and mentorship, it ensures its apprentices have every opportunity to continue their academic and professional development.

Colchester's dedication to apprenticeships is not merely about filling roles; it is about forging robust career pathways. It provides comprehensive training, mentoring and opportunities for further education, ensuring the apprentices grow into well-rounded professionals. It takes pride in its role as a cornerstone of the engineering and manufacturing community. By investing in apprentices, Colchester is not only enhancing its own capabilities, but also contributing to the broader industry. The apprenticeships are designed to inspire and equip young engineers with the skills and knowledge necessary to excel in their careers.

As it looks to the future, it remains committed to continuing its investment in apprenticeships, recognising their crucial role in sustaining a competitive edge and fostering innovation. Colchester will keep developing talent from within, providing its apprentices with the resources and opportunities to climb the career ladder.

Colchester Machine Tool Solutions

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International meeting point for the metal working industry returns

AMB has presented the highlights of the international metal working industry since 1982. This year's event takes place from the 10th to 14th September in Stuttgart, Germany. AMB is the marketplace and the meeting point for the metal cutting industry where the latest products, technologies, innovations, services and concepts are presented in all their facets. AMB is backed by the following promotional supporters: the VDMA Precision Tools Association, the VDMA Software and Digitalisation Association and the German Machine Tool Builders' Association (VDW). Every two years the heart of metal working beats at AMB in Stuttgart and therefore turns Baden-Württemberg into an international meeting point for the industry.

Sebastian Schmid, vice president of Messe Stuttgart, says: "With over 1,200 exhibitors from 30 countries, AMB 2024 is booked up solid. This number will increase once again due to subsequent registrations by co-exhibitors." Visitors to AMB can therefore look forward to a wide range of exhibitors including globally leading manufacturers of cutting machine tools and precision tools, efficient medium-sized companies and innovative start-ups from the region."

The focal points of AMB will again be the latest developments in machine tools, production systems, control and drive systems, automation solutions and the associated measuring and test systems. With regard to the topic of Industry 4.0, whose importance in the metal working industry has again increased enormously, interested visitors will be able to

obtain information on intelligent networks, automation solutions, CAD/CAM applications, collaborative robotics and AI. Visitors to AMB will have the opportunity on the stand to use an ordering software to start the production of a multi-tool aluminium cube which will be created live during the exhibition. As soon as the workpiece is finished, the person who triggered the order will be informed that his/her multi-tool is ready to be collected.

The AMB Award will celebrate its première at AMB 2024. The Award will be presented for outstanding new and further developments in different product categories that represent significant value-added for the industry. The submitted exhibits will be judged on the basis of various criteria by a first-rate neutral jury with members equally represented by trade associations and science.

Another innovation for AMB, the AMB app, will help to make visit planning even easier and provide guidance on the trade fair grounds and in the exhibition halls. A visit to the exhibition can be prepared quickly and easily with the app. It not only contains all the important information about AMB along with the accompanying programme, talks and workshops, it also has a favourite function with which an individual exhibitor list can be generated for an efficient day at the exhibition. An interactive hall plan ensures that users always have an overview. The AMB app for iOS and Android is available for downloading.

Dr Markus Heering, managing director of the German Machine Tools Builders' Association (VDW) says: "In its capacity as the promotional

supporter of AMB, the VDW represents machine tool manufacturers at the exhibition. The Mechanical Engineering Youth Foundation, which was initially founded by the VDW and is now being continued together with the German Engineering Federation (VDMA), has promoted young industrial employees in metal working occupations for many years and will also do so at AMB. This Foundation will stage the special show on training under the motto "Do something with a future, your opportunity in mechanical engineering" in the atrium at the east entrance. The school students' rally TechVenture, technology is more than just mathematics, of the German Academic Association for Production Technology (WGP), will be held at AMB for the first time. We will also be present with Universal Machine Technology Interface (UMATI), our standardised interface for machine communication in the factory."

Markus Heseding, managing director of the VDMA says: "Manufacturers of metal cutting tools, clamping systems and industrial length measurement technology are already looking forward very much to AMB in September. These industries regard AMB as the exhibition highlight of the year in Europe and also as an event from which they are hoping for positive impetus for business."

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Mazak brings seven machines to AMB with focus on productivity and sustainability

Mazak will showcase seven cutting-edge machines with highlights at AMB including multi-tasking capabilities, advanced automation, innovative auto gear technology and comprehensive remote service and support for increased productivity.

Its theme is 'Innovation through partnership, shaping the future together'. Through close cooperation with customers, Mazak develops cutting-edge solutions and technologies that position their clients for long-term success. The theme at AMB reflects the company's dedication to working side-by-side with customers to create a successful future.

A specialist gear-cutting machine and a world debut will be among the seven solutions on show when Yamazaki Mazak exhibits at AMB. Making its world debut is the first in a new range of turning centres that will offer customers increased levels of productivity and efficiency. A central component of the show will be the company's Go Green environmental manufacturing initiative, highlighted by the new NEO range of machines that have been designed to help customers achieve a more sustainable future with higher productivity, accuracy and environmental performance.

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spindle for maximum productivity will be exhibited with a two-pallet changer that ensures it can machine workpieces on the first pallet while a second pallet is prepared.

Gear machining will form an important part of Mazak's stand with a specialist gear-cutting machine on show. The INTEGREX i-250H ST AG seamlessly brings together Mazak Multi-Tasking technology with gear cutting and measurement capability. The INTEGREX is capable of three different gear machining methods, gear skiving, hobbing and endmilling, making it ideal for both high-mix, small-volume production and large production batches.



The QUICK TURN 250 MSY with Turn Assist and equipped for skiving applications, will also be on display. The machine has a milling function, second spindle and Y-axis, 5,000 rpm spindle with the option of 10,000 rpm for ultimate productivity. It is controlled by SmoothG CNC, providing machine users with complete ease of use and ensuring high-speed, high-accuracy machining performance. The QUICK TURN 250 MSY will be exhibited with a TA robot, making it ideal for lights-out and unmanned machining.

There will be two VARIAXIS C-600 machines exhibited at the show. On the Mazak stand, will



be the VARIAXIS C-600 tended by a part-loading and unloading third-party automation system, while the second is being exhibited on its partner's AVANTEC stand in Hall 1.

Visitors to the Mazak stand will be able to witness a live digital twinning demonstration involving a CV5-500 5-axis machining centre. The process will be shown to create an identical digital copy of the machine in an office environment, saving operator time during setup, programming, fixturing and tooling to improve process and quality control.

The CV5-500 is one of Mazak's entry-level machining centres, offering a cost-effective 5-axis solution that can be easily integrated with automation to further enhance productivity.

Stand visitors will also be able to view more information about Mazak iCONNECT, a digital service for existing Mazak customers that has a suite of free services including access to product



manuals and e-learning options along with a Machine-2-Mazak (M2M) subscription service. M2M enables remote real-time machine monitoring for proactive maintenance strategies including remote support to detect problems, remote optimisation of machining processes with increased uptime, as well as access to Mazak applications, project engineers and service operators.

Newly available through Mazak iCONNECT is MAZATROL DX, a new productivity software that provides users with the capability to optimize their production process. In addition, a variety of machined parts will be on display around the stand to showcase some of the innovative ways Mazak is closely collaborating with its customers to drive innovation and push boundaries of what is possible.

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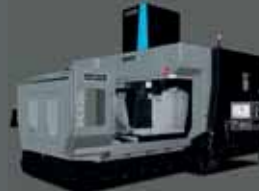
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Better chip control with laser geometries

SIMTEK Präzisionswerkzeuge GmbH is presenting its range of tools with 3D-lasered chip forming geometries to the public for the first time at AMB. According to the manufacturer, lasering the cutting-edge geometry can sustainably improve production processes in metalworking and increase process reliability. A comprehensive selection of turning tools with 3D chip geometries will be on display on its stand.

“We have been working with our customers for decades to develop optimal tool solutions for specific applications, particularly in precision and micro machining,” explains Norbert Seifermann. The CEO of the Mössingen-based precision tool manufacturer SIMTEK played a leading role in the development of the new 3D laser technology.



Years of development work lead to success

SIMTEK has been investing heavily in the research and development of 3D-lasered chip forming geometries since 2018. After five years and numerous tests, the tool specialist was able to produce high-precision 3D-lasered chip forming geometries in series production according to individual customer requirements outside of laboratory conditions. In the meantime, tools with 3D-lasered chip forming geometries have also been implemented in the standard range. SIMTEK plans to include around 100 tools in the standard catalogue range by AMB. In the future, the manufacturer intends to continuously expand its standard range with additional laser geometries. These have proven themselves in practice in various pilot projects over the last two years.

“The introduction of laser geometries marks an enormous advance in tool technology,” states Norbert Seifermann.



Individually designed and 3D-lasered chip forming geometries are the most effective and economical solution for optimum chip control. Norbert Seifermann explains: “Our tools are not only sharper and more precise, they are also able to reliably meet the requirements for chip control.” With a view to long tool life and process reliability, this is not only of crucial importance in sectors such as the automotive, aerospace and medical technology industries.

The optimum design of a 3D-lasered chip forming geometry is developed in coordination with the customer, taking into account the component and the respective process parameters, such as cutting speed, feed rate, cutting depth, etc. Thanks to this, optimum results can be achieved when machining small diameters, running with high cutting speeds with a high heat input, high forming depths or long-chipping materials, for example.

The SIMTEK tool range currently includes over 11,000 standard tools listed in the catalogue. In addition, several thousand individual tool concepts are created every year. The development and design expertise is extremely high and ranges from blanks to coating on own systems. Despite the large number of individual tool developments per year, SIMTEK is known for its reliable delivery times. The target delivery reliability is over



98 percent, which is now also to apply to the new 3D-lasered chip forming geometries.

The simturn AX tool with 3D-lasered chip forming geometry and internal coolant supply enables the precise machining of deep grooves in valve cover housings, for example.

Founded in 1994, SIMTEK Präzisionswerkzeuge GmbH, a central part of the SIMTEK Group, employs almost 600 people worldwide at six production, sales and logistics locations and is present in 48 markets around the globe. The tool specialist, headquartered in Mössingen, Swabia, develops, manufactures and sells carbide precision tools of the highest quality and performance. The extensive standard range currently includes around 11,000 tools for grooving, turning, circular milling, broaching, thread whirling and polygon milling. Tools for machining bores with a minimum diameter of 0.3 mm are just as much a part of the standard range as highly complex, multi-row milling cutters with a diameter of 200 mm. Thousands of successful customer-specific individual tool developments are evidence of the extensive development expertise.

The SIMTEK Group's product range also includes high performance rotary tools from the in-house brand Kaestner-Tools, which impress with their precision, performance and process reliability. The tool portfolio includes drills, countersinks, reamers and milling cutters as well as special and combination tools.

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Hall 3 - Stand: 3C36

WFL returns to AMB

WFL will be exhibiting at AMB once again and visitors can see two MILLTURNs, the M20-G MILLTURN/1,500 mm and the M50 MILLTURN/3,000 mm up close.



The M20-G MILLTURN appeals to customer segments that are looking for a compact and powerful complete machining centre. With the addition of two further centre distance versions, with 2,000 mm or 3,000 mm, the new M20 MILLTURN will soon also be available for longer shaft parts. Special features include the high stability of the machine as well as the holistic motor spindle concept for demanding machining technologies.

Visitors to the trade fair in Stuttgart will be able to watch a technologically challenging chuck part for the aviation industry being machined live. The workpiece has a length of 150 mm and a diameter of 300 mm.

On the M50 MILLTURN/3,000 mm, WFL will provide a live demonstration of the machining of a power generation shaft, as well as turbine blades and fir tree and generator shaft profiles. The demonstration workpiece has a diameter of 600 mm and a length of 2,355 mm.

A focus on machining chuck parts

At AMB, visitors can also check out an exhibit on the Quick-Change System. This automatic system is an innovative WFL solution for horizontal complete machining of chuck parts. It is based on a high-precision, fully variable clamping system. Clamping tools, such as pallets, power chucks, clamping mandrels and, if required, face drivers, can be changed over fully automatically between the machine, clamping device and interim storage, to suit requirements. With this solution, the process for clamping and aligning the workpiece on the clamping pallet takes place on a vertical external clamping table or a setup station. The setup station comes in the form of a stable short taper mount with high repeat accuracy and is equipped with an identical interface to that on the headstock. The clamping tools including the



workpiece can be changed over automatically. Alternatively, when using power chucks, the workpieces can be changed directly in the chuck with the aid of a robot and the workpieces can be transferred to the counter spindle so that complete 6-side machining can be carried out. The advantages of quick and, above all, precise exchange of equipment, including the workpiece, in the machine will be demonstrated using the M80 MILLTURN as an example.



Mobile robot automation with the mobileCELL

The demonstration of a mobile robot installed on an Automated Guided Vehicle (AGV) is set to be one of the highlights at the WFL stand. It will



show how it picks up chuck parts and tools from the warehouse and deposits them on the AGV. The mobile robot will then travel to the machine and, using a camera, scan the QR code to determine its exact position. The workpiece and tool are loaded and then removed again. For tools, there is an HSK-63 gripper and a Baruffaldi tool turret with EPPINGER QUICKLOCK toolholder system for automatic tool changes on the tool turret.

Mobile robots do not need cables or human input. Another key advantage of these robots is that they avoid obstacles, meaning that they can also be used in halls where the setup is constantly changing and where machines and people are moving around. Sensors help to ensure that mobile robots move safely and efficiently between locations and interact safely and efficiently with people, forklifts and other material handling equipment.

Using intelligent software in combination with the relevant automation solutions not only enables workpieces to be loaded and unloaded but also means that machining centres can be supplied fully automatically with tools and clamping devices. As an innovative automation partner to WFL, FRAI is presenting its mobile robot system "mobileCELL", which responds to this trend, at the event. This concept has scope for various expansion stages, making it as future-proof as possible. See what these robots can do for yourself at AMB.

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Hall 6 - Stand: 6A11

World premieres from DMG MORI at AMB

At AMB, machine tool manufacturer DMG MORI will launch several new products. One will be the NLX 2500-700 2nd Generation turning centre, which is now available with the company's own CELOS X app-based user interface on a Siemens Sinumerik ONE control.

Improvements have been made to the stability of the lathe and hence the precision with which parts can be machined. A pair of opposed, high-torque turnMASTER spindles, a maximum turning diameter of 366 mm and a turning length of up to 705 mm enable productive, heavy-duty machining of a wide range of demanding workpieces. Bar capacity has been increased to 105 mm diameter on both spindles, compared with 80 mm on the previous generation. A ± 60 mm Y-axis is provided for off-centre milling, drilling and other processes.

In the area of prismatic machining, DMG MORI will introduce the DMU 85 monoBLOCK 2nd Generation. It combines the proven concept of the previous 5-axis machining centre series with optimisations resulting from customer feedback. Machining accuracy has been raised by the introduction of improved cooling as well as direct-drive ballscrews, which enable positioning accuracy to within five microns.

Workpieces up to 1,040 mm in diameter by 590 mm tall and weighing up to 1.5 tonnes can be accommodated. The integration of additional machining processes such as turning



The NLX 2500|700 2nd Generation twin-spindle, Y-axis turning centre.

and grinding, the availability of automation options, and CELOS X as the basis for digitalised production, all render the machine a versatile production platform.

An extensive variety of spindle options is available, including speedMASTER spindles with speeds of up to 30,000 rpm for achieving high surface finishes or high-torque powerMASTER spindles with up to 430 Nm of torque for heavy-duty machining of titanium, for example.

Following the success of DMG MORI's PH-AMR range of driverless transport systems for transferring pallets autonomously around a factory floor, from a store to machining centres and back again, the company will launch a further model, the smallest PH-AMR 750. It uses the same laser scanning system for navigating safely and reliably in the presence of staff. Integration into the manufacturer's Cell Controller LPS 4 provides simple production planning and control.

Capable of being retrofitted into an existing production environment, the PH-AMR 750 is designed for carrying conventional machine pallets up to 630 x 630 mm, or zero-point workholding systems. Total maximum load is 750 kg and component size is up to 800 x 800 mm. The unit has two levels, allowing it to retrieve a pallet with a machined workpiece and deliver a fresh pallet with fixtured raw material in a single visit to a machine.

DMG MORI is a leading global manufacturer of high-precision machine tools and is represented in 43 countries with 116 sales and service locations, including 17 production plants. In the "Global One Company", more than 13,000 employees are driving the

development of holistic solutions in the manufacturing industry. Under the guiding principle of Machining Transformation (MX), DMG MORI combines four pillars for the efficient, sustainable production of the future: Process Integration, Automation, Digital Transformation (DX) and Green Transformation (GX).

DMG MORI stands for innovation, quality and precision. Its portfolio covers sustainable manufacturing solutions based on turning, milling, grinding and boring as well as ultrasonic, lasertec

and additive manufacturing technologies. With



The PH-AMR 750 automated guided vehicle for autonomous pallet handling.

technology integration, end-to-end automation and digitisation solutions, the company makes it possible to increase productivity and resource efficiency at the same time.

At its production sites worldwide, DMG MORI offers holistic turnkey solutions for the main sectors of aerospace, automotive, die & mould, medical and semiconductor. With the DMG MORI Qualified Products (DMQP) partner program, it offers perfectly matched peripheral products from a single source. Its customer-oriented services cover the entire life cycle of a machine tool, including training, repair, maintenance and spare parts service.

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Hall 10 - Stand: 10D10



The DMU 85 monoBLOCK 2nd Generation 5-axis machining centre.

Strength, precision and innovation from GROB at AMB

GROB-WERKE GmbH & Co. KG will be showcasing its product range at AMB. Strength from the past, precision in the present and innovation for the future. The Bavarian machine manufacturer GROB has been backing this up with proven performance for almost a century. With innovative solutions and a sense for making the right decisions, the company has repeatedly shown why it has been considered a pioneer in German machine manufacturing for years. This is something that visitors to AMB will be able to see for themselves, live and in person. "AMB is one of the most important exhibitions in Germany for us. This year we will once again be taking the opportunity to showcase our innovations to visitors first hand," says Christian Müller, CSO of GROB.

In the universal machining centre segment, visitors can look forward to the 5-axis universal machining centre G350 in combination with the GROB robot cell GRC-R60 as well as the 5-axis mill-turn machining centre G550T. The latter is equipped with the rotary pallet storage system PSS-R900, an additional tool magazine TM373 and an autonomous transport system GMR, ensuring optimal automation and productivity.

Live machining operations will demonstrate the capability of the GROB universal machining centres up close and personal.

Something massive in every sense of the word awaits visitors in the machining technology area. For the very first time, machining centre G920F5, specially developed for mega and giga machining operations with its exceptional dynamics and precision will be present at an exhibition. It is the ideal solution for extremely large machining operations as the machine will demonstrate live at the exhibition stand with the simulated machining of a giga-casting component.

3D printing enthusiasts can also look forward to the presentation of the GROB Metal Printing machine GMP300, which will once again show how efficient production of near-net-shape aluminum components is possible and can open up entirely new possibilities in production.

What's more, the centre of excellence awaits visitors and experts from the various segments with interesting exhibits and an open ear for



discussions. Electromobility, GROB Service, as well as GROB-NET4Industry software solutions will be well-represented at AMB as well. In summary, AMB is a fantastic opportunity to see the latest GROB innovations and solutions and to find out about future developments in manufacturing technology.

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Hall 10 - Stand: 10B12

Fastems delivers CNC automation success at AMB

CNC automation supplier Fastems will showcase its flexible automation systems with experts available to discuss how even the smallest machining shops can succeed in creating automated manufacturing operations at AMB. Each day will feature educational sessions on machine shop productivity and live Fastems CNC automation system demonstrations.

For automating milling machining centres, Fastems is showcasing its entire flexible manufacturing system portfolio via Living Factory, made real by a demo unit of a newly launched Flexible Pallet System (FPS) and the new version 8.2 of the leading automation control software MMS. FPS is designed to automate 4 and 5 axis machining centers, also vertical ones, with 300-630 mm pallets or zero-point plates. FPS is a configurable system with 360-degree design, meaning that the shopfloor space can be utilised from all four sides and the pallet storage is configured to fit maximum number of pallets.

The automation control software MMS is designed to plan, run and control mixed manufacturing and its latest version 8.2 brings new features related to machining sustainability and flexibility in turning machine tool

automation. The myFastems digital service enables manufacturers to take the most out of their Fastems automation systems every day, at the convenience of their own mobile device. Fastems is also displaying its factory MES solution, Work Cell Operations (WCO), that can plan the operation of manual work cells, stand-alone machine tools, and automation systems in a single instance. Factory Cockpit collects, visualizes and analyses production data at factory-level for full production transparency and data-based development.

To help manufacturers improve the cutting tool processes that are often the reason for low CNC spindle utilisation, Fastems experts will discuss the best cutting tool practices and how automation can help in physical tool delivery and managing tool data, including tool wear. To reduce tool investment and minimise tool reworking time, Fastems introduces its tool automation systems for milling machines and is excited to announce the new automation concept for turning machine cutting tool turrets, Turret Tool Changer.



Fastems automation specialists will be available for discussion and demonstrations throughout the week during the show. Attendees will not want to miss the daily learning sessions as outlined below:

How-To-Automate Tuesday, September 10
Customer Journey Wednesday, September 11
Tool Management Thursday, September 12

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Hall 10 - Stand: 10A43

5-axis machining centres for maximum precision and performance

With the aim of meeting customer requirements in the best possible way, Heller has expanded the latest generation of the F series, which was launched at EMO 2023 with the model F 6000. The Heller Open House 2024 was the first opportunity for visitors to see the new model F 5000 up close, including its new features and key components such as motor spindles with HSK-A 63 tool interface and space-saving rack-type tool systems. Due to their modular design, the new high-performance 5-axis machining centres can be optimally configured for a wide range of applications, always ensuring maximum precision and performance in the production of small to medium batch sizes.



In the autumn of 2023, Heller launched the F 6000, the first 5-axis machining centre from its new, modular F series, XYZ: 1,000 x 1,000 x 1,400 mm. About six months later, another model was introduced: the F 5000 with a

work envelope of 800 x 850 x 1,100 mm, X/Y/Z and a smaller footprint. The F 6000 offers the same pallet size of 630 x 630 mm and maximum clamping load of 2,000 kg, as well as the same traversing speeds and other performance data as the F 5000. That is because key components such as spindles, heads and tables of both new Heller F machines are based on the same modular system.

Swivel heads with motor spindles 'made by Heller'

The highlights of the new generation of 5-axis machining centres, optimised for maximum flexibility and precision, include the fundamentally redesigned swivel heads and integrated motor spindles developed and built by Heller, which are equipped with an HSK-A 100 tool interface as standard and are now available with an HSK-A 63 interface as an option. The dynamic swivel head with 5th axis ensures maximum machining performance. Its drive is based on a backlash-free drive concept and delivers impressive precision. Other useful features include an integrated work light and a remaining path indicator as part of the SETUP-Assist function.

Heller offers a variety of spindles to suit different requirements. The Speed Cutting Unit (SCU) in combination with the HSK-A 100 tool interface reaches speeds of 15,000 rpm.



As an alternative, Heller offers the Dynamic Cutting Unit (DCU) designed for universal use with 400 Nm and 12,000 rpm. Combined with the HSK-A 63 tool interface, they reach speeds of up to 18,000 rpm. The Power Cutting Unit (PCU) with a 146 Nm, 8,000 rpm gear spindle will continue to be available for ultra-heavy machining.

Robust kinematics, high precision

Another key element of the F series is the revised drive concept of the linear axes, with twin ball screw drive in the Z-axis and a significantly reinforced X-axis.

Dr Manuel Gerst, head of development at the Heller Group, explains: "With the F 5000 and F 6000, we offer increased dynamics in the linear axes. Additionally, we have further reduced the positional tolerances with the PRO package. The new standard is 5 µm.

also been reduced to seven arc seconds as standard. Overall, this results in top marks for workpiece accuracy and machining time.”

User-friendly and ergonomic

Heller's new F series machines also offer a number of features to ensure high ease of operation. Convenient access to the work area and an LED light built into the head add to the user-friendliness. The new SETUP-Assist actively supports the operator when running in machining processes and helps prevent collisions between machine components and tools.

The new SINUMERIK ONE control generation from Siemens used as standard offers an optimum working environment in combination with the convenient main operating unit in console design with a 24-inch touch screen. Naturally, existing NC programs from Heller F and C machines equipped with SINUMERIK 840D sl can be transferred directly and effortlessly by the user.

To increase process reliability, the Heller developers ensured free chip fall below the spindle and effective removal of chips. Steep stainless-steel covers and a wide chip conveyor also contribute to this.

New rack-type tool magazines with a particularly slim footprint

The new machine design, especially direct chip evacuation to the rear of the machine, has significantly reduced the footprint of the Heller F series. As a result, it is only about 3,700 mm wide. Combined with Heller's new rack-type tool magazines, both machines are still extremely compact while offering high tool storage capacity. Despite the ample tool space they provide, they are almost two metres slimmer than the previous models. This is particularly useful when it comes to automating multiple machining centres. Four machines can now be placed in a row where previously only three could be installed.

The various expansion stages differ only in length. The rack magazines, designed for HSK-A 100 tools with storage capacities of 200, 260 and 340 tools, are no longer than 7,000 mm. They provide 489 storage positions for HSK-A 63 tools.

The space-saving arrangement of the tools is crucial to the compact dimensions, enabling a high packing density. The integrated preferential storage module significantly reduces tool provisioning times in practical use.

What is more, on selected machine sizes

and combined with the HSK-A 100 tool interface, the preferential storage module provides space for tools up to 800 mm in length. Easy manual tool loading is achieved with an integrated rotary station. It allows up to seven HSK-A 100 or nine HSK-A 63 tools to be loaded in parallel to machining. To optimise ergonomics, Heller has also designed the racks so that tools can be loaded by crane at any time.

Full flexibility in use

The expanded range of spindles is likely to be of particular interest to sectors such as the aerospace industry. In addition to the proven versions with HSK-A 100 tool interface, the F 5000 and F 6000 can now be equipped with motor spindles with HSK-A 63 interface. High speeds of up to 18,000 rpm combined with short run-up times make them ideal for machining light metals for example, complex, integral components for aircraft, machinery or vehicles.

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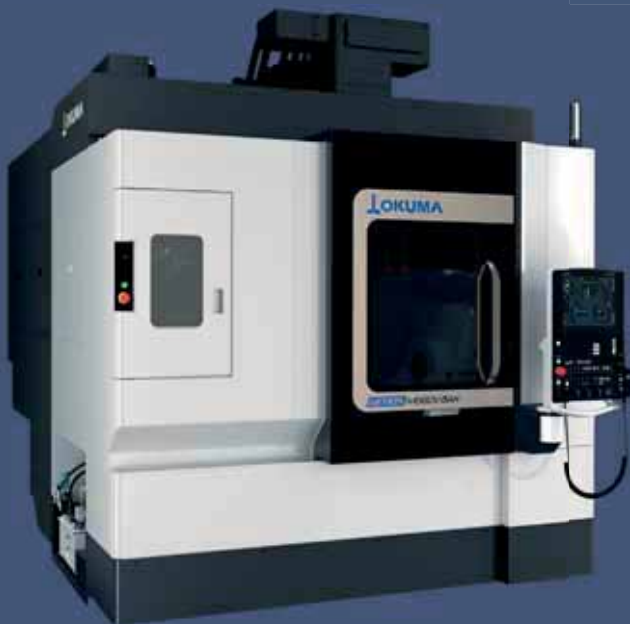


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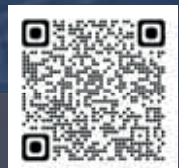
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Motorcycle accessories manufacturer increases automated production of prismatic components



When Drury Precision Engineering was visited in June 2024, the Brother U500Xd1 / System 3R WorkPartner Plus production cell was set up to produce 18 different large and small components in left- and right-hand variants in batches of between 50 and 250.



Machining area of the Brother U500Xd1 30-taper, trunnion-type, 5-axis machining centre.

Established in 2003 as a subcontractor, Drury Precision Engineering started two years later to manufacture its own range of mainly aluminium motorcycle accessories for road and racing bikes and now no longer takes on external machining work. The company sells its after-market bike components globally under the Evotech Performance brand. The last eight years have seen exceptional year-on-year growth in turnover that has necessitated careful planning of production capacity on the shop floor to keep pace with demand.

A user since 2015 of 16,000 rpm, high efficiency machining centres from Brother, Japan, supplied through sole UK and Ireland agent Whitehouse Machine Tools (WMT CNC), Drury has over the years used various manually operated, twin automatic pallet change, 2APC, models of the 3-axis, 30-taper, machines, of which only two remain. That is because, to raise throughput, the company decided in 2015 to transition to automated Brother production cells with the purchase of two 5-axis Speedio M140X2s.

One was equipped with a Brother

four-metre Feedio vision-based, robotic component handling system, while the other was connected to a System 3R WorkPartner Plus storage and handling system



Nick Cooper, director in charge of machining at Drury, holding an Evotech Performance crash protection arm for this year's KTM 1390 Super Duke R motorcycle.

accommodating 180 pallets. The latter cell targeted Op 20 inefficiencies within the factory and was set up so that both Op 10 and Op 20 could be completed automatically for six motorbike parts in left- and right-handed versions, unattended for up to 20 hours.

Now the company has gone a step further along the automation route with the installation in March 2023 of a larger capacity Brother Speedio U500Xd1 5-axis machining centre with pneumatically-operated zero-point pallet location, again served by a WorkPartner Plus storage and handling system, but this time for 60 heavy-duty pallets.

It proved so successful that a second, almost identical cell has been ordered for delivery in October 2024, complete with its own WorkPartner Plus, as sharing one storage system between the two machines would reduce unmanned running to below the required 14 hours per machine. The only difference with the second U500Xd1 is that it will be fitted with Brother's latest D00 CNC system with a 15-inch screen, monitoring of automatic tool change and

machine load and most importantly capability for full 5-axis machining, whereas the control on first machine interpolates only four axes simultaneously.

Nick Cooper, the director in charge of machining who runs the company with partners Dan Rack and Chris Vines, comments: "These latest Brother machines have a larger working volume than the M140X2's, so we can produce bigger components like crash protection products and some tail tidy parts completely in two operations."

Drury is a power user of Brother machines that has the ear of the Japanese manufacturer via WMT CNC. Suggestions made have been incorporated into the U500Xd1, one of which was to raise the tool capacity in the turret from 21, as in Brother M-series machines, to 28. Nick Cooper describes this as a massive benefit, as more jobs can be produced without retooling and there is extra space for sister tool exchange during unattended production.

Another benefit of having more cutters available is that additional refinements can be machined into the bike components so that reverse engineering and copying of Evotech Performance products by unscrupulous overseas companies becomes more difficult. The time lost by introducing a couple of additional tool changes is minimal, as exchange time is 0.6 second and chip-to chip is only double that, while spindle acceleration to 16,000 rpm is blisteringly fast at 0.2 second. Full 5-axis interpolation on the next U500Xd1 will further expand the introduction of design enhancements and will also present opportunities to decrease component size and weight.

As with all but the earliest Brother machine on the Alford site, the latest U-series machine has been delivered with a BIG Plus face-and-taper contact spindle interface, providing rigidity for achieving excellent surface finish. Cosmetic appearance of Evotech Performance products is an important criterion for brand reputation and maximising sales.

In some ways, Drury is a victim of its own success. Where the early product range was mainly restricted to tail tidies, radiator guards and crash protection items, more recently satnav mounts and guards for brakes and headlights have been added. The company already has a large number parts on its system and a recent doubling of in-house designers to four means that the number will grow ever more quickly. Hundreds of new products are introduced every year, but those discontinued are counted in tens.

The earlier production strategy in Alford was to maximise Op 10 cycle time in the first two automated Brother cells and minimise Op 20 for completion on manually loaded machines. To illustrate the disparity between the operations, Op 10 for a BMW tail tidy is 40 minutes whereas Op 20 is just 50 seconds. Re-engineering all existing jobs to equalise the operations for automated manufacture would be too time-consuming and will only be done in a few cases, hence the decision to retain the two Brother APC machines without automation.

The future for Drury is to increase the complete manufacture of components in automated production cells using balanced operations and this is how future jobs will be programmed. The company already uses a pair of HSK-25, 40,000 rpm gantry mills for particularly intricate work and Nick Cooper is currently investigating with WMT CNC the potential use of a high-speed electric spindle on the Brother machines. It will save wear on the machining centre spindles when using small diameter ball nose cutters to scan fine surface finishes during cycles that improve the cosmetic appearance of the bike after-market products.

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Three common misconceptions about 5-axis machining

“It’s too expensive.” “It takes too much training or skilled labour.” “It’s more complex than I need.” These three refrains are often cited as reasons to not to invest in machines capable of 5-axis milling, but are they valid concerns? Let’s take a closer look at these common myths and get some insights from current Hermle owners about how 5-axis machines are making a positive impact on their businesses.

capable of completing more sophisticated higher-margin jobs can have on the bottom line. The speed, precision and ability to compete for a wider range of more profitable jobs and produce higher quality components makes a 5-axis machine a long-term investment into a company’s future success.

“I feel that we’re getting to the point where if you’re not doing 5-axis work, it’s not that shops like mine have a competitive advantage, it’s that the other guys have a

relying on people to do it, because there is a labour shortage. It’s in every industry. To help compensate for that and to expand our business, we’re really happy with our Hermle machines,” says John Mullen, president of North Hartland Tool in North Hartland, Vermont.

In addition to reducing the demands for skilled labour, training current employees to set up and program a 5-axis machine is no longer as daunting as it may have been in the



Cost

It’s true that 5-axis CNC machines typically have higher initial purchase costs than some less sophisticated 3-axis machines. But consider the true end-to-end cost of ownership over the lifetime of the machine, as well as the bigger financial picture.

One reason 5-axis machines cost more is because they are built solidly to handle the demands of high-precision work.

Ultra-precise rotary tables and rigid spindle heads are required to achieve these results, which comes at higher costs, but also results in higher machine reliability, longer service intervals, less down time, longer tool life and more consistent, repeatable results. If your 3-axis machine requires additional add-ons to run your jobs, wears out tooling at a faster rate, or is often out of service, is it really saving you money?

In addition to the purchase and operating costs, operators should also consider the impact that investing in a 5-axis machine

disadvantage. People think it’s a big leap into 5-axis and I’m not going to say that it isn’t, but I feel that if you don’t do it you’re going to get left behind,” says Hermle customer, Quinn Pultz, owner of 74Weld in El Cajon, California, USA.

Labour

It’s no secret that the labour market is tight and one of the biggest challenges facing large and small manufacturers these days is hiring, training and retaining highly skilled labour. With the increasing use of automated solutions and user-friendly controls, concerns about the learning curve required to run a 5-axis machine may be out-dated. In fact, it’s likely that running a machine with one of Hermle’s industry leading automation solutions may actually reduce your labour and training costs.

“A challenge we see in tool making, or just in general, is that we have to advance what technology can do for us as opposed to just

past thanks to the latest generation of controls and software offered either natively by Hermle or from third-party companies such as HEIDENHAIN’s new TNC-7 that are among the simplest and most intuitive in the industry.

Complexity

5-axis machines are capable of tackling the most challenging machining operations with the highest degree of accuracy and precision, but not every job rises to that level of sophistication. Is a 5-axis machine “overkill” for a shop that mainly relies on the capabilities of traditional 3-axis machines?

With advances in programming software and automated controls, in most cases, a modern 5-axis machine is no more difficult to operate than current 3-axis machines. Operator skills are directly transferable and many current operating systems incorporate extensive customisation features that allow the controls to be tailored closely to the

operator's needs and skill level. These controls also reduce the amount of training required to operate the machines.

In addition to providing post purchase technical and service support for its machines, Hermle USA also prides itself on providing best-in-the-industry training and technical support for the people who use its machines.

"Hermle's support really shines. Any time I have reached out with a problem, tech support has gotten back to me immediately and knew exactly what I was talking about. It gives you a lot of reassurance on the production side knowing that you have a machine builder behind you that knows their product that well," says Leo Rosene, a mechanical engineer at 5th Axis, a CNC job shop in San Diego.

The big picture

Stepping up to 5-axis machining is a big commitment for many machine shops, but it's a decision that can also pay big dividends in return. Don't let misconceptions or outdated information get in the way of making the right decision for the future of your business.

HERMLE showcasing five machining centres at AMB 2024

HERMLE will present five machining centres from its Performance Line and High Performance Line series at AMB. Two machining centres are automated and one machining centre demonstrates 13 technology solutions on a single component.

Needless to say, two 5-axis machining centres with automation solutions will be presented. The proportion of HERMLE machining centres delivered with automation solutions has now risen to over 50 percent. Both an RS 1 robot system adapted to a C 32 machining centre and an HS flex handling system adapted to a 5-axis C 42 Generation 2 machining centre will be on show.

GEN2 is the ongoing transition towards a new machine generation of the future. Numerous software and hardware components now feature cutting-edge technology. The energy efficiency of the entire machine, cooling units of the switch cabinet and spindle, has been further enhanced in combination with the



high-pressure systems. In the future, many of the auxiliary units will transition to frequency-controlled drives, allowing for demand-driven and thus more energy-efficient closed-loop control. In addition to the financial benefits for customers, this also allows HERMLE to make a real contribution to climate protection.

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Colossal Sodick machine meets challenges of material manufacturer

When global materials engineering group, Wall Colmony needed to modernise and upgrade its EDM machining capacity, technical capability and productivity, the multi-national manufacturer instantly turned to Sodi-Tech UK and the Sodick brand of wire EDM technology for a solution. As the industry benchmark in the manufacture of Colmony® surfacing and Nicrobraz® brazing products, precision castings, coatings and engineered components, Wall Colmony had three key areas of concern in its wire EDM department. The installation of a Sodick ALC800G Premium wire EDM machine immediately resolved them all.

As a company that manufactures components for quality critical industries such as the aerospace, automotive, oil & gas, mining and energy sectors; precision, repeatability and cut quality are a necessity for the Michigan-based company with European headquarters in Pontardawe, South Wales. It is this market position that led Wall Colmony to invest in the leading Sodick brand, a name synonymous with quality, performance and prestige that boasts an incredible reputation in all the sectors the Swansea company operates.

The challenges

With two ageing EDM machines that both had table sizes of around 300 by 400 mm, any large work outside this dimensional envelope either had to be subcontracted out or turned away. Secondly, like any prestigious

manufacturer, Wall Colmony had deadlines and capacity challenges. It needed a more productive solution that could reliably re-thread wire, run unmanned and improve cutting times. The third challenge was overcoming poor precision levels. With its existing EDM machines over 10 years old, Wall Colmony needed precision levels to tolerances within +/-5 microns with impeccable levels of repeatability. It was Sodick that had the answer with its ALC800G Premium wire EDM machine.

Looking at why the company invested in a Sodick ALC800G Premium wire EDM machine, Wall Colmony process engineer Kevin O'Connor recalls: "Our existing machines were ageing, and the programming side of manufacturing became very dated. We were also facing increasing maintenance costs and machine downtime."

Supporting this opinion, Aaron Patton, EDM machinist at Wall Colmony says: "The programming of our EDM machines was taking too long and the cutting process was extremely time-consuming. Our management was not particularly happy about this, as they wanted parts machined faster. Another issue was capacity, we needed to put large parts on the machine, and we couldn't do this with our existing machines. We were invited to the Sodick facility in Warwick for a day to look at available options. We were 'wowed' by the showroom, the hospitality and the expertise on hand to answer all of our questions. Sodick gave us all the right answers and they certainly impressed us."

It was this visit and a longstanding relationship that were the foundation blocks to the acquisition of the new Sodick ALC800G Premium wire EDM machine. As Kevin O'Connor continues: "Sodick has had a relationship with Wall Colmony dating back 30 years. We went on a fact-finding tour of Sodick as well as other

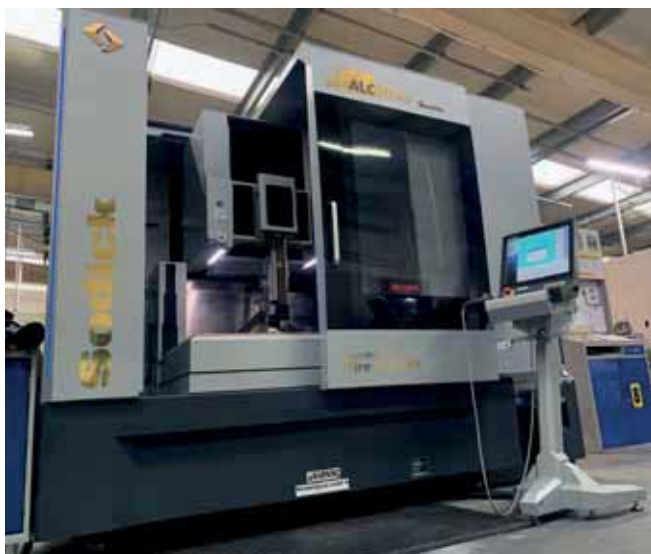


manufacturers to see if they could supply us with a suitable machine. As we produce our specialist alloys, we needed to know if they had a machine capable of cutting our materials. So, we took samples of our alloys to Sodick for them to prove that the machines could essentially do 'exactly what they say on the tin'."

Sodi-Tech UK technical sales manager, Conor Plaskitt adds: "The reason Wall Colmony decided to invest in the Sodick ALC800G Premium supplied by Sodi-Tech is to increase the capacity of what they can cut on the machine and take on larger components. This is one of only two machines of its type in the UK and from a market perspective, it really gives Wall Colmony an edge over their competition with regards to the service they can offer."

Concluding on the purchase, Kevin O'Connor says: "The introduction of the Sodick ALC800G Premium machine means that we can wire EDM more complex parts than we were capable of before. This will benefit our company financially as we move forward. It was undoubtedly the correct machine to purchase. Technically, it can achieve everything we need it to do."

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New Victor HMC provides exceptional performance

Widely accepted as the most robust, reliable and productive machine tools in their class, the Victor brand from GM CNC is without doubt a brand in a class of its own. Now, Oldham-based GM CNC is introducing the latest innovation from Victor, the new generation Vcenter NH5000 4-axis horizontal machining centre.

Perfect for machining large parts up to 800 mm in diameter by 1 m high, the extremely spacious new HMC offers class-leading productivity, kinematics and flexibility, all credit to the exceptionally stable foundations of the machine. As a 13,000 kg powerhouse, the compact new Vcenter NH5000 has been designed for highly dynamic cutting with rigidity and performance levels that are the envy of its rivals.

For example, Victor has re-designed the column to locate the support closer to the cutting head to increase rigidity and machining performance. Additionally, the T-shape structure with a slant-style column has removed weight and inertia, creating a machining head that is faster, more nimble and more responsive than previous machines. This also facilitates faster tool and pallet changeovers, which is demonstrated by a tool change of three seconds and a pallet change time of just 6.5 seconds.

From a specification perspective, the Vcenter NH5000 has X, Y and Z-axis travel of 800 by 700 by 800 mm with rapid feed rates of 48m/min in all axes. With 45 mm diameter ballscrews on all axes and 55/45/45 mm roller-type linear motion guideways, the stability of the machine is guaranteed. Likewise, the direct drive 12,000 rpm 18 kW spindle with dual low and high winding showcases astounding rigidity and stability with its BBT-40 Big-Plus face and taper dual contact spindle system that extends tool life by minimising vibration. This spindle taper connects to a chain-type tool magazine that offers 40 tool positions as standard with 60 or 90 tools as an optional feature.

The automatic pallet change system incorporates two 500 by 500 mm pallets that are hydraulically driven with a chip-to-chip time of 11 seconds. The B-axis incorporates four ground cones with air blow through the cones as well as taper pins and bushes that provide rotational positioning within 1 degree. Optionally, customers can

select hydraulic ports through the B-axis pallets and a CNC pallet that offers a positional accuracy of 0.001 degrees.

Supplied as standard with a FANUC Oi-MF Plus CNC that has a 10.4-inch screen and manual guide with 2 GB CF card, the control system offers Victor's GUI, VSS macros, ECO design for tool calibration, alarm display with diagnosis and tool management. Optionally, customers can choose a 15-inch screen, tool breakage detection, a Renishaw GUI, tool load monitoring, cylindrical interpolation, AI contour control with 400 blocks and much more.

As you would expect from a leading brand, the base model of the exciting new Vcenter NH5000 includes a spindle oil chiller, fully enclosed splash guards, scroll-type chip conveyor, levelling blocks, automatic pallet changer, spindle load meter, rigid tapping and chip conveyor with cart. From an options perspective, the list is extensive with an air-conditioned electrical cabinet, through spindle coolant, 60 or 90 position ATC, 15,000 rpm spindle, T-slot pallet, tool length and workpiece measurement, linear encoder feedback and multi-face



table tombstone fixturing to name a few. If you want to take your machining performance to the next level with the new Victor Vcenter NH5000, contact GM CNC for further information.

With decades of expertise in the machine tool industry, GM CNC Ltd is the sole UK and Republic of Ireland agent for the Victor range of CNC machine tools, plastic injection moulding machines and robotic handling equipment.

By incorporating the Victor brand into the highly dynamic GM CNC business model, manufacturers now have the opportunity to invest in industry-leading technology that is backed by decades of machine tool expertise. This expertise is woven into the very fabric of the business. So, whether it's the sales, application support and advice or the service engineers that comprehensively cover the country to keep your spindles turning, it has a team of experts that will service all your machine tool needs.

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'The Beast' devours everything placed before it

For many subcontract machine shops, it's a challenge to know which machines to purchase to handle the work that comes through the door. Sometimes, the type of work dictates the products needed but, on other occasions, it's the development of the company to become more efficient and take on previously impossible work that drives purchases.

For Ian Gibson, managing director of Vision Precision Engineering, the latter scenario led to investments in XYZ products on its shop floor. Starting the business with his uncle, Dennis, after they were made redundant, they managed to bring the machines they used to their new business and set about finding work, a significant challenge.

Using existing contacts, it found an unlikely source of work making parts for coffee machines in Costa Coffee stores. "We were approached to make developments and improvements to the machines in the stores so that the Barista's could not make mistakes in loading the cleaning products used in the machines," says Ian Gibson. This influx of work prompted the business to seek improvements in its manufacturing processes, leading it to XYZ for a solution to make parts faster than on its traditional milling machine. Ian Gibson continues: "Steve Cox, the XYZ area salesman regularly called in and, when the company needed to make an investment in new equipment, he helped us to select the right machine which was an XYZ 710 vertical machining centre complete with a 4th axis."

This investment created a new dilemma for Ian Gibson. Now, making parts faster created a bottleneck in the secondary operations needed on the parts. This led to further investment in a smaller machining centre from XYZ to handle the increase in demand.

"Even with the two machines and 4th axis fitted to the mill we were still falling behind in supplying parts to our customers so again we contacted XYZ to see how we could improve our manufacturing further," comments Ian Gibson. The answer this time was to invest in an XYZ TC 320 LTY driven tool lathe. "The ability to produce milled and drilled features on our turned parts was taking up capacity on the original mill, so it made sense to purchase a machine that could produce our parts in

one hit which is why we decided to invest in the TC 320 LTY product."



With the hardened box way built machine with its Y and C axis, along with driven tool capability in place, Vision Precision set about getting the most out of its latest purchase.

"Now we have this machine available to us, we have been able to quote for work that previously we could not tackle," observes Ian Gibson. This is partly due to the maximum turned diameter of 320 mm and the maximum turning length of 550 mm. With a bar capacity of 78 mm, it also means that Vision can produce more parts from bar rather than billets, and with a barfeed purchased for the machine, lights-out machining has now become a regular occurrence.

"The machine just seems to tackle everything we throw at it." Ian Gibson states. "Big or small, it does it all and the material removal rates are phenomenal. From 20 mm depths of cut when turning, to drilling a 70 mm diameter hole with a modular drill in super duplex material, is proper justification for us giving the machine its nickname of 'The Beast'. When you consider we were only running at 200 rpm when performing the drilling and it was only using 25 percent of the available spindle power it's a well-built machine with great power and it holds the tolerances we demand of it all day, every day."

Ian Gibson concludes: "It's not only the machine that's important to me but the whole package I get from the company I buy my equipment from. From the sales process through to the installation, training and the ongoing support from XYZ's customer support team, the whole experience has been second to none and that's why I purchased a CT65 HD to support the work of 'The Beast' and, also produce some of the smaller parts we manufacture."



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More multi-axis turning options from Dugard

Following the announcement that the MYLAS range of multi-axis turning centres will now be available in the UK from Dugard Machine Tools, the latest machines available from this high-end brand is the DY Series of twin-spindle double Y-axis multi-tasking turning centres. Rapidly following the successful UK launch of the MYLAS DT Series of twin-spindle twin turret turn/mill centres, the double Y-axis configuration of the DY range presents manufacturers with more flexibility than ever before.

As a leading UK machine tool supplier, Dugard is delighted to present the MYLAS range of high-quality technologically advanced machines to the UK. With the DT Series already winning plaudits among the UK's turned parts manufacturers, the arrival of the DY Series with two Y-axes will present new opportunities to end users in the aerospace, automotive, medical, hydraulics, electronics and general subcontract manufacturing arenas. Like the DT Series, the DY Series is available in three variants, the DY42, DY52 and DY60. Each designation specifies the maximum capacity for the main spindle bar turning.

From a specification perspective, axis travel is 175 mm on X1/X2 axes with 240 mm on the sub-spindle whilst Z1/Z2 travel is 450 and 500 mm respectively with +/-35mm in the Y-axis. The DY42, DY52 and DY65 have a

swing over the saddle of 260 mm with a maximum bar turning length of 135 and 150 mm on the main spindle with 60 mm on the sub-spindle that provides a maximum turning length of 350 mm.

Like all MYLAS machine tools, the DY Series has a class-leading robust construction with oversized precision ground boxways on all axes that deliver dynamic rigidity and precision with heavy-duty cutting capability. This is underpinned by the stress-relieved Meehanite casting that maximises vibration dampening that supports the heavy-duty precision spindle design that provides exceptional thermal stability and power.

Looking at the kinematics of this fantastic new addition to the Dugard portfolio, front machining is supported by a 7.5/11 kW spindle motor with a BMT 45 12-station tool turret that can accommodate up to 24 tool positions. The sub-spindle machining is provided via a 14-tool gang slide. This incorporates 3 cross live tool positions and 3 live facing tool positions plus 3 OD and 5 ID tooling stations. With the second Y-axis for back machining being supported by a 14-tool slide, the DY Series presents 38 tool capacity with the facility for superimposed cutting of complex workpieces that can be machined with remarkably fast cycle times. With the slides on precision linear guides, customers are guaranteed the most precise, repeatable



and high-performance results on the market.

As standard, the exciting new MYLAS DY Series is supplied with a 12-station main and 14-position gang tooling system, collet chuck, workpiece ejector, auto-lubrication and coolant system, FANUC CNC control, sub-spindle internal coolant and air-blow, auto power-off, part catcher and much more. From an optional perspective, customers can configure the MYLAS DY Series with options that include a selection of CNC control systems, 6" and 5" power chucks for main and sub-spindles, high-pressure coolant of 50 or 100, chip conveyors, oil mist collector, transformer, regulator and live and static toolholders. With an extensive list of options, incredible flexibility and rigidity combined with a brand reputation that is the envy of the multi-tasking turning fraternity, the MYLAS DY Series is a cost-effective high-performance alternative to take a closer look at.

Established in 1939, for over 30 years Dugard has been one of the largest importers of CNC machines into Europe and it has a large CNC machine sales force to sell directly in the UK and Ireland. Dugard are the exclusive UK dealers for premium brands such as Kitamura, SMEC, Hanwha, Ibarmia, Pinacho and Chevalier as well as its own Dugard range. It has a wide range of machinery on display at its head office in Hove and welcomes the opportunity to offer demonstrations at your request or to arrange a visit by one of its area sales managers located around the UK.

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Big investment delivers the goods

Large-capacity, gantry-type Zayer milling machine delivers improved productivity and increased processing capacity and capabilities for leading digital printing machinery OEM.

KERAjet, a leading, international digital printing machinery manufacturer has recently invested in a new, large-capacity gantry-type milling machine from Zayer.

The machine, an ALTEA 8000, with its large X-, Y- and Z-axis travels, 8,000 mm, 4,350 mm and 1,500 mm, respectively and an 8,000 mm x 3,000 mm fixed table, is being used by the company to machine high-precision, complex components that go into its digital printing machines.

These machines, with their advanced electronics and innovative and intuitive software, are aimed at customers in the ceramics, textiles, glass, tableware sectors and are renowned for their accuracy, flexibility, speed and reliability. There is high demand for the company's digital printing solutions and to date, KERAjet has sold over 4,000 machines in 44 countries throughout the world.

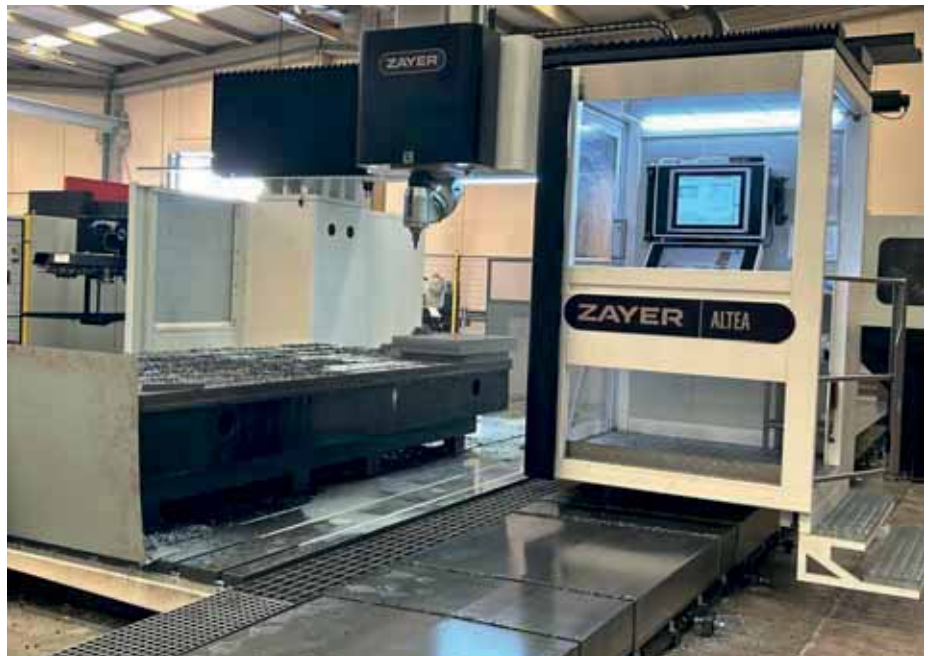
The investment in the large ALTEA 8000, with its gantry configuration, has helped KERAjet's business objective to achieve self-sufficiency, bring machining/manufacturing operations in-house and control methods of production.

The new machine enables the company to produce, more quickly and efficiently, production components, as well as wear and replacement parts.

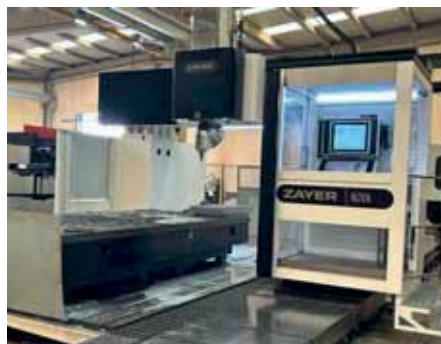
Jose Luis Granell, KERAjet's head of the machining workshop says: "Our digital printing machines are accurate, but such precision can only be realised as long as the components that go into them are machined to the tight tolerances and exacting surface finishes, we and our customers expect and demand.

"It is worth bearing in mind that when it comes to our print head unit technology, our machines are working day-in, day-out for customers achieving accuracies in the hundredths of a millimetre and even the nanometre range."

The ALTEA 8000, since being installed, is working an eight-hour shift but, if repeat components are being machined and the process used is secure and repeatable, it can be left to run unattended and operate through the night. This significantly improves



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KERAjet's productivity and its ability to hit customers' stringent delivery schedules.

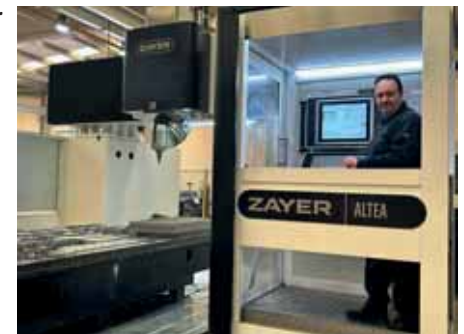
In addition to its rigid design and build and large working envelope, the ALTEA 8000 has also increased KERAjet's machining flexibility.

Jose Luis Granell continues: "We can use the machine in pendulum mode machining workpieces up to 4,000 mm in length in both work zones as well as machining longer parts using the full stroke of the machine.

"In addition, the machine is equipped with a number of heads, 30- and 45°.

"When machining aluminium, for example, we use the 30° head with electro-spindle at 18,000 rpm. We use the 45° head when machining steel and select the electro-spindle, if and when superior surface finishes are required."

The ALTEA 8000 was supplied to KERAjet with a number of onboard software apps that



have help improve the machine's performance and process reliability.

These include the iCAL App which, via automatic calibration, ensures the machining of highly-accurate geometries and the FAST MACHINE PROTECTION App that eliminates spindle/tool collisions.

Of particular benefit are the remote, real time diagnostic and support that Zayer provides to KERAjet and the HORUS NX facility that provides KERAjet with access to important machining and process data for future decision making.

Jose Luis Granell concludes: "We have developed strong relationships with Zayer and they pulled out all the stops to get us the ALTEA 8000 in double-quick time."

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New development benchmarks in milling

Modern milling, as a metal cutting method, originated in the late 18th century and quickly became one of the primary machining technologies. Today, it is hard to imagine any machine shop without milling machines on the shop floor. Milling is an essential process in manufacturing.

Milling, is an integral part of machining technology, driven by the increasing demands of manufacturing. However, there are specific aspects that uniquely impact the advancement of milling.

Today, we are witnessing significant changes in manufacturing that will have profound consequences on the development of directions of milling. These changes are driven by various factors, such as the increasing accuracy of metal shaping through precision investment cutting and precision forging, the widespread adoption of 3D printing, the growing usage of new composite and sintered materials, the need to enhance productivity in machining hard-to-cut superalloys and titanium grades and the strong focus on electric and hybrid cars in the automotive industry, contributing to these changes. In addition, advancements in multi-axis machine tools have opened up new possibilities for precise machining of complex parts and have enabled the implementation of new cutting strategies to improve productivity. In modern technological processes, there is a tendency to significantly reduce the amount of machining stock intended for milling operations, while simultaneously increasing the requirements for surface finish and accuracy.

Therefore, the advancement in milling is driven by the need for higher productivity, more precision, and sustainability in milling operations. Consequently, the main developments in milling can be characterised as follows:

- Fast metal removal focuses on boosting the Metal Removal Rate (MRR) to achieve higher productivity by significantly increasing cutting speed or feed per tooth. This is achieved through techniques such as High-Speed Milling (HSM) and, in rough operations, High Feed Milling (HFM).
- Precision milling provides higher accuracy in milling operations.
- Multi-axis milling is characterised by the utilisation of multi-axis machining centres to enable complex milling operations.
- Adaptive milling aims to develop intelligent

milling systems that can adapt to changing conditions during the machining process.

- Sustainable milling strives to reduce the environmental impact of milling operations. It involves the development of eco-friendly cutting fluids, recycling and reusing of materials and the use of energy-efficient machine tools and milling cutters.

The success in these areas relies on the synergy of several key components, namely machine tools, cutting tools and Computer-Aided Engineering (CAE) systems. High-speed milling, for instance, necessitates machine tool technologies capable of handling exceptionally high rotational velocities, as well as advanced cutting materials and coatings for milling tools. Simultaneously, enhancing the precision of milling operations requires not only milling cutters with tighter tolerances but also improved control systems and linear motor drives. In the case of multi-axis milling, the breakthrough lies in the addition of more effectively controlled axes of movement, along with the application of appropriate cutting geometries for milling tools. Adaptive milling, on the other hand, incorporates innovations such as the use of state-of-the-art monitoring systems, high-sensitive sensors and efficient algorithms to optimise cutting data and tool paths in real-time. Moreover, sustainability advancements require energy-efficient milling strategies that employ suitable machine tools, cutting tools and eco-friendly coolant techniques.

Indexable milling reflects the ways of advancement that feature exchangeable cutting inserts in machining operations:

- Advanced insert materials is an ongoing process to improve the cutting materials for indexable milling inserts including the development of advanced carbide grades, ceramics and ultra hard cutting materials.
- Coating technologies with continuous R&D focuses on new coatings to improve wear and heat resistance while enhancing lubricity.
- Progressive cutting geometry optimises cutting geometry and chip forming topology of inserts to improve cutting action, diminish cutting forces and chip flow in milling operations.
- The effective utilisation of cutting material incorporates intelligent insert design to provide maximum indexable cutting edges without reducing cutting capabilities.

In addition, the distinct course on smart manufacturing requires the integration of digitisation into milling operations and milling tools. Referring to milling tools, digital twins and appropriate software applications have already become the "must" features of a comprehensive tool range.

How can cutting tool producers rise to the challenge? Which milling tool solutions will provide the right answer to the emerging trends? Is the field of cutting tool manufacturing, often considered conservative in metalworking, capable of delivering a timely response to current demands? The recent advancements from ISCAR provides greater insights to these subjects.

High speed trochoidal milling involves following a curvilinear tool path to maintain a constant load on the cutting edge, thereby eliminating sudden spikes in load during material entry. This strategy is highly efficient for milling deep slots, pockets, and cavities, especially in cases of low machining stability. Additionally, trochoidal milling has shown excellent results when working with challenging materials such as hard steels or High-Temperature Superalloys (HTSA).

The CHATTERFREE EC-E7/H7-CF is a new family of multi-flute solid carbide endmills, which are intended specially for trochoidal milling techniques. The geometrical design of the family includes different helix angles and variable angular pitches to improve dynamic behaviour. These endmills are available in a range of cutting length-to-diameter ratios (Fig. 1).



Fig. 1: The design of seven-flute solid carbide endmill for trochoidal milling features the CHATTERFREE concept to improve vibration strength.

With the help of modern machine tools, highly productive milling of aluminum alloys can be achieved at extremely high spindle speeds, reaching up to 33,000 rpm. To meet this machining challenge, ISCAR has developed 90° indexable milling cutters that accommodate large-size inserts for a depth of cut of up to 22 mm (.870") (Fig. 2). The cutters have been specifically designed to eliminate insert radial displacement, which may occur due to the high centrifugal forces generated during very high rotational speeds.



Fig. 2: Indexable milling cutters for machining aluminum at extremely high cutting speeds are specifically engineered to eliminate insert radial displacement, which may occur due to the high centrifugal forces.

High Feed Milling (HFM) has become a widely adopted method for efficient rough machining of both complex and flat surfaces. ISCAR offers a comprehensive range of HFM

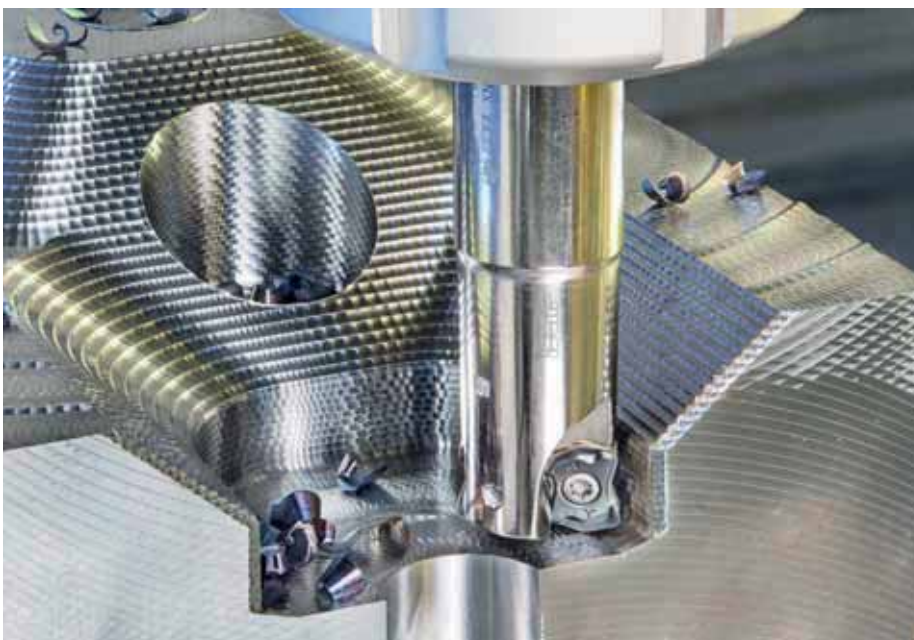


Fig. 2: Indexable milling cutters for machining aluminum at extremely high cutting speeds are specifically engineered to eliminate insert radial displacement, which may occur due to the high centrifugal forces.



Fig. 4: ISCAR's program for barrel-shaped endmills incorporates various three design concepts.

products to meet the demands of various industrial applications. Recently, the range has been expanded with new additions. The LOGIQ-4-FEED family of HFM tools, featuring specific bone-shaped inserts (Fig. 3), now includes tools with larger inserts. These new products significantly broaden the application range, particularly in high feed milling of large-sized cavities in the die and mould industry. Another addition is NEOFEED, a family of HFM tools with double-sided square inserts, providing

eight cutting edges for improved cost-effectiveness.

Advancements in multi-axis machine tools and CAD/CAM systems have given rise to precise milling of complex shapes with minimal machining stock, using segment or barrel-shaped endmills. ISCAR's program for these endmills encompasses three design concepts: a solid carbide design, an exchangeable MULTI-MASTER head and a one-insert approach (Fig. 4).

When milling High-Temperature Superalloys (HTSA), cutting ceramics offer the ability to substantially increase cutting speeds. In fact, cutting speeds can reach up to 1,000 m/min, 3,300 sfm. ISCAR's latest ceramic tools include ceramic solid endmills and indexable milling cutters with double-sided round ceramic inserts. The double-sided design is aimed at maximising the utilisation of ceramic material grades, such as "black" ceramic, whisker-reinforced ceramic and SiAlON, a type of silicon-nitride-based ceramic.

These selected examples serve as good illustrations of the main directions of advancement in milling tools. As new demands arise, new solutions are required and these new challenges will fuel the search for innovative tool designs.

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MAPAL gains foothold at Krämer+Grebe

Added value in mould making



To stay competitive in die and mould making, efficient production with a high degree of process reliability is vital for Krämer+Grebe GmbH & Co. KG of Biedenkopf-Wallau, Germany. Tool suppliers are also judged by their application engineering. MAPAL has earned trust in this respect with its reamers and high-feed milling cutters.

Over the course of its company history of over 100 years, Krämer+Grebe has reinvented itself time and again. The company was founded at the beginning of the 20th century together with a variety of specialised companies around the important ironworks in Germany's upper Lahn River valley. The focus was on classic model assembly in the early years. As time passed, machine engineering became more and more important. The company-built foundry machines and prospered by producing meat-processing machines.

In the 1980s, Krämer+Grebe sold its machine engineering department to once again concentrate on its core competency, model assembly. Over time, this gave rise to today's die and mould making, which is exclusively done for the automotive industry. Clients include large car manufacturers, suppliers and foundries. To also serve its international sites, Krämer+Grebe pursued the path of globalisation and established a presence abroad.

MAPAL only has a relatively small presence among mould makers in Wallau, but has



already been able to ensure smoother processes, as confirmed by production. The cooperation between both companies has been ongoing for five years. It began with reamers from the MAPAL Multi-Bladed Reamer Centre of Competence. MAPAL was the only manufacturer that Krämer+Grebe could find that was able to produce these tools, which are up to 600 mm long, at the required high quality and deliver them by the desired deadline. The bores at H7 quality are needed to insert heating cartridges in low-pressure moulds. The tool manufacturer's application engineers left a lasting impression. They provided user training on site and helped commission the process on the machine, which was running very smoothly from both sides within a very short period.

As part of process optimisation, Krämer+Grebe parted company with some of its former tool suppliers of which there were many. Dominik Gessner, mechanical

manufacturing process optimiser, describes the selection criteria: "Today, the price of the tool is no longer the deciding factor. Instead, it comes down to a sensible collaborative partnership and above all application engineering. This is the alpha and omega for us and the knock-out criterion for a supplier. I don't just want a tool, I also want added value that I can apply to my processes." He asserts that close cooperation with a partner is very important for continuous improvement.

After the good experience with the reamers, MAPAL also made his shortlist when it came to improving processes with high-feed milling cutters. Tools were needed with long tool lives that could generate large chip volumes during roughing, thus reducing production times. The milling cutters had to be extremely reliable to allow for multi-machine operation.

Krämer+Grebe uses the high-feed cutting for pre-roughing before the parts are sent to heat treatment. The mould makers in Wallau took a systematic approach to finding the best tool for the job. They put all the high-feed milling cutters from potential suppliers to the test under realistic conditions. MAPAL entered the race with the indexable insert milling cutter NeoMill-4-HiFeed-90, a standard tool which the tool manufacturer offers in the diameter range from 16 to 200 mm. Krämer+Grebe picked the version with the milling cutter with six indexable inserts for the test.

The results were pretty clear: the NeoMill milling cutter achieved the highest material removal rate and longest tool life. The mould makers noted uniform wear on the tool cutting edges without macroscopic flaws.

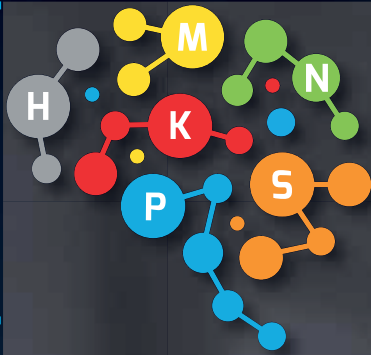
For the tool manufacturer, die & mould is a relatively new segment. It previously concentrated on the most precise and efficient machining of pre-cast parts possible. Now, MAPAL is getting involved earlier on in the process and, together with mould makers, it ensures that the mould is produced optimally. Both sides have already learned something new and ameliorated themselves by collaborating on the design of new parts.

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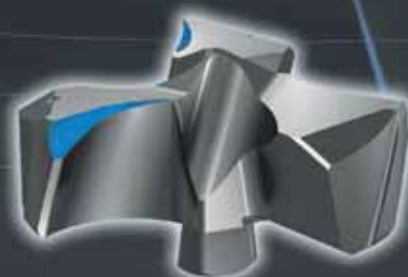
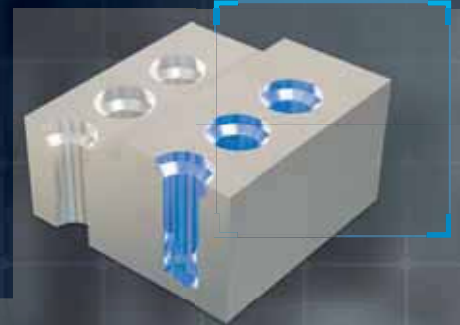
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Guhring 'powers-up' productivity for EV manufacturer

As a machine tool builder that manufactures high-end 4 and 5-axis machines for the global market, Heller UK is frequently involved in turnkey projects for prestigious OEMs. On one of its more recent projects, the Redditch company enlisted the support of the cutting tool experts at Guhring.

There has been a wide spectrum of tools used on this project for a leading manufacturer of Electric Vehicles (EVs), including the Guhring toolholders and the tool vending technology. As part of the package of toolholders to accompany the cutting tools, the EV manufacturer has selected a vast range of standard shrink chucks, hydraulic chucks and synchro-tapping chucks.

The cutting tools incorporated in this project included a huge range of standard products from the extensive portfolio of drills, taps and reamers. All products were carefully selected and tested to minimise cycle times while achieving tight tolerances on diameter, position and roundness. While the standard range of Guhring products accounted for a significant element of the system integration project, it was the bespoke PCD combination tools that demonstrated Guhring UK's expertise as a one-stop solution provider and valued partner for Turn Key projects.

With the PCD combination tools manufactured at Guhring UK's Birmingham manufacturing facility as well as at Guhring's German manufacturing plant, the bespoke tooling solutions were developed to achieve 'one shot' plunging. The bespoke tooling aimed to reduce cycle times and adhere to the high surface finishes required and maintain this over the life of the tool.

Discussing the project for the leading manufacturer of EVs, Guhring UK's national



sales manager Chris Bush says: "With a new project like this for the electric vehicle industry, it is a project and industry that is at the very forefront of technology. The end user typically specifies a machine builder and cutting tool supplier. In this instance, it was Heller for the high-end machine tools and Guhring for the industry-leading cutting tool innovations."

Looking at how the process delivers a solution for the customer, Chris Bush continues: "In Germany, we have a large project engineering team with over 200 employees. So, when we receive a CAD model of the customers' component and the machine capabilities, we can develop the cutting tools and machining strategy from that and create an optimised solution in conjunction with Heller.

"This requires several meetings to discuss the machining strategies and how we develop the tooling to create a seamless solution from machine tool to cutting tool. At Guhring, we supply everything from toolholder to the cutting-edge and that also entails all the speeds, feeds and cutting strategies in conjunction with the machine builder. Once we supply all the cutting data and tooling sheets, we will then visit Heller and do all the initial run-offs to ensure all the cutting data is optimised and the machining strategy is working well. From here, we then follow the process through to end-user production."

Chris Bush adds: "It has been a great partnership between Guhring and Heller and

the current EV project is the biggest project we have collaborated on in the UK. We have worked on several smaller projects in the past and the combined skill sets of both the Guhring and Heller engineers make a great partnership with impressive results for the end-user.

"Even though we are supplying the tools and toolholding for this project, we are also supplying the tool management vending solution. As this is a significant project with a large number of tools, we are supplying the vending machine with some add-on units. The proprietary software that Guhring programs and supplies with this can also be linked to the customer's ERP system. This provides complete synergy and automation for the end user from tool ordering with complete transparency of costing and cost centres by the operation, the individual machine and even by the operator. This system provides unparalleled transparency, so everyone can see the costs and where the costs are going."

He concludes: "From a Guhring point of view, this project has been a great success and working together with Heller has been a true partnership and a fantastic example of delivering a proven process to the customer on time.

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New brand for lightweight machining

Walter Tools is raising its profile for the machining of lightweight components with the arrival of the new Walter FMT competence brand. The machining solutions provider is bringing together its global presence and the high level of technical expertise and know-how of lightweight machining specialist Frezite Metal Tooling (FMT) under this exciting new brand. Walter FMT is destined to be a key partner for manufacturers as it demonstrates solution expertise across the entire lightweight machining process worldwide. The new brand will be managed by Pedro Pacheco, former managing director of FMT.

Strategic expansion of lightweight machining expertise

In the overall share of processed materials in the manufacturing industry, the proportion of lightweight materials such as aluminium alloys continues to grow significantly. Machining specialist Walter has therefore been consistently expanding this area of its portfolio for a number of years.

The PCD tooling offer of Walter and its subsidiary Frezite have now been brought together to advance specific customer projects and further develop this strategically significant segment of the manufacturing industry. The new Walter FMT competence brand showcases the importance of lightweight machining for Walter to its worldwide customer base and the wider industry. It stands for the added value that Walter offers its customers, through various services from consulting and planning to implementation and maintenance and for a

trusting partnership that goes far beyond the tools.

As vice president of Walter Lightweight Business Unit, Pedro Pacheco will be responsible for the new competence brand. He served as the first managing director of FMT from 2006 to 2017 and took over the role again in 2019. Pedro Pacheco says: "My focus will be on bringing together the expertise and working methods of FMT and Walter's PCD division in the best possible way. We want to significantly increase our reach in the market and contribute to Walter's strategic growth targets. I want to create the right structures and processes to provide current and potential customers with an attractive offering that enables them to achieve their own economic goals."

New Walter drill is Xtreme

Walter has now launched its new X-treme Evo Plus drill from the DC180 Supreme product family that is now available up to 8XD for the first time. The drill with through coolant and four lands is distinguished by its extraordinarily impressive level of guidance in the drill hole.

This geometry consequently enables exceptional precision, even for greater drilling depths and interrupted cuts, which increases process reliability and tool life for the end user. The same applies to the polished flutes that optimise chip evacuation, particularly on materials like stainless materials. Furthermore, the straight-cutting edges offer an increased level of reliability and stability. The Krato-tec multi-layer coating technology that has especially been



developed for drilling and reaming tools, achieves the highest cutting speeds and increases tool life by upward of 50 percent when compared to other products on the market. With the 8XD version, the AlTiN layer is designed as a tip coating in Walter's own WJ30EY grade for the first time.

The DC180 Supreme drill can be used universally for a multitude of applications in all ISO materials from the P, M, K, N, S and H groups. In addition to the standard dimensions from 3 to 20 mm diameter, Walter also offers the solid carbide drill as a special tool with intermediate dimensions and as a step drill. With the Walter Xpress service, users also benefit from a reduced delivery time, max. three weeks. Due to its productivity and wear resistance, the DC180 Supreme can optimise the costs of complex ISO M and S machining operations in the long term. This is particularly the case in the aviation industry or with components for the automotive industry. The Krato-tec coating boasts additional advantages in terms of tool life and process reliability.

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Walter is further expanding its expertise in machining with lightweight materials.

Protect and organise your cutting tools with SystemBoard from rose plastic

Streamline the organisation and storage of your cutting tools with rose plastic's completely customisable SystemBoard solution. Created by the manufacturer of protective packaging, SystemBoard offers a modular design with a wide range of inserts to suit your equipment and needs, giving you safe, secure and customisable cutting tool storage.

The SystemBoard range consists of two main components: frames with and without a base, and interchangeable inserts to hold tools and parts of various diameters. In addition, the range includes an insert with sectional compartments designed to hold small parts such as carbide inserts.

SystemBoard's sturdy, stackable, polyamide frames can be populated to suit your tooling requirements using a range of up to 39 interchangeable inserts in various sizes, from 3 mm up to 40 mm. SystemBoard is also impact, solvent and temperature-resistant, up to 120 degrees Celsius. The inserts are colour-coded to simplify selecting the correct size.

SystemBoard can also be combined with rose

plastic's LogisticSystem. These boxes are perfect for safe and reliable transportation and storage on the shop floor or for external deliveries.

LogisticSystem has an option of a foam insert that will ensure the SystemBoard sits central to the transportation box as added protection.

Don't settle for a one-size-fits-all approach to storing and transporting your tools which can leave your products unorganised, damaged, or misplaced, rose plastic offers this cost-effective, reusable solution that can be set up to suit your business's unique requirements.

SystemBoard's key features and benefits:

- interchangeable inserts, diam. 3-40 mm, offer options for customisation.
- precise positioning allows automatic loading and unloading.
- usable depth 25 mm or 40 mm simply by reversal of inserts.
- sturdy design, combined with impact-resistant material ensures protection against damage.
- intermediate frame 400 B for long parts



- suitable for immersion baths for cleaning and coating.
- temperature resistant, up to 120°C.
- solvent resistant.
- ideal combination with LogisticSystem boxes 175 and 235 for even safer transport of tooling.

To find out more, read the full SystemBoard product details on the rose plastic website, or speak to its team for more information on the range.

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EcoVadis gold rating for Plansee, silver for CERATIZIT

Certification awarded for global corporate sustainability measures

EcoVadis has certified CERATIZIT with a silver sustainability rating, while Plansee has been awarded a gold rating. The company, which describes itself to be the world's largest and most reliable provider of corporate sustainability ratings, recognises the two companies' consistent sustainability strategy. For the companies, the award is an incentive to further intensify their commitment.

Commitment to environmental, social and ethical causes is an important factor for business success and the future viability of companies. A key prerequisite for this is transparency about the company's current status and goals in this context. CERATIZIT and Plansee are pursuing ambitious goals with their sustainability strategy and the first milestones have already been realised. In order to confirm this strategy to others and themselves, the companies have commissioned EcoVadis to assess their commitment to sustainability. The sustainability rating provider has now certified CERATIZIT with a silver rating and Plansee with a gold rating.

Ambitious sustainability targets

As part of the Plansee Group, both companies are important players in the production chain for refractory metals and cemented carbides. The products play an indispensable role in industry and society, which is challenging since their manufacturing process is energy-intensive. CERATIZIT and Plansee are aware of this responsibility and are making great efforts to realise their sustainability goals as quickly and effectively as possible.

One of CERATIZIT's most important goals is to be CO₂-neutral by 2025 by reducing emissions by 35 percent. By 2040, the strictest target for reducing greenhouse gases is to be achieved by reducing emissions by 90 percent to net zero. Plansee is aiming to be CO₂-neutral by 2030 and net climate-neutral by 2050.

CO₂-free hydrogen for production facilities

CERATIZIT and Plansee need hydrogen for production. Until now, hydrogen at the main site in Reutte has been produced from

natural gas, which accounts for 50 percent of CO₂ emissions at the site. The companies are currently installing a hydrogen electrolyser on their premises, which will cover half of the production facilities' hydrogen requirements from 2025.

The electricity required for this electrolyser comes entirely from renewable sources. By 2025, CERATIZIT and Plansee will be able to halve local emissions from hydrogen production at the Reutte site; by 2030, all hydrogen production there is to be CO₂-free.

Andreas Lackner, spokesman of the executive board at CERATIZIT, explains: "The silver rating from EcoVadis confirms that we are on the right track with our ambitious commitment to sustainability. In addition to our efforts to achieve CO₂ and net climate neutrality, we are also focusing on environmental, occupational health and safety issues as well as HR initiatives to become an even more attractive employer. We are delighted that our progress has been recognised with this assessment."



Andreas Lackner, spokesman of the executive board at CERATIZIT.

Andreas Feichtinger, executive director at Plansee, comments: "With measures such as the gradual conversion of hydrogen production at our main site, we have been able to prove that we are serious about our sustainability strategy. The EcoVadis rating is



Andreas Feichtinger, executive director at Plansee.

proof of this and is an important milestone for us. However, we also want to use our innovative strength to support our customers in becoming more sustainable and accompany them on this journey."

For over 100 years, CERATIZIT, which is part of the Plansee Group, has been a pioneer in developing exceptional hard material solutions for machining and wear protection. The private company, with registered offices in Mamer, Luxembourg, develops and produces highly specialised cutting tools, indexable inserts, rods made from hard materials and wear parts. CERATIZIT is a global leader in various application segments and successfully develops new carbide and cermet grades, such as for wood and stone working.

With more than 7,000 employees at more than 30 production facilities and a sales network with over 50 branches, CERATIZIT is a global player in the carbide industry. The company's international network includes the subsidiaries AgriCarb, Stadler Metalle, and Xceliron as well as the joint venture CB-CERATIZIT.

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Economical boring tool has inserts with sintered chip breaking geometry

Over the last 35 years, the Supermini universal boring system from Horn has undergone numerous development stages and has solved problems in a variety of turning applications. Another milestone has just been announced for the Supermini type 105, namely a lower cost version of the solid carbide inserts with chip breaking geometry included at the sintering stage, rather than laser cutting or grinding them afterwards. Indeed, the price of the new Supermini is similar to that of the standard insert without geometry.

As with these previous machined chip breakers, the new sintered geometry avoids the drawback of long, stringy swarf coiling around the tool or workpiece and potentially causing damage to both. It assists internal machining of small diameter holes, whether boring, profile turning, internal grooving, threading, chamfering, face grooving or slot broaching.

Horn developed teardrop shaped carbide blanks for the tool, enabling large, precise

contact surfaces in the toolholder and resulting in greater rigidity of the overall system. Furthermore, the teardrop profile prevents the insert from twisting, which leads to consistent, precise positioning of the centre height of the tool. When using long tool overhangs, it reduces deflection and minimises vibration during turning.

Horn offers the inserts as standard in three lengths, 15.0 mm, 20.0 mm and 25.0 mm and in carbide grades TH35 and IG35. The tool is suitable for use from a bore diameter of 6 mm. The cutting-edge geometry extends far into the 0.2 mm corner radius of the insert, ensuring good chip control even with small infeed settings. Different material groups may be processed and the geometry is suitable for internal, face, copy and back turning.

The new insert is compatible with numerous 105 toolholders, including round shank, square shank, interface and adjustable types. There are four different solutions for clamping the inserts: a classic ball pressure



screw, a face clamping element and a lifting element, while for confined spaces, a compact system with clamping via a union nut is available.

Depending on the application and the diameter to be machined, Horn offers Supermini inserts in three sizes, 105, 109 and 110, as well as different blank types. All allow internal coolant supply directly to the cutting zone. The tool portfolio includes around 2,500 different standard variants of the Supermini. In addition, Horn's applications department solves users' specific machining problems with customised solutions.

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Floyd Hexalobe is a star for the medical industry

With star-shaped hexalobular bone screws (TORX®) screws being the design of choice in the medical industry, Floyd Automatic Tooling has now introduced the new CrazyDrill Hexalobe drilling series and the CrazyMill Hexalobe endmill series from Mikron Tool.

Medical screws for orthopaedic procedures are predominantly manufactured from titanium, stainless steel and cobalt-chrome. Machining these precision screws to impeccable surface finishes is a challenging task, that was until the arrival of the Mikron Hexalobe series. Machining Hexalobe screws 50 percent faster with precision burr-free results is what makes this next-generation series the perfect choice for manufacturers in the medical industry.

The high-performance drills for generating pre-holes in TORX® sockets are available in two variants, the pre-hole CrazyDrill Hexalobe TORX® drill with a tip angle of 140° and the flat drill: the CrazyDrill Hexalobe Flat with a tip angle of 180°. Both drills are available from 0.9 to 3.8 mm in diameter for producing T4 to T30 TORX sockets. Upon request, Floyd Automatic can provide the drills as a customised combination drill for streamlining operations. The CrazyDrill Hexalobe series combines two operations into one, as it simultaneously machines a flat pre-hole and a 120° chamfer.

No ordinary drill, the Mikron CrazyDrill Hexalobe from Floyd Automatic generates exceptional chamfer surface quality to a finish of $Ra < 0.3 \mu m$ while guaranteeing high profile accuracy and perpendicularity. For manufacturers processing screws made from challenging CoCr alloys, Floyd Automatic recommends the CrazyDrill SST-Inox range for creating pre-holes.

Completing the process is the CrazyMill Hexalobe micro endmill. Available from 0.2 to 1 mm diameter for T4 to T30 socket variants, the CrazyMill Hexalobe presents 3 or 4 flute variants with milling depths of 3.5XD and 5XD. The CrazyMill Hexalobe milling cutter demonstrates remarkable stiffness that allows machining with high feeds and massive stepover rates while still guaranteeing the necessary hex lobular profile accuracy. The surface quality is the result of the special geometry that also permits a high stepover rate, so the operation can be completed with the fewest possible steps.



Machining medical screws from titanium, GradeTiAl6V4, stainless steel, 316LM or X2CrNiMo18-15-3, or cobalt chrome, CrCoMo28, is an unforgiving task that requires the perfect machining strategy, tool and adapted machining parameters. This is where the expertise of Floyd Automatic and Mikron Tool can deliver perfect results with 50 percent improved productivity rates, regardless of whether it is a small number of bone screw sockets or production runs.

As part of the Mikron Tool Hexalobe-program, customers can choose a turnkey solution for machining medical screws. This expert service is not only based on cutting tools, it strives to deliver a package with the best machining strategy and the parameters for your machine tools. The most efficient approach to machining 'TORX' screws is the process that uses the fewest tools. With the Mikron process from Floyd Automatic, the

four operations of pre-hole drilling, chamfering, milling and deburring are completed in three operations with two tools.

Both the CrazyDrill Hexalobe and CrazyMill Hexalobe are manufactured from a micro-grain carbide substrate that demonstrates astounding rigidity and stiffness while the high-performance eXedur SNP coating technology is heat and wear resistant. This prevents built-up edges and promotes uniform chip removal that extends tool life. Furthermore, as the coating technology is chrome-free, cross-contamination on the medical part is avoided.

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Rotary tables with DD technology

The Series 900 DD CNC rotary tables from pL LEHMANN are equipped with direct drives, thus allowing both Millturn and Grindturn applications as well as 5-axis simultaneous machining, for example, of turbine blades or impellers. These rotary tables are characterised by its innovative cube design and are not only super-fast, but also fully sealed, IP 67, safe and thus suitable for many applications. In addition, they are easy to service and prepared for use with Industry 4.0.

For many years, pL LEHMANN, based in Switzerland, has been an important address when it comes to CNC rotary tables for economical machining. One- and two-axis solutions are now in use on over 200 different machine brands and over 1,000 different machines models. This results in enormous competence regarding integration in all known CNC control systems including FANUC, Siemens, HEIDENHAIN, Haas, Winmax, Mitsubishi and Brother for new machines as well as for retrofits.

Where drive technology is concerned, pL LEHMANN has many years of know-how. It is not only the latest Series 900 DD with its direct drive that benefits from this. pL LEHMANN already started gaining experience with this technology between 2000 and 2010. Developed completely from the ground up and based on a modular concept using a very compact cube design, the pL rotary tables in the Series 900 DD with their speeds of up to 3,300 rpm are ideal for a variety of applications, especially since the products come standard with a water- and dust-tight classification of IP 67.

The tables are available with a variety of direct measuring systems for Siemens, HEIDENHAIN, Mitsubishi and FANUC machine control systems. With the latter, the new series is fully compatible for connection to the FANUC-DDR, for example as an interesting addition on the well-known FANUC Robodrill when a higher rpm is needed.

For workpiece clamping there is a large assortment based on different adapters. Standardised interfaces at the front and back on the spindle ensure maximum universal use. The system can accept a four- or six-fluted rotary union and can be retrofitted at any time with collet chucks for manual or automatic workpiece clamping with an integral fail-safe function. The workpiece



remains safely clamped even in the event of a power failure.

The spindle clamping also includes a fail-safe function that ensures emergency braking without damage when a power failure occurs. Clamping takes place over a large diameter without the use of energy and provides an ample 800 Nm. Releasing requires only 4.5 bar of air pressure.

For dry machining at high speeds and similarly challenging machining tasks, the Series 900 DD can be cooled internally, prepared as a standard feature. For this, pL LEHMANN offers cooling units as well as the integration modules needed for machines with a Siemens CNC control system.

One-axis and two-axis applications

In the one-axis version, a new EA-91x DD rotary table is optimal for Millturn applications such as machining of watch cases from bar stock or for hob peeling of gears. These tables also offer many possible uses in two-axis combinations. The T1-91x91x TAP9(v) version, in which both axes driven directly, is suitable for simultaneous 5-axis machining and ideal for milling and grinding impellers and similar parts. Workpieces weighing up to 40 kg and having a maximum diameter of 308 mm can be clamped here.

Combinations with the pL rotary table EA-520 from the Series 500 are also possible. In the case of the T1-91x520 TAP5(v) solution, a dividing/indexing axis features direct drive and the tilting axis has a rugged,



backlash-free gear unit (PGD). The clamping force is 2'000 Nm and no controller adjustment is needed when the load changes. Workpieces weighing up to 90 kg and having a maximum diameter of 400 mm can be machined.

Founded in 1960 strictly as a contract manufacturer, pL LEHMANN has been developing and producing CNC rotary tables for over 40 years. With innovations and Swiss quality, the family-owned company from the Swiss town of Bärau has succeeded in opening up new opportunities for its customers and developing lean machining solutions characterised by high productivity through use of additional NC axes.

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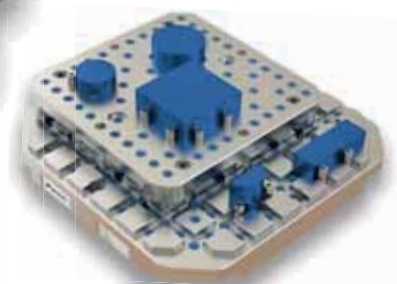
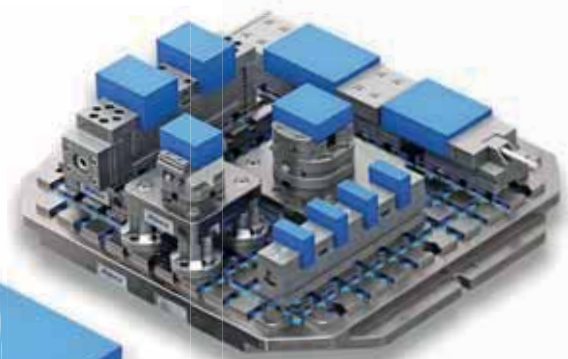
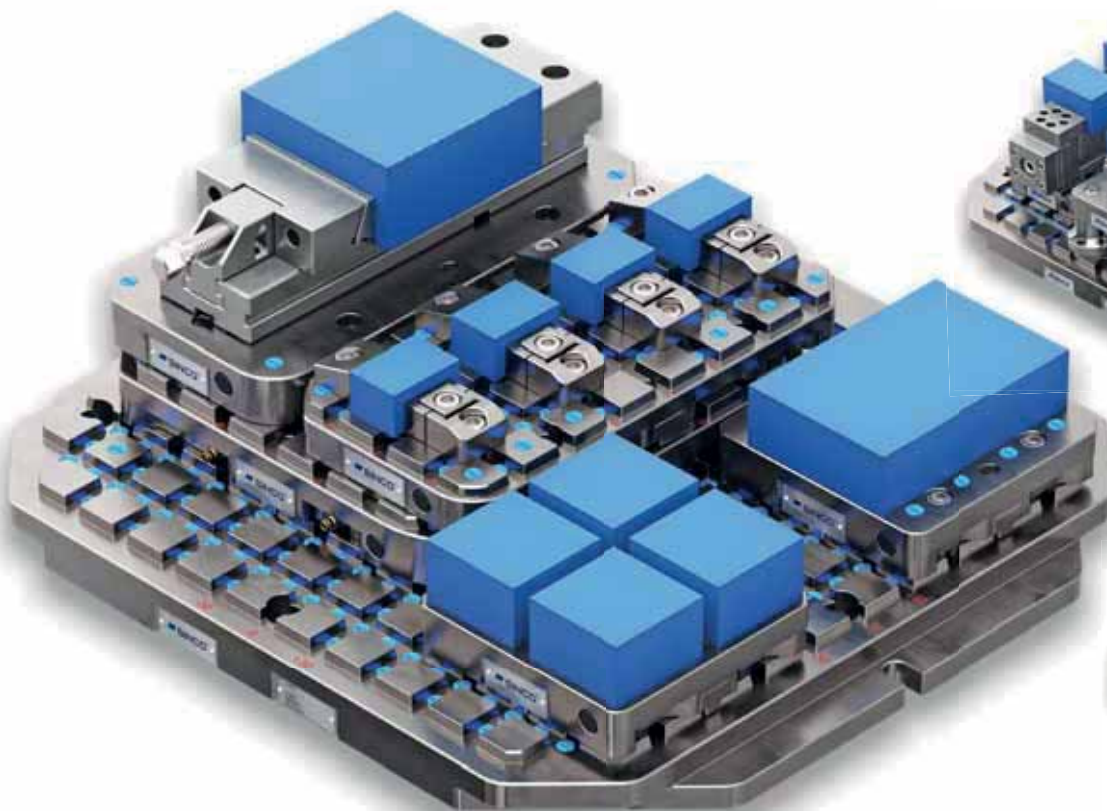
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New holders for tools with through-tool coolant supply for back working

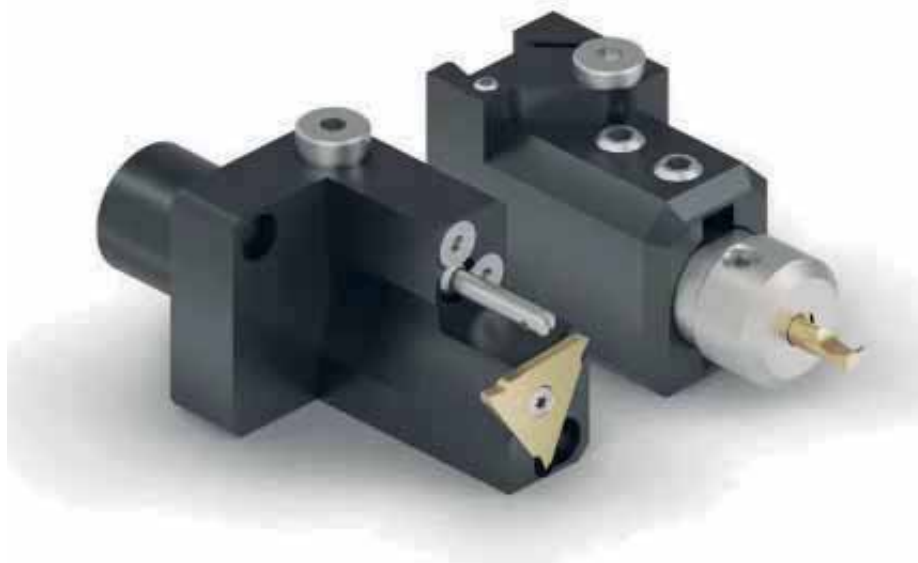
ARNO Werkzeuge presents well-designed holders for back working for Swiss-type auto lathes. The range includes fixed holders for Star and Citizen machines with a Y2 axis and height-adjustable holders for machines without a Y2 axis. Both systems offer adjustable through coolant supply direct to the cut point. The new holders have several features that are hard to find anywhere else. This makes them unique and raises ease of use for back working tools to a new level at a time when there is a shortage of skilled labour.

"Our new height-adjustable holders for back working have a number of features that other conventional systems have to match," states Werner Meditz, head of technology at Arno Werkzeuge. The new recently introduced height-adjustable holders for machines without a Y2 axis can be finely pre-adjusted off-machine using an adjustment device. The system consists of a basic holder, spacer plate, top holder and coolant supply attachment. The basic holder is precision clamped and fixed by a dovetail guide. This increases stability and prevents chip build-up. The tool length is also adjustable by means of a spacer plate. It is simply pushed over the shank of the basic holder. The top holder and coolant supply attachment can each be firmly connected by a simple clamping fixture and secured by just one screw.

When the top holder is changed, the centre height setting is retained and ensures outstanding repeat accuracy. "This offers an incredible time advantage," explains Werner Meditz, who is an expert in the field. The system with the height-adjustable basic holders is very well thought out and designed. The optional coolant supply attachment with adjustable high-pressure jets delivers coolant directly to the tool cutting edge. All holders offer insert pockets with carbide shims to ensure a long-life insert seat.

Fixed holders for Star and Citizen machines with Y2 axis

The centre height setting of the fixed holders with tools for machines with a Y2 axis is



changed by the adjustable axis. These holders for Star and Citizen machines are designed in collaboration with the manufacturers to ensure optimum dimensions and are therefore very compact. Combined with their fastening by two screws on the front and on the shaft diameter, these holders promise high stability. The through tool coolant supply can be connected from either side and the coolant jets are adjustable. The holders can

also be fitted "overhead" to optimise chip fall. All holders offer insert pockets with carbide shims to protect the insert seat.

For Star machines, the manufacturer offers a short and a long version of the holders for turning with positive ISO indexable inserts. Holders are also available for both machine types for threading with ER16-ISO inserts, for grooving with Arno TE14 inserts and for boring bar holders with diameters of



The range includes fixed holders for Star and Citizen machines with a Y2 axis and height-adjustable holders for machines without a Y2 axis.



The new holders from ARNO Werkzeuge have several features that are hard to find anywhere else. This makes them unique and raises the standard of back working to a convincing new level at a time when there is a shortage of skilled labour.



The new holders from ARNO Werkzeuge supply coolant through to the flute. The jet is adjustable.

6-16 mm. In addition, the range includes D20 combination holders to install Arno clamping inserts to suit the patented ARNO AMS Mini Boring System. They also allow drilling with collet holders ER16 or ER 20 which have through tool coolant supply.

Accessories always supply coolant to the cutting edge

A wide range of coolant accessories makes it easier to use high-pressure coolant to the tools. The accessories include coolant distributors, hoses, connectors, quick-release couplings, swivel fittings, jets and coolant attachments. This allows turning professionals to utilise the full range of cooling benefits on Swiss-type auto lathes. Here, too, Arno Werkzeuge provides simple solutions and demonstrates its extensive experience by analysing the situations of many users, especially when skilled labour is becoming increasingly difficult to find for production.

Customer proximity and development power

Emil Arnold set up ARNO Werkzeuge Karl-Heinz Arnold GmbH in 1941 as an innovative tool manufacturer and the company is now in the third and fourth generations of owner management. The company has a high manufacturing depth, in-house development competence and a global sales organisation. It produces highly modern, high-performance tools which are used world-wide in production with fixed headstock machining, Swiss type machining, parting, grooving, turning, drilling and milling. One of the company specialities is ground high-positive indexable inserts for complex manufacturing operations. Here, ARNO offers the largest portfolio in the world.

Customised tool solutions, which later become highly coveted

standards, are developed in close collaboration with customers, taking their requirements into consideration. The tradition-based company ensures customer proximity by a work force of over 200 employees at its head offices in Ostfildern and its numerous sales offices all over the world. Last year, ARNO achieved a turnover of around €54 million, almost back to the pre-crisis level.

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Laser engraving Polypropylene applications

By Gerald Fry, marketing manager for TYKMA ElectroX

Do your operations regularly utilise plastics such as Polypropylene? Are you looking for ways to effectively mark your components and products to display branding, logos, serial numbers, QR codes, data codes, graphics and personalised messaging for your customers? Laser engraving is the most effective and worthwhile approach for accomplishing these goals, as its versatility, precision and final results are unmatched. To learn everything, you need to know about laser marking polypropylene, check out our handy guide.



Defining Polypropylene

Polypropylene is a thermoplastic polymer that also falls under the category of “commodity plastics” or “commodity polymers.” Plastics of this type are created in large quantities and used in many common items we use every day, from disposable packaging and containers to more sturdy and long-lasting products.

What Is Polypropylene used for?

Polypropylene has the status of being one of the most-utilised commodity polymers in the world, second only to polyethylene. The material can be formed via extrusion, molding and other methods, resulting in products which include: cutlery, housewares, food containers, battery components, car parts, toys and medical devices.

What are the benefits of Polypropylene?

Polypropylene has a wide array of advantages, including its resistance to corrosion and chemical leaching, its stability at high and low temperatures and its significant resistance to fatigue. This latter aspect makes it ideal for plastic hinges and other highly maneuvered components.

Structurally, it is very similar to Polyethylene, though its somewhat harder composition and its heat-resistant properties make it more robust and preferable for some applications.

Laser marking Polypropylene

Creating engraved polypropylene parts is fast, reliable and infinitely repeatable with a laser marking system. Plastics, with their pliable nature and sturdy construction, are among the best materials for laser engraving and marking, facilitating precise, attractive and permanent results.

High-powered MOPA fibre lasers are the option of choice for the majority of plastics, with different marking methodologies being possible for the laser marking of polypropylene and other material types. These include:

Laser marking

Though this term is often used interchangeably with laser engraving as a form of shorthand, the two approaches do differ somewhat. Laser marking discolours a material’s surface without removing any of it, producing a permanent black or darkened mark.



Laser engraving

If you opt to engrave polypropylene parts, you will actually be removing a small portion of the material’s surface and leaving behind a minor cavity that can be felt. The end result is an attractive two-tiered look on the material that helps to highlight your branding, logo, serial numbers or anything else.

Laser etching

This subset of laser engraving actually creates a controlled melting of the material’s surface to produce a raised mark rather than a cavity.

Is Polypropylene safe to engrave? Yes, Laser marking and laser engraving polypropylene is completely safe when the proper precautions are taken. All safety



instructions that accompany your laser marking system should be followed, operators should be trained and protective equipment, such as laser safety glasses, may be advisable depending on a given application.

Additionally, if fumes are a concern, you can invest in our fume and dust extraction unit to keep your facility clean.

Systems for creating engraved Polypropylene parts

For the best results when laser marking polypropylene, our team recommends our systems that utilise MOPA fibre laser technology. These systems include: LaserGear QUBE; LaserGear BOQX; Minilase Manual; Minilase Auto Door; Minilase XL; Minilase XL Manual, ATLAS™ XYZ; Zetalese; Raptor Integration DPSS Laser; Vereo Integration Fiber Laser.

We also supply a number of variable laser marking systems that can accommodate MOPA fibre lasers, UV lasers or CO2 lasers. Visit our product pages above to read about specifications and details of our systems, as there are numerous differences.

A few key aspects to consider include how you will be integrating your laser system into your facility, how much space you have available and how large your parts to be marked will be. Depending on your needs for laser engraving polypropylene, a desktop unit, a freestanding unit, or an integration unit may be preferable.

TYKMA ElectroX

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Pryor and the South Rural Task Force



Pryor have recently supplied three new PortaDot 60-30's to the South Rural Task Force. The taskforce covers the rural areas of Preston, Chorley, South Ribble and West Lancashire.

Since being established in 2021, it has achieved a long list of successes and late last year it was recognised for its continued work to tackle hare coursing and poaching as part of Operation Galileo which was a national operation co-ordinated by The National Wildlife Crime Unit.

As a direct result of the team's activity, reports of hare coursing across South Lancashire reduced by 66 percent in the last two years.

Recently, it has secured funding from the

Lancashire Police and Crime Commissioner to purchase state-of-the-art Pryor marking equipment which it will use to mark even more vehicles, machinery and equipment in rural communities, making them less attractive to thieves and also enabling them to be identified should they be stolen and later recovered. The pot of funding is generated by the recovered proceed of crime.

Pryor service engineer Brian spent the day in Ormskirk training the Task Force in the use of the Pryor PortaDot 60-30's which were going to the South, Fylde and East rural taskforce teams.

The 60-30's will be used to mark a wide range of items including trailers, horseboxes,

equine equipment, quads/ATV's, plant machinery, tractor GPS/Screens, tractor parts, power tools and gardening equipment. This will make them all more secure and easier to trace.

PC Helen Williams says: "The purchase of these state-of-the-art Pryor security marking machines will allow us to get out into our farming communities and offer them a service that they may not have considered before. We can go out to location and add another layer of security to their expensive equipment, making them less attractive to thieves and also further enabling them to be identified should they be stolen and later recovered.

"We chose Pryor due to the design, it being handheld, battery powered and lightweight. The Price was great and the demo provided was good as well as the aftercare provided."

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Electrochemical marking

Versatile metal marking technology for industry



The versatility of electrochemical marking technology makes it the ideal solution for applying high quality marks for traceability or identification across a wide range of different metal components whatever their size, shape, thickness or hardness. As electrochemical marking specialists, having been written into many aerospace standards, Universal Marking Systems offer detailed support on industrial component marking applications and the requirements of global marking standards.

The versatility of Metaletch

The Metaletch Electrochemical Systems from Universal Marking Systems, which it proudly manufactures here in the UK, delivers stress-free high contrast permanent marks. The marking process is incredibly fast, with most marks completed in just 1-4 seconds. Metaletch systems can mark any conductive metal surface, including stainless steel, carbon steel, mild steel, titanium, Inconel, and more, as well as create below-surface etched marks on these metals as well as aluminum and brass.

Advantages and benefits of Metaletch Electrochemical Marking Systems

Electrochemical marking excels at marking thin wall sections as it avoids the heat of laser marking and the mechanical impact of dot peen marking. This heat-free and impact-free process ensures that delicate or thin materials remain undistorted, preserving their structural integrity and achieving precise, high-contrast marks without affecting the component's dimensions.

The marking kits are designed to be portable and are supplied in easily-transported kits, allowing them to be used directly in the area of manufacture, minimising downtime and logistical challenges associated with moving parts to another area of a manufacturing plant.

Part of the Metaletch system includes the stencil system. Universal Marking Systems flexible POD system has software which can be used for all applications. The software itself is aerospace compliant and enables a wide variety of data formats and layouts to be created, including datamatrix, QR codes, incremental serial numbering, date/timestamp, logos, symbols and graphics, text on an arc and more. Custom layouts can be designed, saved and retrieved before printing the stencil and marking.



Dosing the electrolyte is clean and easy, resulting in quickly-applied marks, thanks to one of the many accessories for the Metaletch system: the reservoir for the carbon marking electrodes.

With in-house 3D CAD capability and a 3D printer, Universal Marking Systems can make custom low-cost jigs and fixtures, ensuring you a faster marking cycle.



Marking compliance for industry

The Metaletch electrochemical marking systems are both aerospace and nuclear Industry compliant. Universal Marking Systems' high purity aerospace and nuclear grade electrolytes are independently lab tested to ensure they comply with the most stringent standards.

Within both the food & medical industries, electrochemical marking is widely used by manufacturers of processing equipment and also within the processing plants, for the traceability of items used in the production of food, drink and pharmaceutical products. The electrolytes in the Metaletch system have been cytotoxicity tested for stainless steel marking and deemed safe for surgical items and implants.

Marking support and knowledge

Universal Marking Systems provides comprehensive support and expertise for all of its marking solutions, including the Metaletch electrochemical marking range as well as dot peen and laser systems from Technomark. With customers assisted at every stage, from selecting the most suitable marking system to the ongoing support after purchase, the commitment to customer satisfaction ensures the best guidance and services are received efficiently and effectively. As specialists across all three main direct part marking technologies, the company will always recommend the best marking system for your application. For more information contact Sara Sawdy at Universal Marking Systems Ltd.

Universal Marking Systems

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Email: info@ums.co.uk

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TLM Laser marking job shop

Same results, fraction of a cost

Why UK manufacturers are turning to outsourced laser marking

In today's highly competitive manufacturing landscape, UK companies constantly seek ways to enhance their operations while controlling costs. Many manufacturers are finding a strategic advantage in outsourcing their part marking needs to TLM Laser's state of the art job shop. This approach offers precision, flexibility and cost savings that are hard to achieve with in-house systems, making it an increasingly popular choice across all industries.



Meeting manufacturing challenges with strategic solutions

As the demand for precision and traceability grows across sectors such as aerospace, automotive and medical devices, laser marking has become a critical process. However, for many businesses, especially Small to Medium-sized Enterprises (SMEs), the investment required to implement and maintain high-quality laser systems can be a significant barrier. The challenge lies in balancing the need for progressive technology with the financial realities of running a manufacturing business. This is where TLM laser's marking services come into play, offering a solution that meets both operational needs and budget constraints.

Outsourcing: A flexible solution for modern manufacturers

Outsourcing laser marking to a specialised job shop provides manufacturers with a flexible and cost-effective alternative. By partnering with an external provider, companies can access state-of-the-art laser technology and expertise without the burdensome upfront costs. This model allows manufacturers to pay only for the services they need, scaling operations up or down as demand fluctuates. This flexibility is particularly valuable in today's fast-paced market, where production schedules can change rapidly. An outsourced partner can adapt quickly to these changes, ensuring that lead times are met and that products reach the market without delay. This level of responsiveness is under more pressure with an in-house setup, where capacity and capabilities may be limited.

Precision and quality without the capital investment

One of the most significant concerns for manufacturers considering outsourcing is the potential impact on quality. Precision is non-negotiable in industries where every mark needs to meet exacting standards. Fortunately, leading job shops, such as TLM Laser's own facility, are equipped with advanced systems like the FOBA M Series lasers, which are known for their reliability and accuracy. These systems, paired with intelligent vision technologies such as FOBA's Intelligent Mark Positioning (IMP) system, ensure that

every mark is made with precision, regardless of the material or complexity of the design. By leveraging the latest in laser technology, TLM's services can deliver results that meet those achievable with an in-house system, all without the associated capital expenditure.

Outsourcing laser marking: A strategic move for sustainable growth

In an industry where efficiency, quality and cost-effectiveness are paramount, UK manufacturers must explore all avenues to maintain their competitive edge. Outsourcing laser marking presents a compelling case for those looking to achieve high precision and reliability without the significant investment that in-house systems require. By embracing this approach, businesses can remain agile, meet their production goals and contribute to the sustainability of the UK manufacturing landscape.

For those considering this option, the TLM Laser job shop exemplifies how outsourcing can seamlessly integrate into existing production lines, providing a high-quality, reliable solution that enhances overall operations. Ultimately, outsourcing laser marking is not just about reducing costs; it's about strategically positioning your business for long-term success in a challenging market.

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New automatic bottle weighing systems

Kraft & Bauer, whose automatic fire extinguishing systems are fitted to all kinds of machine tools, offers a complete range of systems from small 5 kg CO₂ based models to protect the smallest of machines up to huge multi cylinder variants having multiple 50 kg bottles.

One popular option is to have the CO₂ or argon gas cylinders contained within its own stand-alone cabinet that can be bolted to the factory floor and/or placed directly against a machine. These may be optionally equipped in the case of using CO₂ as the fire extinguishing media, with automatic weighing systems. These monitor the weight of the CO₂ cylinder and, in case it is empty, will not allow the machine to be run, thus providing added protection.

From its base in Coventry, Kraft & Bauer UK offers a full installation, retrofit and service facility for all Kraft & Bauer fire extinguishing systems. These must be checked at least annually by a qualified technician and signed off for companies insurance purposes. In the event of an incident, if there is not an annual service certificate in place then it is likely that any insurance claim will be declined.

It is mandatory to have fire extinguishing



systems fitted to machine tools that provide some form of a fire risk. These are generally acknowledged as any machine that works with an oil-based coolant, ie. most grinding machines and turning machines and any machine that causes a spark such as an EDM machine or laser machine. Engineering manufacturing companies must have documents for risk assessments in place and these need to highlight risks such as fires on machine tools. Companies must act using mitigating measures to overcome those risks. In the case where machines are run automatically, fully automatic fire systems need to be used that can react in seconds to put fires out.

Kraft & Bauer UK, whose fire extinguishing systems protect many hundreds of machines



here in the UK, has expanded further with the addition to its fleet of a larger long bed van that doubles as a mobile workshop. A further service engineer has also been employed and additional stock has been added to both of its storage facilities in Coventry and in Cork.

As more and more new machines are fitted with Kraft & Bauer's systems, naturally the global annual servicing of those systems increases. Kraft & Bauer notes that partly due to insurance companies being ever more vigilant and refusing insurance for machinery that's not adequately protected against fire risks, the retrofit market is driving many sales here in the UK and in Eire.

Louise Boraston, MD at Kraft & Bauer, who has been championing fire protection on machine tools for a number of years now, is naturally pleased to see the increases in sales but stresses that its far more satisfying to see sales due to companies understanding the importance of fire protection and acting responsibly rather than only reacting to fire incidents that have sadly resulted in the loss of machines and therefore production.

Kraft & Bauer urges those using all kinds of machine tools to understand the need to protect their workers and machines from the risks of fire. It points out that in the event of a machine being damaged and put out of action the replacement costs will almost certainly not be covered by any insurance policy unless a fire system has been fitted to it. Also, it should be understood, that even if end users are eventually successful in making a claim, it can take many months and then several more months to take delivery of replacement machines and very few end-customers will wait for production to recommence. Most will likely simply go elsewhere and therefore important contracts can be lost, in some cases, forever.

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Portable measuring arms gain extra stability and accuracy

All 34 portable measuring arms offered in 6-axis touch-probing and 7-axis multi-sensor variants by LK Metrology, Castle Donington, are now supplied as standard with a 4.5 inch diameter mounting ring to allow the unit to sit on a larger base, rather than that provided by the previous 3.5 inch ring. The result of having this extra stability is that the new Version 3 FREEDOM Arms are capable of measuring to higher precision. A mounting ring adapter can be supplied if an existing user already owns an LK tripod or stand with a 3.5 inch mount. Mechanical, magnetic and vacuum fixing alternatives are available.

As previously, the new mobile metrology solutions are based on a lightweight carbon fibre tubular construction. Feedback of position is provided by absolute rather than incremental rotary encoders and the arms are available in three accuracy categories: Classic, Select and Ultimate. Each is now capable of significantly higher accuracy measurement of size, position and form, whether using a tactile probe or laser scanner. Probing accuracy is certified to ISO 10360-12 and functionality is guaranteed up to 40 degrees Celsius.

Notable is that the 6-axis arms are workshop hardened, having full IP54 protection from water splashes and the ingress of dust and particles, delivering reliable, repeatable, 3D inspection and

An LK Metrology FREEDOM Classic v3 portable arm mounted on a 4.5 inch diameter ring on one of the company's measuring tables.



All LK FREEDOM Arm models, when mounted on a 4.5 inch diameter ring base, are capable of higher accuracy measurement of size, position and form.

measurement in harsh industrial environments. Provided also is enhanced RDS v6.4 software running on Windows for communicating with the arm via Wi-Fi or USB. It offers improved monitoring of parameters such as ambient temperature, stress on the articulating joints, and base vibration, displacement, tilt and inclination. An operator alert function in the software warns the user if an arm is not fully IP54 protected.

The 7-axis FREEDOM Arm v3 is not IP54 rated but is able to deploy a laser scanner and a tactile probe to enable multi-sensor metrology. An OLED touch-screen display provides the operator with convenient fingertip control, raising inspection productivity by avoiding having to go back and forth between the arm and a computer. A pair of rechargeable, hot-swappable battery packs with Ethernet connection for probe and laser scanner is available for use in environments where Wi-Fi is not allowed.

A strong line-up of third-party inspection software can be supplied by LK with its FREEDOM arms including InnovMetric's PolyWorks Inspector, which has the ability to exchange programs seamlessly between portable and static CMM platforms.

LK Metrology is renowned for innovative metrology solutions and services. The company's products, including Coordinate

Measuring Machines (CMM), portable measuring arms and metrology software, are used worldwide to control and improve the quality of manufactured components. Its precision technology underpins the process chain from design, development, production and assembly through to quality assurance in global industries such as automotive, aerospace, defence, motorsport, energy, medical and contract inspection.

Established in England in 1963, LK Metrology has an impressive heritage in metrology dating back to the birth of CMM technology. Founded by CMM pioneer Norman Key and his father-in-law Jim Lowther, LK Metrology is credited with many of the CMM industry's firsts including the first bridge-type design, first OEM to integrate computers, first to use a touch trigger probe, first to develop inspection software, first to use all air bearings and granite guideways, first to use carbon fibre composite spindles, first to use microprocessor-controlled drive systems, first to produce a truly thermally stable CMM and first to produce a high-accuracy horizontal-spindle CMM.

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Hexagon's innovative SmartScan VR800 3D scanner wins Red Dot Design Award for outstanding product design

Hexagon's Manufacturing Intelligence division has been awarded the renowned Red Dot Design Award, recognising outstanding product design quality. Established in 1955, the Red Dot Design Award is one of the world's most sought-after distinctions for excellence in design. Its international jury of experts assess products on criteria such as aesthetics, degree of innovation, functionality, ergonomics and sustainability.

This year, Hexagon's pioneering SmartScan VR800 structured light scanner has been awarded the prize in the product design category reflecting the quality of the user experience, ergonomics and the consistent and attractive application of Hexagon's design language. The function was equally important, as the manufacturing industry's first optical 3D scanner featuring a motorised zoom lens, the SmartScan VR800 fundamentally changes the user experience so they can obtain high-resolution scans of inspected parts in a matter of seconds.

Matthias Wieser, VP of product design at Hexagon, says: "Our design choices shape the user experience. In order to develop products that are intuitive and efficient to use, we always try to simplify complexity and understand the user's true needs. A cohesive design language was an added consideration to establish the company's identity in the SmartScan VR800, resulting in a professional and functional product that is both visually appealing and recognisable as Hexagon. Clarity can be beautiful."

Dirk Rieke-Zapp, senior product manager

for structured light and photogrammetry at Hexagon says: "The interdisciplinary nature of Hexagon's team was crucial in the development of this product. The expertise of our company-wide Innovation Hub researchers allowed for key design features to come to fruition, such as the zoom lens, the carbon fibre frame and an embedded control unit. The expertise of the team allowed us to embrace innovation and fulfil the expectations of our target design."

Hexagon is at the forefront of innovation in digital reality solutions that combine sensor, software and autonomous technologies. With 15 percent of net sales invested in R&D, more than 5,500 active patents and more than 6,500 R&D employees supported by dedicated innovation centres across the globe, the company leverages innovation processes to create groundbreaking solutions. The SmartScan VR800 is one such example of innovation that benefits global manufacturers.

Focus on R&D

Traditional structured light scanners require manual recalibration with every lens change, compromising efficiency. By contrast, the SmartScan VR800 remains calibrated as the scanner zooms in on the desired area without sacrificing precision, delivering a resolution range from 238 to 49 microns. Integrating a zoom lens into a 3D scanner's design presents significant technical challenges, which is why such a solution had not been developed before. Many factors needed to be taken into account in order to accommodate a zoom

lens, including a robust frame and calibration capabilities, all while maintaining portability and performance.

Developed in collaboration with colleagues from Hexagon's Swiss Innovation Hub, the scanner's unique closed zoom lens design replaces the need for multiple lenses, streamlining scanning into a single process and simplifying operation for expert and new users. A custom-built carbon fibre frame was developed to accommodate the cameras and lenses, ensuring the thermal stability of the scanner and allowing customers to use the equipment to perform accurate measurements for longer intervals between calibrations.

Ergonomic design for people, or cobots

Ergonomic design was a crucial consideration during the design process, particularly considering the role that truly portable scanners will have in highly automated manufacturing processes. Hexagon's design team prioritised usability for industrial professionals, investing significant effort into understanding user needs and solving their pain points.

Setting the SmartScan VR800 apart from many of its predecessors is its integrated controller unit, which provides fast on-device processing and optimisation of scan data. Traditional scanners have a separate control box that must be set up alongside the scanner, occupying additional space on the shop floor. The VR800's embedded control unit requires just two cables, enhancing portability and freedom of movement. This is complemented by the scanner's universal quick-mounting interface, which provides stability when mounted onto any robotic arm or tripod.

By addressing hands-on user challenges with future-looking design and engineering, the SmartScan VR800 exemplifies Hexagon's commitment to pushing technical boundaries to improve how people work in manufacturing and quality inspection.

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Bowers Group's XT Thread Gauges help UWR in custom race car solution

Bowers Group's precision measurement expertise played a crucial role in supporting the University of Wolverhampton Racing Team (UWR) with the manufacture of an adaptor plate. Used by OEM manufacturers such as Morgan, MINI and Toyota, adaptor plates convert the standard oil heat exchanger on the BMW B48 variant engine into an external oil cooler system. To ensure accurate measurements of critical components, Bowers Group supplied an XT3 Hometric thread gauge, aiding UWR in achieving optimal performance.

UWR and the Morgan Motor Company had been engaged in an ongoing partnership to assist building two new CX platform Plus 4 cars from road production vehicles into fully prepared racing cars which, in March of 2021, were the first of their kind. The UWR team scheduled track test days to gather performance data on the new racing cars, where they discovered an issue under extreme track conditions. This resulted in high engine and oil temperatures that could impact performance, which was more noticeable at the time in the automatic version of the car than the manual.

The UWR team decided that the best way to address the engine overheating was to lower the oil temperatures. However, at the time of the project, the latest iteration of the BMW B48 engine had no off-the-shelf oil cooler conversion available. However, time was of the essence as they understood that elevated oil temperatures could significantly impact the engine and its components.

It was decided that straining the cooling system and cooling the oil externally, rather than relying on the standard BMW oil filter housing's heat exchanger, would be more effective in reducing heat within both the engine and oil.

After exploring additional venting options to increase airflow through the radiator and engine bay that didn't give them the desired impact, the UWR team designed an adaptor plate to replace the standard heat exchanger on the oil filter housing. This plate would enable the installation of an external oil cooler system, which was much better suited to effectively lower both oil and engine temperatures in unison.

The team sought assistance from its



partners and sponsors, including Bowers Group, Quickgrind and Tungaloy UK, for the tooling and manufacturing of the plate. With time being critical to resolve the issue as quickly as possible to continue development of the vehicles, Bowers Group promptly supplied an XT3 Hometric Thread Gauge to test the connections of the adaptor plate, ensuring it could be built accurately. Precision measurement was crucial for manufacturing plate, which acts as a fluid barrier and pathway for both oil and engine coolant, to ensure it performed as intended.

Professor Amar Aggoun, head of the school of computer science, engineering and mathematics, says: "The speedy assistance from Bowers Group helped us to produce a bespoke solution in manufacturing a heat exchanger replacement adaptor plate for the B48 BMW engine found in the Morgan Plus 4. It was imperative to the project that we were able to manufacture the solution quickly to

keep the build of the cars on-track. The assistance from our sponsors was second-to-none. With their expertise and understanding, all aspects of the manufacture of the parts went smoothly. This had an impressively positive impact on the whole project and is something for which we are extremely grateful for."

The XT3 Thread Gauge from Bowers Group ensured the accurate production of the adaptor plate, with measurements correctly matching the CAD design. The thread gauge facilitated precise measurements for producing the threaded holes, ensuring a secure fit for the fittings and plugs.

The accuracy of the base component was also critical to prevent crossover between the oil and coolant pathways, which could have been catastrophic for the engine. The CAD design's accuracy translated into a finished product that worked as intended, ensuring a usable and safe build for the racing cars.

The adaptor plate's final fitment to the oil filter housing proved successful in both workshop and track testing. The precision and timely support from Bowers Group were instrumental in the project's success, showcasing the value of its partnership with UWR.

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Advantages of a horizontal bench top optical comparator

A horizontal bench top profile projector, also known as an optical comparator, is a precision measurement device used to inspect the dimensions and geometry of small parts and components. It projects the magnified silhouette of an object onto a screen, allowing for detailed examination and measurement. This type of projector offers several advantages over floor-standing models, making it more suitable for certain applications and environments.

Bench top models are typically more cost-effective, providing the necessary functionality at a lower price, which is ideal for smaller operations with budget constraints. They are also more compact, making them a better fit for small workshops, laboratories, or environments where space is limited. Their ease of installation is another advantage; bench top projectors require only a flat surface and minimal setup effort, ensuring they are ready to use quickly.

Portability is another key benefit. Bench top profile projectors can be moved or relocated more easily than floor-standing units, offering flexibility for shops that need to reconfigure their workspace or transport



equipment between locations. Additionally, they are well-suited for inspecting smaller components and detailed work. Their magnification and precision are ideal for tasks such as measuring small, machined parts, tools and prototypes.

The Starrett HB400 Optical Comparator demonstrates these advantages. It offers exceptional performance with a 16", 400 mm, diameter viewing screen, LED lighting and a 110 lbs, 50 kg, workstage load capacity. It includes optical and/or video edge detection to eliminate operator subjectivity in locating edges of parts being measured.

The bayonet-style lens mounting system

accepts a choice of six fixed interchangeable lenses, as well as OV2 Zoom or TOV2 fixed telecentric magnification video camera systems. Optional features include a motorised stage, fully automatic CNC controls and a swing-away lamp house.

The HB400 is available with MetLogix™ M1 tablet, M2 or M3 measuring software touchscreen and PC, or Mx-Series digital readout, providing performance previously only available with floor-standing models.

In summary, while floor-standing profile projectors offer advantages in terms of size, stability, and larger inspection areas, bench top profile projectors are a practical choice for many applications due to their compact size, affordability and ease of use. The HB400 described here provides the accuracy of a larger system with the flexibility that a bench top system offers.

Starrett Profile Projectors are available in the UK from Optimax Imaging and Inspection www.optimaxonline.com

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The DAkkS-accredited laboratory of eumetron GmbH in Aalen, Germany, offers DAkkS calibrations traceable to national standards with an extremely high level of accuracy that is unrivalled worldwide. The experts use special procedures to calibrate plug gauges, setting rings, calibration spheres and hemispheres as well as test specimens and other reference standards or reference workpieces. Standards are used to adjust, calibrate, check and set dimensional measuring systems and are therefore important tools in quality assurance. When it comes to roundness measurement, eumetron GmbH relies on two RONDCOM form measuring devices from ACCRETECH. In doing so, eumetron GmbH achieves measurement uncertainties of just ten nanometres.

Quality assurance is indispensable for practically all industries. Length measurement technology is at the centre of quality assurance in most manufacturing industries and their service providers. Exact dimensional accuracy in accordance with specified tolerance values must be guaranteed to ensure perfect usability, function, reliability and durability of the workpieces. Testing and compliance with tolerances, taking measurement uncertainty into account, is the task of quality assurance using a wide variety of length measuring devices, which must be subjected to a calibration process on a regular basis. Deviations due to geometric errors, thermal influences or deviations in shape and position cause measurement deviations that are different at every point in the measurement volume. By comparing current production

with reference workpieces, changes in the production process can be recognised at an early stage.

Such dimensional measuring systems include, for example, coordinate, form, contour, height and surface roughness measuring devices, as well as profile and measuring projectors, but also measuring microscopes, computer tomographs, laser trackers, fringe light projection and photogrammetry systems.

Reference standards are used for setting, checking, adjusting and calibrating, which can be used to reliably and traceably assess the deviations and therefore the accuracy of the measuring systems. Measuring mandrels, setting rings, calibration spheres and calibration hemispheres or test specimens consisting of several reference standards must therefore be calibrated regularly. Calibrated reference workpieces are necessary in many cases to determine the measurement uncertainty of test characteristics occurring on site at the user's premises.

Certified by the German Accreditation Body (DAkkS), eumetron GmbH in Aalen, Germany, is one of the world's leading calibration laboratories for reference standards. The approximately 35 employees carry out traceable DAkkS calibrations with very low measurement uncertainties, which only a few accredited laboratories worldwide can offer. Its customers include extremely renowned manufacturers and users in the field of tactile and optical measuring systems as well as manufacturers of reference standards, calibration laboratories and measuring service providers. The company,

run by the two managing directors Klaus Banzhaf and Theo Hageney, has several Class 1 precision measuring rooms, i.e. the highest category. This classification allows only minimal deviations from the reference temperature of 20°C, essential for correct measurement results. Temperature and expansion are significant factors influencing the measurement uncertainty.

In their measuring rooms, the calibration experts use two form measuring devices from the RONDCOM product line of the Japanese measuring technology specialist ACCRETECH, which are popular with quality assurance experts all over the world for their stability and reproducibility as well as their powerful and user-friendly software. During one of the regular assessments, auditors from the Physikalisch Technische Bundesanstalt (PTB), the highest body in the national calibration hierarchy, paid great respect to the devices after a test measurement on a test specimen. Finally, the RONDCOM used was able to determine the exact value with a deviation of just a few nanometres.

Eumetron GmbH is able to offer the highest accuracy standards with its equipment and its enormous measurement technology expertise. This expertise includes stable and proven procedures with minimised measurement uncertainty for the DAkkS calibrations performed. For example, the multi-layer method for roundness measurements. The test standard is measured at different points and with different orientations. This sophisticated process allows systemic and random deviations to be almost completely eliminated. "This enabled us to reduce the

measurement uncertainty from 100 nanometres to just ten nanometres,” explains eumetron GmbH technician Andreas Pierro. “Only a few laboratories in the world achieve this,” adds Klaus Banzhaf. For the measurement of roundness deviations in setting rings and mandrels, inner and outer cylinders as well as balls and hemispheres, eumetron GmbH has achieved a highly impressive, expanded measurement uncertainty of $U = 0.01 \mu\text{m} + 0.05 \times 10^{-6} \times \text{RONT}$, roundness deviation of the part to be calibrated. Around 180 test parts pass through the RONDCOM devices at the German company every month.

One nanometre corresponds to 10^{-9} m, i.e. one millionth of a millimetre or one billionth of a metre, an order of magnitude that can only be grasped by comparison for human understanding. For example, one nanometre is to one metre as the diameter of a one-cent coin is to the diameter of the globe.

With an accreditation, DAkkS confirms that



organisations such as calibration, testing, inspection or certification bodies perform their activities in accordance with internationally valid standards. Regular audits by DAkkS ensure this in the long term.

DAkkS calibrations are the highest calibration level below the national standards. Traceability to national standards is directly guaranteed with these calibrations. Only accredited laboratories carry them out in accordance with DIN EN ISO 17025. The laboratories calculate the exact measurement uncertainties and assign them to each measurement result. DAkkS laboratories must prove for all calibrations that the measurement uncertainties specified in the calibration certificate issued are adhered to or fallen below.

This is ensured on an ongoing basis by a QM system in accordance with DIN EN ISO 17025. Accredited DAkkS calibration laboratories, such as eumetron GmbH, thus guarantee the safety of

products, processes and services.

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The new Digimar 816 CLT

Robust technology for precise results

Mahr has launched the Digimar 816 CLT with optimised mechanics to enable precise measurement of components in production environments. The height measuring device stands for outstanding accuracy and is easy to operate with its intuitive touch display.

The display is equipped with particularly large buttons that make it very easy to recognise and use and lead directly to the desired measurement and evaluation functions. For users, this means: all-round reliable execution of measurements, setting and calculation functions, together with the simple creation of measurement programs using the drag & drop function. The measurement data can be easily backed up, as the latest addition to the Mahr height measuring devices scores points with its many interfaces. Data can be transferred wirelessly or by cable via the MarConnect duplex interface. MarConnect also enables the transmission of a measuring equipment ID to ensure the traceability of all measurement results. Another plus point is

the interface integrated in the slide, which ensures error-free measurement of squareness and straightness in conjunction with the Millimes 2000/2001 W digital precision indicators.

A series of measurements can be quickly printed out using the Bluetooth printer. To create measurement reports, users can choose between complete measurement reports in PDF format or saving them as a TXT file. The Digimar 816 CLT creates the finished PDF file without the need for separate software or a detour via the computer. The PDF files can also be filled with information directly on the device.

Practical with a wide range of options

The height measuring device can be moved precisely and effortlessly on the measuring plate using ergonomic handles on both sides with an integrated operating button for the air bearing. Compared to its "big brother", the Digimar 817 CLT, the Digimar 816 CLT concentrates on practical functions without sacrificing extensive evaluation options.



Mahr is one of the largest manufacturers of precision measurement metrology systems and inspection tools in the world today. Having celebrated over 150 years of success, Mahr continues to provide innovative solutions for a wide variety of metrology applications.

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Lantek Expert and iQuoting are indispensable at A13 Engineering

A13 Engineering moved from plasma cutting to laser cutting in October 23 with the installation of a Bodor 12 kW laser and Lantek Expert software. Harry Hodgetts, managing director at A13 Engineering says: "With high-definition plasma, we found that it was not suitable for about 10 percent of our production, driving us to invest in a laser cutter giving higher accuracy and automatic part etching for easy component identification."

The Worcester based company is a one stop shop, with both fabrication and machining capabilities, designing and manufacturing a range of attachments for excavators, diggers and tractors, as well as farm and factory structural steel buildings. Part identification is crucial during the manufacture and build of these products, with many very similar components. This own product aspect of the business takes up around half of the capacity, with the remainder filled with subcontract work.

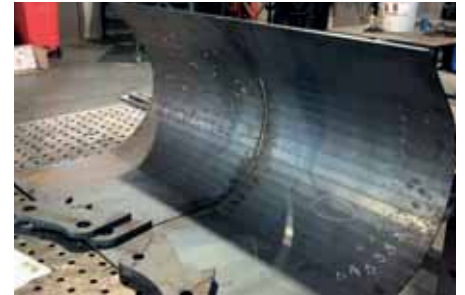
Harry Hodgetts says: "We were already aware of Lantek and chose it without hesitation because it met all our needs. The decision was straightforward. Laser cutting allows us to handle a variety of materials and with the software, we can seamlessly import customers' CAD files into the Expert software. The majority of our work is cutting

mild steel between 2 mm and 30 mm thick and stainless between 1 mm and 10 mm thick. The machine has a shuttle table so we can unload parts while the machine is cutting the next sheet. With Lantek's nesting we can tag parts in the sheet and nest parts in larger holes, which would otherwise be scrap, add the odd part in a spare area and have the flexibility to use up remnants of material, maximising our material utilisation."

The subcontract side of the business has required A13 Engineering to generate a large volume of quotations. Previously this was done using a series of spreadsheets which took over 20 minutes for each quotation. By adding Lantek iQuoting the time has been reduced to 5 minutes. The software holds material prices and allocations of material. Nesting and machining times are simulated as is gas use.

Harry Hodgetts adds: "iQuoting is in the Cloud so can be operated from anywhere creating a quotation around 10 times faster than we could do previously and much more accurately. Gas usage is a big variable cost which is highly job dependent. Stainless steel and aluminium use a lot of gas for example. We have done trials and found that the usage calculated by iQuoting is very close to what we actually use."

The Lantek software can aggregate



multiple materials and thicknesses from subcontract enquiries and orders, automatically splitting them out so that nests can be created in sheets or remnants, mixing parts from different customers in the same type of sheet, showing what is left and giving A13 the ability to add individual extra parts, if it chooses, to fill the sheet completely.

Once completed, iQuoting generates a pdf quotation which is emailed directly to the customer. When the order is received, all the manufacturing information is already in the system so the job simply needs to be released to the workshop ready for manufacture.

Harry Hodgetts concludes, "The support from Lantek has been excellent both online and in person, helping us to get the best out of both the machine and the software. As Lantek can program many different makes and technologies of sheet metal machinery, we are also well-prepared for any future investment we might make, such as tube cutting machinery. In our fast-paced industry, Lantek Expert and iQuoting have become indispensable to us. Has it been a benefit to us? Absolutely."

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XYZ routers in education

Strathallan School, located approximately 30 miles north of Edinburgh, is a boarding and day school for boys and girls aged 5-18. Known for its commitment to fostering creativity and innovation in education, Strathallan School embarked on a journey to enhance its educational offerings through the integration of XYZ routers.

In the summer of 2022, Strathallan School made a significant investment in an XYZ INNOVATOR router. The decision to invest in XYZ routers came after an exhaustive four-month consultation period. Strathallan School aimed to ensure that its picturesque location and facilities could seamlessly accommodate a machine of this calibre. The CNC purchase represented a forward-thinking move, aligning with the school's commitment to providing cutting-edge educational experiences and this decision was driven by the desire to introduce modern CNC technology to its educational setting.



Building on past success

Strathallan School's choice of XYZ as their preferred machine supplier was grounded in positive past experiences. "I had previously installed a similar machine back in 2018 at a previous school, Yarm in North Yorkshire", explains Ian Barrett head of design technology. This familiarity with the brand's reliability and performance was very much a positive influence on the selection, cementing confidence in the XYZ router range.

The machine and its core use at Strathallan School

There are five models in the XYZ Routers range, all with their own unique options and versatility to cross over infinite markets. The newest routers are controlled by AAG's leading control interface MOVE™ that drives all machine tasks and is designed to optimise the operation of the CNC machines, perform tool changes, set up work offsets, call up a new file or optimise the cutting speed. MOVE is designed to make machine operation easy and intuitive.

The INNOVATOR Router offers standard Option Ready Installation Packages, allowing the operator to expand the capabilities of the machine as one's needs or business grows. With its advanced technology and cutting-edge features, this machine is the

ultimate choice for educational establishments or businesses looking to take their operations to the next level. The XYZ INNOVATOR, is optimised for prototype, signs and graphics, woodworking shops and educational institutions. It is equipped with powerful integrated servo motors, an optional tool changer and standard helical rack and enables the choice between two standard sizes that fit the most common sheets sized for this market. The INNOVATOR has a robust design using high-quality components and this includes a welded steel frame, integrated servo motors and helical rack and pinion. This design ensures the router can deliver an excellent quality of finished product. The INNOVATOR uses XYZ's highly intuitive Smart Console and A2MC CNC controller and these machines integrate with the most popular CAM software and automatic tool changer making it easy to switch tooling without stopping production.

The INNOVATOR is able to process plastics, woods, foams, and non-ferrous metals. This versatility, combined with a compact footprint, makes it ideal for R&D labs, schools and universities. XYZ also offers an education curriculum which can be taught with this machine.

The Innovator is designed to be upgraded whenever the user is ready. For example, one

can add productivity with an optional automatic tool changer or versatility with a high-speed knife cutter. This allows the machine to keep up with the company or establishment growth.

Strathallan predominantly utilises the Innovator machine to manufacture furniture designed by students for their exam projects. The machine efficiently handles materials such as Birch-faced ply, MDF and laminated decorative boards. "The XYZ INNOVATOR machine at Strathallan School primarily handles profiling, pocketing and occasionally skimming tasks. These capabilities are vital for creating components used in various projects, including the popular resin river tables," explains Ian Barrett.

Impact on productivity, efficiency and the education syllabus

The implementation of the XYZ router has had a profound impact on productivity and efficiency at Strathallan School. The introduction of CNC technology has not only streamlined the manufacturing process but has also significantly affected the education syllabus. The INNOVATOR router has been tailored to meet the specific needs of the curriculum. This capability has empowered students to turn their design concepts into tangible, high-quality products. By utilising CAD designs directly for cutting, the school

estimates a remarkable 75 percent reduction in making time, providing an additional 50 hours of teaching time.

Initial challenges and solutions

The integration process, overseen by experienced personnel who had prior knowledge of the XYZ machine, proved to be relatively straightforward. Any challenges faced were swiftly addressed with the assistance of Chris Perry from XYZ, providing guidance on installation logistics, room layout and power requirements.

Cost savings, creativity and expansion

While cost savings have been realised through reduced material waste and fewer errors, the adoption of XYZ machines has led to an interesting dynamic. The students' growing confidence and creativity, fuelled by the possibilities the XYZ machine offers, have resulted in a potential increase in material usage. However, the overall impact on efficiency, creativity and educational value remains substantial.

The quality and accuracy of finished projects at Strathallan School have been elevated and it can safely be said have reached industry standards, leaving parents

impressed with the high-calibre and professional-grade outcomes created by their children.

Operated by the department staff, the XYZ machine's user-friendly operation, has simplified the manufacturing process. "With minimal glitches, the machine's introduction has provided tangible benefits, in terms of simplicity and efficiency, making it an integral part of the educational landscape," states Ian Barrett.

A hands-on approach

Students actively participate in every stage of the process, from the setup of materials to programming cutting operations. While they may not physically press the button, their involvement in planning and executing tasks ensures a hands-on learning experience that goes beyond theoretical knowledge.

Maintenance and future plans

An introductory 2-year maintenance plan was included with the purchase. Given the relatively light usage, biennial site visits are sufficient to ensure optimal machine performance. While currently exploring the



existing XYZ machine's capabilities, Strathallan School remains open to future CNC expansions.

In conclusion, the collaboration between Strathallan School and XYZ showcases how advanced technology can enhance educational experiences and practical outcomes. This integration has enriched students' creative and educational endeavours, providing hands-on skills, creative confidence and additional teaching time. The ongoing partnership between Strathallan School and XYZ demonstrates the profound impact technology can have on the present and future of learning.

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AIM celebrates 25 years of success with PSL Datatrack

In 2024, Automatic Industrial Machines Ltd (AIM) celebrates a significant milestone. It has partnered with PSL Datatrack, a UK-based provider of production control software for subcontract precision engineers for 25 years. This enduring collaboration has transformed AIM's operations, propelling the company towards excellence in the aerospace industry and beyond.

Before embracing PSL Datatrack, AIM navigated its operations using manual systems for a quarter of a century. However, as the business expanded and more machinery was introduced, managing a growing volume of active orders became a daunting challenge. "The need for efficient production control and enhanced traceability became increasingly apparent," reflects Rob Kendall, managing director of AIM.

Established just over 50 years ago, AIM boasts an impressive array of approvals from aerospace industry giants such as Airbus UK, Hamble Aerostructures, GKN Aerospace and BAE Systems, as well as being AS9100 and ISO 9001 accredited. With a workforce of 30 dedicated professionals, it also serves the motorsport, automotive and food processing machinery industries and is involved in Research and Development (R&D) projects.

AIM's quoting success rate has drastically improved as a result of using PSL Datatrack. The company's strengths lie in precision machining, steadfast adherence to quality

and the ability to tackle complex projects with an extensive machinery arsenal. This comprises of 35 machines, including CNC machining and turning centres and manual cylindrical and surface grinders, as well as a number of cutting-edge automation systems. A double-decker with 33 pallets, feeding a 5-axis machining centre, was the first of its kind in the country.

AIM's quest for a solution to streamline its production, all those years ago, led it to PSL Datatrack and the subsequent implementation was driven by a pivotal meeting which included PSL's now-managing director, Geoff Gartland. He states: "Our aim was and still is to help our users streamline their entire production process, covering all the steps required to win and manufacture a job whilst saving them administration time and costs.

Recognising the unique needs of AIM as pioneers in the aerospace sector, PSL Datatrack emerged as the preferred choice as a result of its willingness to tailor the system to suit AIM's specific requirements. "PSL Datatrack listened to us and were willing to make the changes that we needed. That approach has continued into the present day," comments Rob Kendall.

That move to a designated production control system was a significant leap forward for AIM. Comprehensive training facilitated a smooth implementation process, while the

support from PSL Datatrack ensured any queries were swiftly addressed. Despite the ever-changing high precision manufacturing industry and technological advancements, various departments including management, quality assurance, accounts, inspection and stores continue to seamlessly utilise the software 25 years on.

A number of cutting-edge automation systems are in place at AIM and it quickly noticed heightened efficiency and productivity gains as a result of the investment. Enhanced information sharing, streamlined processes from quotation to invoice and comprehensive traceability have streamlined audits and empowered the business to manage a much larger volume of orders to this day.

"Between PSL Datatrack and ongoing investment in automation systems, there has been terrific growth over the years," Rob Kendall remarks.

Looking ahead, AIM envisions further integration of PSL Datatrack modules including the Sequential Scheduler, which ensures works orders are correctly prioritised and materials available and Shop Floor Data Collection (SFDC), which records shop floor activity for comparison to quotations supported by barcoded process layouts and scanners. The addition of live Status Boards will further improve performance and communication across the organisation, reinforcing AIM's commitment to excellence.

"As AIM commemorates 25 years of partnership with PSL Datatrack, its journey stands as a testament to the transformative impact of production control software in the subcontract precision engineering industry. With unwavering support and unparalleled customer service, PSL Datatrack continues to be a trusted supplier, powering AIM towards greater heights of success," says Rob Kendall.

He concludes: "The system has served us very well over the years. PSL Datatrack's customer service has been second to none, with fantastic support provided for any questions that we have."

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ADDiVAL selects Renishaw's RenAM 500Q Ultra system to boost its additive manufacturing processes

ADDiVAL, the emerging specialist in industrial-scale Additive Manufacturing (AM), based in Barcelona, Spain, has purchased a RenAM 500Q Ultra AM system from global engineering technologies company, Renishaw. The RenAM 500Q Ultra will be used to boost the serial production of metal components, such as its innovative punch, which was developed as a collaboration between the Renishaw and ADDiVAL.



The patented punch is designed primarily for the tube bending and manufacturing industry, although it can also be adapted to other processes, such as sheet stamping. "Our output is between 100 and 120 punches per month," says Borja Batlle, director of ADDiVAL. "The punch meets industry standards of surface hardness, 60 HRC and it also includes heat treatment, anti-wear surface treatment and machining."

TEMPUS™ technology had a large part to play in ADDiVAL's choice of Renishaw's additive manufacturing solution. "This technology allows the lasers to start work on manufacturing while the wiper supplies and positions each layer of powder, thereby increasing productivity and reducing the manufacturing cost per part," says Marc Gardon, AM applications manager at Renishaw.

With TEMPUS technology, Renishaw, the UK-based multinational specialist in systems for intelligent manufacturing, measuring and additive manufacturing, successfully solved an inefficiency in the traditional Laser Powder Bed Fusion (LPBF) production process. This was a key factor in ADDiVAL's decision to select Renishaw additive manufacturing technology to produce its punch, having tested other solutions, such as binder jetting, which had not achieved the efficiencies it was seeking.

The two companies announced their partnership during their appearance at the Biental Internacional de Máquina-Herramienta, the International Machine Tool Biennial (BIEMH) which took place in Bilbao, Spain from 3rd to 7th June.

For further information on Renishaw's AM systems, visit www.renishaw.com/am

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EuroBLECH 2024 sets out new ways to engage with productivity

Thousands of exhibits and four days of intense product sourcing, networking and learning: The sheet metal working industry is gearing up for its benchmark event, EuroBLECH 2024, presenting the world's largest showcase of sheet metal working technology in one place. Reflected in this year's show motto, 'The Power of Productivity', visitors can look forward to a trailblazing event at the core of the industry, with exclusive access to top-tier suppliers, live demonstrations and technical premieres.

A unique experience awaits visitors to the 27th International Sheet Metal Working Technology Exhibition, taking place from 22nd to 25th October at the Hanover Exhibition Grounds in Germany. EuroBLECH is a leading trade event for sheet metal processing, covering the entire supply chain in 15 different technology sectors across nine exhibition halls. This year's focus is on productivity-enhancing technology, presenting the latest the market has to offer in terms of increasing output and efficiency while aligning individual production processes to the complex demands of smart manufacturing.

The coming event will feature some 90,000 sq metres of net exhibition space, offering direct access and networking opportunities with blue chip and SME suppliers from all over the globe. More than 60 percent of exhibitors are joining from abroad. Besides Germany, major exhibitor countries for 2024 are Italy, Turkey, China, Spain, the Netherlands, Switzerland, Taiwan, Poland, Belgium, Austria, India, France and the USA.

A host of well-known brands will take to the show floor including Adige, AIDA, Amada, Bystronic, Dimeco, Durma, Haco, LVD, Messer Cutting Systems, Pivatic, Prima Power, Salvagnini, Schuler, Thyssen, TRUMPF, Yamazaki Mazak and many others. These are complemented by specialised SMEs and first-time exhibitors demonstrating their innovative strength on the market.

Exhibits cover anything to do with the processing of semi-finished and finished products, including metal sheet, tubes, profiles, and plastic hybrids. Visitors will have plenty of opportunities to discover and source the latest in stamping, punching, pressing, forming, cutting, joining, welding, fastening, handling, finishing, quality control, CAD/CAM, CIM, tools, machine components, warehouse and factory

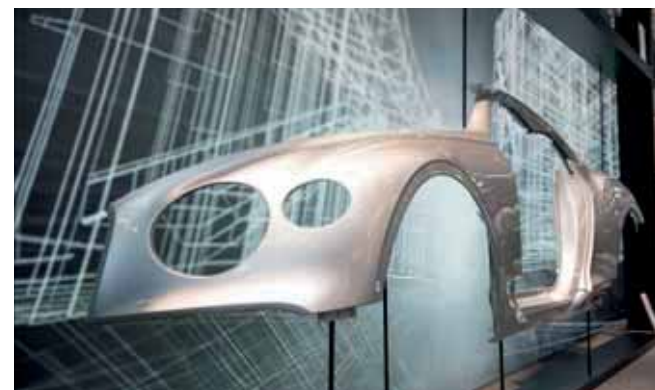
equipment, material recycling, R&D and so much more.

Noteworthy is the proactive stance taken by tech suppliers, futureproofing the industry through innovation, efficiency and adaptability. "If change comes at you fast, you have to come up with solutions even faster", says Evelyn Warwick, event director of EuroBLECH, on behalf of RX. "The integration of AI and machine learning are revolutionising the industry, enabling unprecedented levels of precision and efficiency. Automation and robotics continue to advance, streamlining production processes and reducing manual labour, while the Internet of Things connects machinery and systems for real-time monitoring and optimisation. These innovations, showcased at this year's EuroBLECH, underscore the industry's commitment to meet the growing demands for customisation, sustainability and smart manufacturing."

Alongside thousands of exhibits and suppliers in the exhibition halls, the 2024 visitor experience offers a wealth of opportunities to personally engage with innovation, including the new guided visitor tours focusing on clever strategies and tools to optimise production efficiency. In addition, the popular Speaker Forum delivers actionable insight and knowledge on current key topics, such as automation, robotics, cobots, industrial metaverse and cybersecurity. The prestigious EuroBLECH Awards will honour five winners for their outstanding achievements in driving technical excellence and innovation. Friday will be Careers Day again, promoting young talent in the industry.

Further information and tickets are available on the official show website.

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WARDJET and AXYZ to exhibit at EuroBLECH

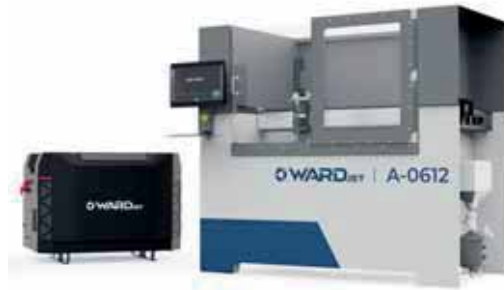
WARDJET and AXYZ, two leaders in cutting and routing technology, are participating at EuroBLECH 2024, the leading exhibition for the sheet metal working industry. Attendees are invited to visit its stand to witness live demonstrations, meet industry experts and explore the latest advancements in waterjet and CNC routing technology.

WARDJET A-Series waterjet cutting system

At the exhibition, WARDJET will showcase the A-Series waterjet cutting system, known for its unparalleled precision and versatility. Visitors can experience live demonstrations and see first-hand how WARDJET's A-Series brings the power of large-scale industrial waterjet cutting to a complete, yet compact solution. This is an exceptional opportunity to discuss specific manufacturing needs with WARDJET's experts and discover how its cutting-edge technology can enhance your production processes.

Meet the experts

In addition to live demonstrations, WARDJET invites attendees to connect with industry



leaders at its stand. Its team of specialists will be available to answer questions and provide insights into how WARDJET's waterjet solutions can be customised to meet the unique demands of various industries.

Precision CNC routing solutions

AXYZ, with over 30 years of leadership in CNC technology, will also be featured at the stand. Known for their advanced precision routing solutions, AXYZ Routers excel in high-speed cutting and advanced motion control. The customisable options, including automatic tool changers, ensure that our machines deliver

efficiency and accuracy across a wide range of applications.

What can visitors expect?

Live demonstrations: See the WARDJET A-Series in action and understand how it can revolutionise your manufacturing process.

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MSS Group at EuroBLECH

MSS Group Ltd is looking forward to the forthcoming Euroblech 2024 show as its largest ever European exhibition event. It will showcase the following machine exhibits on its generous 85m² stand:

New MSS Nitrocube™ ECO:- nitrogen generation system



The UK & US market leader in on-site, high pressure nitrogen generation. It is the most efficient system available anywhere. The Nitrocube combines the highest quality components housed in its unique cube enclosure with sophisticated MSS intelligent monitoring and controls. All systems provide 300bar nitrogen and 99.5 percent - 99.999 percent gas purity as standard, a huge range of flow rates and storage capacities are available to suit most applications. The new MSS Nitrocube™ ECO offers class leading efficiency backed with MSS unrivalled pedigree and experience of laser cutting applications.

New MSS Aircube:- High pressure compressed air system for laser cutting



The MSS Aircube is a plug and play solution for laser air cutting applications. It is a compact and quiet all in one system providing clean, dry and oil free compressed air supply for laser cutting assist gas. All systems provide 15 or 40 bar compressed air and generous 150m³/h flow

rates as standard. Aircube also feature outlet dewpoint monitoring control with emergency shutoff in case of an air quality issue to give the laser system full protection from condensate or oil contamination. This performance and safety combined with MSS unique intelligent monitoring and controls package makes the Aircube a sound solution to those looking for an economical and secure laser cutting gas package.

MSS NitrO2 – Innovative gas mixing system



MSS NitrO2 gas mixer system has been specially developed by MSS for use with high power fibre laser cutting systems, the NitrO2 is the only system available on the market today that allows on-line variable gas mixing technology with fully integrated CNC controls to allow the laser operator to select the precise nitrogen/oxygen gas mix required directly from the laser HMI control. Extremely compact, the system can be installed with minimum floor space without the need for any large storage tanks, simply connect existing nitrogen and oxygen lines into this unit and you will have the same outputs plus a variable 'mixed gas option' to optimise your laser cutting quality. This clever technology allows significant increases in fibre laser cutting speed and quality and give higher quality cutting results on lower quality plate material.

Oxyboost – Liquid oxygen line pressure boost system for laser gas mixing

MSS Oxyboost is an important development for laser users wishing to use their existing liquid oxygen supply for laser gas mixing applications. A standard liquid oxygen gas line supply doesn't provide adequate pressure for laser gas mixing systems to function correctly so MSS have developed this new system to overcome this issue. MSS Oxyboost may be installed on all

liquid oxygen lines in conjunction with the MSS NitrO2 gas mixing unit for a complete package solution to suit all laser operations.

MSS Flowbox - Gas use measuring and monitoring



MSS Flowbox measures and monitors high pressure Nitrogen gas flow into the laser cutting system allowing the operator to exactly measure the amount of gas used on a daily basis and even scrutinise the volume of gas used per product/sheet being cut to understand overhead costs more accurately. The Flowbox can also be used for leak detection and may be installed on any laser cutting system.

MSS Puregas - Laser cutting gas filtration



MSS PureGas filters high pressure nitrogen, oxygen and compressed gas to particles sizes >0.01 µm including oil vapour removal carbon filter stages. The MSS Puregas may be installed on any fibre laser to give full protection against particle damage or oil contamination to the laser cutting system including the cutting head. An important safeguard and a must for all fibre laser operations especially where nitrogen & air lines/ring mains may be old, degrading or contaminated.

MSS Lasers

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Salvagnini at EuroBLECH

Discover the G4 generation

Salvagnini has chosen EuroBLECH 2024 as the stage for the world premiere of its revolutionary Generation 4, which introduces cutting-edge solutions to tackle the most pressing market challenges: labor shortages, the need to maximise productivity, reduce errors and consumption and ensure ever-higher product quality.

On its stand, Salvagnini is showcasing two highly automated factory solutions capable of operating both in stand-alone and collaborative modes. These solutions are designed to enhance ease of use and repeatability in operations, eliminate low-value tasks, reduce lead times and optimise production flows for increasingly lower unit costs and greater competitiveness.

The first solution is a Flexible Smart Line S4+P4, a flexible production system that integrates machines, people and big data into a single ecosystem. FSL analyses and interprets data to implement intelligent production flows, reducing waste, scrap and energy consumption. The MD single-sheet warehouse feeds the S4 punching-shearing machine, while the MC Cartesian manipulator can unload and stack

parts, feed the P4 panel bender and balance the production pace. The FLOW software autonomously manages the machines, optimising results according to the selected production mode. FSL introduces the new S4.G4 punching-shearing machine, which stands out for its reduced energy consumption, application versatility and structural simplicity. Its advanced hybrid actuators reduce average consumption by up to 20 percent and eliminate maintenance.

MC is the automatic sorting solution that allows for stacking punched parts with various strategies, removing geometric constraints resulting from punching nesting. The NEXUS software automatically generates sorting programs, ensuring complete control of the production process and precise verification through the integrated 3D simulator.

The second solution is a Flexible Smart Job Shop, a combination of three different stand-alone systems that can collaborate when needed to manage convergent productions. The connection between the various systems is ensured by software, as well as by transfer units and Autonomous Mobile Robots (AMRs). The Flexible Smart Job Shop can also integrate



intermediate warehouses or additional workstations upstream and downstream. This FSJ consists of the new L3.G4 laser, in a fully automated configuration with LTWS warehouse, MCU sorting device and conveyor transfer unit; P-Robot, an application that combines a P2-2120.G4 panel bender with a 6-axis anthropomorphic robot and the B3 press brake equipped with ATA devices for the setup of upper and lower bending tools. The L3.G4 features an innovative gantry solution that ensures maximum accessibility to the work area, as well as increased robustness and precision in processing.

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TwinCAT and PC-based control for waterjet cutting systems



Control systems are subject to very specific demands from every form of production technology including waterjet cutting. IGEMS from Sweden set itself the goal of taking this process to a new level in terms of precision and speed and achieved it with the help of PC-based control. Users such as the machine builder Kimtech are now benefiting from the results.

Waterjet cutting is an effective and versatile process for cutting a wide range of materials, including metals, plastics, glass, ceramics, stone and composites and can even handle unusual applications such as portioning fish fillets and dessert cakes. “We love waterjet cutting because of its versatility, precision, cleanliness, eco-friendliness and cost efficiency,” says Jesper Kimblad, technical manager at IGEMS, a company based in Borås, Sweden, specialising in CAD/CAM software for waterjet cutting systems. However, it takes more than these credentials to achieve the perfect cut: “We have studied the physics of the waterjet in depth and developed CNC-software that takes its constantly changing nature into account,” says Jesper Kimblad. “In the same way as water cutting requires specific CAD and pre-production software, it also needs an

optimised control system.” TwinCAT 3, equipped with a range of functions and other Beckhoff components, forms the basis for the IGEMS control platform.

Flexibility and openness deliver benefits

According to Jesper Kimblad, no other system offered the necessary flexibility and functionality: “One problem with conventional control systems is that the digital outputs cannot be controlled quickly and synchronously enough during the path movements of the nozzle.” It is exactly this level of control that waterjet cutting requires, however: The water and abrasive materials must be precisely metered because even the briefest of stops or delays will leave marks on the cutting edges. Citing a further advantage of PC-based control technology from Beckhoff, Jesper Kimblad adds that no other controller would be able to switch the feed rate from mm/minute to inverse time during operation. This function is particularly useful when cutting pipes and in 5-axis operation.

IGEMS went through a total of four iterations with other control providers before Jesper Kimblad finally found the right platform with the open approach of PC-based

control and TwinCAT 3. He continues: “We simply couldn’t implement the necessary adaptations in the other systems. In addition, the other providers had a limited range of hardware, so IGEMS control system users would always have had to purchase the additional control components they needed from different suppliers and integrate these themselves.”

Single sourcing in hardware and software

As Jesper Kimblad explains, however, Beckhoff’s wide range of technologies allows it to provide all the electrical components required for waterjet cutting machines anywhere in the world. This is vital for IGEMS’ customers, who sell their water cutting systems worldwide. He continues: “Most importantly, however, TwinCAT 3 ensures that a machine does not have to stop while the program is running, which means it can perform multiple cutting tasks in one operation and ensure a straight cut,” says Jesper Kimblad.

IGEMS uses Beckhoff’s TwinCAT software, in particular the TC1200 (PLC), TF5000 (NC PTP) and TF5060 (NC FIFO Axes) functions to calculate the trajectories of the motors, control the drives and movements, perform axis interpolation, track I/O changes and transfer all this data to the FIFO (First In, First Out) buffer integrated in TwinCAT. All data is communicated in real time via the EtherCAT network protocol from Beckhoff.

Jesper Kimblad concludes: “I really appreciate the open nature of TwinCAT. The software handles difficult tasks involving flowing positions very quickly and ensures a precise and perfect cut. It’s ideal for monitoring values and runs on an industrial PC, which means we can carry out the entire development process on laptops. Setting up and programming the water cutting system is also very quick, between just five and 30 minutes.”

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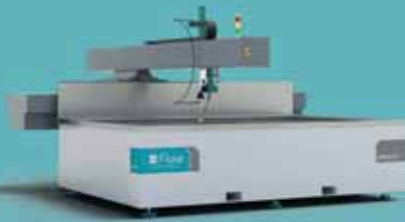


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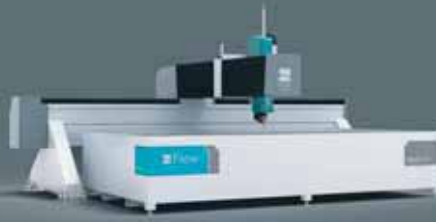


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Made in America

The story of OMAX Waterjets
In the bustling landscape of industrial manufacturing, where global supply chains dominate, OMAX Waterjets stands out as a beacon of American ingenuity and craftsmanship. Since its establishment in 1993 in Washington State, OMAX has remained steadfastly committed to its roots, proudly designing and manufacturing its innovative abrasive waterjet systems entirely within the United States. This dedication to domestic production has shaped the company's identity and become a cornerstone of its success in the competitive world of machine tools.

At the heart of OMAX's operations lies its sprawling 225,000-sq ft campus in the picturesque Pacific Northwest. Here, over four hundred skilled personnel work tirelessly, driving forward the company's mission of excellence and innovation. Unlike many of its counterparts, OMAX does not outsource production to far-flung corners of the globe in pursuit of cost savings. Instead, every aspect of fabrication, construction and programming occurs right at home, fostering a culture of quality and precision that sets OMAX apart.

A critical pillar of OMAX's success lies in its unwavering commitment to vertical integration. By consolidating all manufacturing processes within a single campus, the company ensures seamless coordination between departments, from hardware production to software development to training and support. This holistic approach streamlines operations and results in a superior end product with intuitive design and unparalleled performance.

OMAX's dedication to customer service further reinforces its 'Made in America' ethos. Unlike impersonal call centres halfway across the world, OMAX's support staff operates onsite, armed with in-depth knowledge of abrasive waterjet operations. This close collaboration between engineers and customer service personnel ensures that clients receive prompt and accurate assistance, minimising downtime and maximising productivity.

OMAX's commitment to American



manufacturing is not just about patriotism, it's also a smart, environmentally friendly choice. Its innovative direct-drive pumps offer superior efficiency and reduced water consumption compared to traditional hydraulic systems, leading to significant cost savings for operators. By eliminating the need for hydraulic oil, OMAX is contributing to a cleaner, greener future, aligning with the increasing demand for sustainable manufacturing practices.

When it comes to versatility and precision, OMAX abrasive waterjets are in a league of their own. They outperform the competition in cutting a wide range of materials, from stone and steel to glass and rubber, with unmatched accuracy and efficiency. Whether it's intricate micro-machining tasks or large-scale fabrication projects, OMAX waterjets consistently deliver high-quality results, enabling manufacturers to meet evolving market demands with confidence.

Central to OMAX's cutting-edge capabilities is its proprietary IntelliMAX software, which simplifies the cutting process while ensuring optimal performance across diverse materials. With an extensive database of over sixty material types, operators can effortlessly tailor cutting parameters to suit specific requirements, enhancing efficiency and precision with every job.

OMAX's commitment to quality extends to its OEM parts and consumables. These genuine components are crafted with the same precision and expertise as their abrasive waterjets, ensuring optimal performance and longevity. By choosing

OMAX OEM parts, customers not only enhance system performance but also benefit from streamlined maintenance and troubleshooting procedures, minimising downtime and ensuring uninterrupted operations, thus safeguarding their investments for years to come.

In a rapidly evolving landscape where adaptability and innovation are paramount, OMAX waterjets are a shining example of American manufacturing excellence. From its humble beginnings in Washington State to its leadership in abrasive waterjet systems, OMAX continues to push the boundaries of what's possible, empowering manufacturers to achieve their goals with precision, efficiency and pride all made possible in America.

Aquajet are experts in waterjet cutting systems and technology. It has been the UK partner of OMAX, a Hypertherm associate brand since 1995 and its experience guarantees you superior advice, knowledge and service. At its demonstration facility, it has four machines available for you to view, enabling you to assess the suitability of the waterjet process for yourself and offering an opportunity to meet the team who will support your waterjet journey. It will show you step by step how quick and easy it is to get from an idea or drawing, through to cutting a test part, all in a friendly, easy-going environment.

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Nanoker's strategic investment in micro waterjet technology secures lucrative CERN tender

Nanoker Research S.L, a Spanish company specialising in technical ceramics, successfully secured a substantial contract from CERN, the European Organisation for Nuclear Research, by strategically investing in micro waterjet cutting technology. This move not only elevated Nanoker's position in the value chain but also opened new avenues for growth and innovation.

Seizing the CERN opportunity

For Nanoker, working with CERN meant dealing with specific requirements characterised by high technical content and competitive pricing. Sergio Rivera, the product and business development manager at Nanoker, explains: "With CERN, we have different kinds of supplies. Sometimes they send us orders for parts in small quantities and sometimes they launch tenders open source, which is public information."

Having successfully participated in previous tenders with CERN, Nanoker identified a new opportunity related to a material called aluminium nitride, crucial for detectors. This led to the launch of a market survey to produce 50,000 parts. After the initial market survey, CERN identified two potential suppliers, Nanoker being one of them.

"The technology for cutting the parts was specified to be micro waterjet cutting technology and it was mandatory that the company applying for the tender have the technology in-house," comment Sergio Rivera.

Investment in micro waterjet technology

To meet the stringent requirements of the CERN tender, Nanoker embarked on a journey to find the right micro waterjet cutting machine and contacted various companies for estimations and samples. Recognising the need for in-house capabilities, Nanoker decided to invest in a micro waterjet machine.

The collaboration with its Scandinavian representative KG Fridman AB and Water Jet Sweden played a pivotal role in this endeavour. Alain Lennquist, CEO at KG Fridman AB, engaged Water Jet Sweden to cut test parts for Nanoker to get technically homologated.

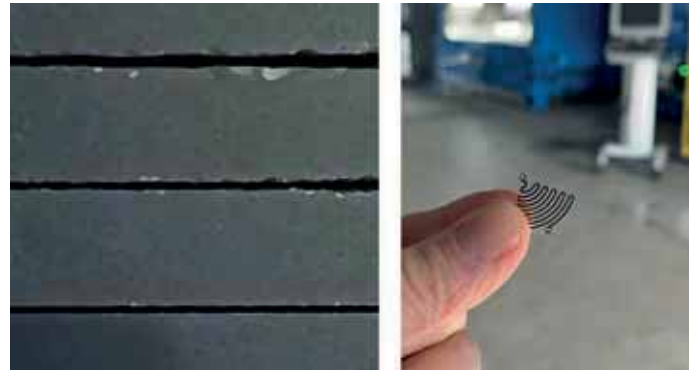
Tony Rydh, founder and CTO at Water Jet Sweden AB, with more than 40 years' experience of waterjet cutting explains: "We quickly realised that these parts needed to be cut with the fine abrasive micro waterjet technology. Since it is impossible to do calculations on a completely new material without test cutting, we arranged a program of test cutting to understand how the material behaved and to develop optimised cutting conditions.

"The machine used was a model NCM10 Micro waterjet machine equipped with our Alphajet TVL cutting tool, since the parts needed a combination of fine abrasive waterjet and taper angle control, this machine was perfect for the task."

Nanoker and one other company were homologated by CERN for the supply, but Nanoker was more competitive in the bid so this successful collaboration resulted in Nanoker securing the CERN tender

Tony Rydh explains the importance of using fine abrasive micro waterjet technology for these specific parts: "This time we needed to be more specific and developed an 'optimised machinability index' for their material, a measure used to classify a material and its machinability. To create an optimised machinability index, you begin with defining all available tool settings and process parameters, such

as pressure, abrasive flow, type of abrasive, orifice size and focusing tube. You cut straight tracks where in small steps, adjust one parameter at a time. The setting where you cut the longest distance with the finest cut defines the index. You can often spot it visually."



Left – Cutting tests to produce an Optimized Machinability Index for the new ceramic material. Right – Example of a part cut with micro waterjet technology.

Another benefit from the index-exercise was getting precise measurements of the angular deviation. With these measurements you can calculate how much angle compensation you need to meet the tolerance requirements. In a waterjet specific CAD/CAM software there is a list of TVL cutting tables available for the most common materials, but when you have a completely new material you need to create your own tables.

After getting the index each drawing was analysed based on starting point, surfaces needing extra fine tolerance or less important surface roughness, to make the most efficient cutting program for each part. When optimising the cutting program like this, the total cutting time will be significantly reduced, improving overall profitability of the fabrication.

Selecting the right micro waterjet machine

There are some waterjet machine manufacturers in the world that offer different kind of "micro cutting waterjets", but after some market research there were only two suppliers with the technology required, i.e. true fine abrasive waterjet cutting with taper angle compensation capability.

"In the end the only possible suppliers were both from Scandinavia," says Alain Lennquist. "That's why the project was led by us, being the Scandinavian representative of Nanoker. We also evaluated a waterjet supplier from USA. They have a good representative in Spain, but couldn't fulfill the fundamental technical requirements. We identified a supplier in Switzerland too, but there were some uncertainties with that company, so we decided not to pursue.

The two selected suppliers were evaluated via test cuts and time studies. Both companies delivered correct parts, but in a slightly different manner.

"It is simple to fabricate 4-5 parts but to repeat and make thousands of parts with consistent quality is something else," explains Tony Ryd at Water Jet Sweden. "High volume means much greater demands on both the machine and the fabrication process."

To prove repeatability of both the machine and cutting process Water Jet Sweden presented a pre-series of 400 parts instead of just a few parts. Every tenth part was evaluated in an electron microscope, measuring tolerances in hundredths of a millimetre and Ra-value for surface finish, to ensure requirements were met.

“When scaling up the volume our procedure identified variations in the material. This also helped Nanoker to fine-tune its own manufacturing process and achieve a more consistent quality of the ceramic material,” states Tony Ryd.

The NCM 10 Micro machine offers unique features tailored for fine abrasive waterjet cutting, ensuring high precision and efficiency. Equipped with the Alphajet TVL cutting tool, it became the preferred choice for Nanoker’s advanced industrial micro waterjet processing.

Implementation and future prospects

In the spring of 2023, the evaluation was finalised and the Water Jet Sweden NCM Micro machine with Alphajet TVL cutting tool was chosen.

Tony Ryd concludes: “We are proud to be chosen as a supplier for this project. We strive to be the obvious first choice for customers worldwide who seek solutions in water jet cutting where high quality, high technical content and high service standards are the basic elements.”



NCM 10 Micro, a high precision cutting tool for fine parts and micro components.

The NCM 10 Micro machine has a number of unique features compared to traditional waterjet cutting machines:

- It is designed for fine abrasive waterjet cutting with 230-240 mesh abrasives and 200-400 micron focusing tube.
- It has software controlled abrasive feeding to sense feed rate, blockage and critical level in abrasive buffer.
- The table frame is made of an epoxy resin concrete for excellent stiffness, accuracy and absorption.
- Both X and Y motion systems has Renishaw Invar Scales with extremely low expansion coefficient and high resolution.
- It has a palletised cutting table with a wide range of fixturing possibilities. The Nanoker machine was equipped with a set of fixtures frames which some are optional features today.



- The stainless-steel catcher is rubber suspended to avoid vibrations. The catcher is also equipped with cooling elements to be able to control water temperature.

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Unison marks 30 years since it launched the world's first all-electric tube bending machine



From left: Unison Ltd's joint managing directors, Alan Pickering and Julian Kidger, alongside an all-electric Unison Breeze 80 mm multi-stack tube bending machine.

Unison Ltd, a leading UK manufacturer of tube bending technologies, is celebrating 30 years since it invented all-electric tube manipulation and launched the world's first all-electric tube bending machine in 1994. It's an invention that has changed the way tube is bent by precision industries around the globe.

Convinced there was a better, more precise way of bending tube than by using the hydraulically operated machines of the day, in the late 1980s Unison's founder, Terry Pickering, along with his son, Alan, who is now the company's joint managing director, set about reinventing the process of tube manipulation.

"It was no great secret that the accuracy of hydraulic tube bending machines could be affected by changing oil temperature," says Alan Pickering. "In other words, a machine with cold hydraulic oil at the start of a shift might well perform differently later in the day when its oil was hot. The greater viscosity of the cold oil, compared to that of hot oil, would typically result in the machine operator having to make

temperature-related adjustments during the day to ensure satisfactory levels of repeatability. With all those manual adjustments to make, particularly on the clamp and pressure die, each operator would keep a black book of how they managed to get a good part out of their tube bending machines."

Unison's ultimate goal was to take the black art out of tube bending as much as possible, by letting a CNC capture all the correct machine axis settings in order to repeat them on future bends and get to a point where 'right first time' results were possible. During the R&D process, it also became clear that to achieve this, it was important to not only control axis position, but also the force of each axis.

Following a 1991 Brite Euram feasibility study into automatic setup tube bending, in 1992 Unison secured a SMART award to develop three all-electric tube bending machines. "At that point we were already well on the way to understanding what we would need to do to create the world's first-ever all-electric tube bender," adds Alan

Pickering. "The easy axis to do was the bend arm; the challenge was all the other axes. It took a few years to achieve what we wanted, but by pushing the servo actuators of the day to their limits, we developed a process where low-friction-slide adjusting mechanisms powered by an electric motor with torque control, brought absolute pressure control to bending machine components such as the clamping die, pressure die, mandrel and powered follower. All-electric tube manipulation had been invented with the assurance of accuracy and repeatability at the tightest of bending parameters for large and small production runs and with no concern over hydraulic oil or even external temperatures."

Called the Unison Breeze, due to the speed and ease it brought to achieving repeatable tube manipulation, the world's first all-electric 3-axis tube bending machine was launched by Unison in 1994. UK and German patents were registered and right-first-time tube bending was born.

Over the following years, Unison developed and launched the world's first all-electric five-stack tube bending machine, followed by the world's first 76 mm, 115 mm, 150 mm and 180 mm multi-stack machines, as well as robotised benders and twin-head tube benders for producing symmetrical, simultaneous bends. Today, with facilities in the UK and USA, Unison offers the world's largest range of ultra-precise, all-electric tube and pipe bending machines for diameters ranging from 4 mm to 275 mm, in single-stack, multi-stack and right/left versions. For more straightforward, repetitive applications, it has also recently introduced a range of high-accuracy hybrid machines.

"All-electric tube bending was a difficult sell for us at first," says Alan Pickering. "In fact, it took a number of forward-thinking customers to put their faith in our technology before others would make the switch. However, our big breakthrough came when Airbus ordered their first all-electric tube bender from us, a machine that paid for itself in 16 weeks, in reduced scrap alone. As

all-electric tube manipulation caught on, competition from the bigger players was inevitable, but we kept our heads down and kept on pushing forward.

“Today, of course, all-electric tube bending machines are commonplace offerings from manufacturers from around the world. But I am proud to say that we remain the preferred choice of countless organisations from all manner of industry sectors. Whether it’s aerospace, performance automotive, marine, oil & gas, energy or general manufacturing, we take pride in building powerful, highly energy efficient machines that meet the challenges faced by our customers head on. Thanks to our build quality, uncompromising customer support and user-friendly control systems, not to mention our tube bending simulation software and innovative tube bending application app, I truly believe that 30 years on from the first Unison Breeze machine, we still have and, always will have, the edge. You could say we’re the original and best.”



Intelligent tube technology

Unison Ltd is a leading manufacturer of tube and pipe bending machines and continually innovates the tube and pipe bending marketplace. The company manufactured the world’s first all-electric tube bender in 1994, followed by the world’s first all-electric multi-stack tube bender, then the world’s largest all-electric tube bender for the shipbuilding industry. Available in single-stack, multi-stack and right/left varieties, Unison machines are delivered to more than 20 countries globally. Unison’s tube bending software is

recognised as the most user-friendly control system for tube bending machines. The software is written and supported by Unison, ensuring complete control of its evolution, with no need for third party support.

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Comprehensive punching capability for Electrium

An LVD Strippit PX 1225 CNC punch press with an Extended Tool Magazine (ETM) gives electrical equipment manufacturer Electrium the capability to respond quickly to changing production demands while eliminating setup time.

Electrium, part of the Siemens Group, is a UK-based manufacturer of electrical equipment under the brand names of Crabtree, Wylex, Volex and Appleby.

At its Wythenshawe facility, Electrium manufactures a wide range of sheet metal components for domestic, commercial, public sector and industrial installations using LVD EasyForm press brakes and punch presses. Batch sizes can range from a one-off to 100-off on a sheet.

Around 15 years ago, it moved from using hard tooling on power presses to more flexible CNC punch presses as it moved from a high-volume, low-variety manufacturing model to lower volume, high-variety production to meet the changing needs of the market.

In that time, it has installed a number of LVD punch presses, most recently two LVD Strippit PX 1225 machines, the first in 2014 and the second, with an ETM in 2019.

As opposed to a turret punch press, the PX machines have a single punching head with all tool rotation tools are held in a carousel on the machine. The tool carousel has 20 tool positions and the ETM adds 40 more.

Each tool can be rotated through 360 degrees and the machine's configuration allows for extensive forming and secondary operations to be carried out as part of the punching process.

Darran Lees, senior production engineer, says: "We make a wide range of electrical equipment for domestic and commercial installations and the sheet metal content of that includes panel boards, end plates, boxes and fabricated components that are formed, punched and press braked. The end products range from the domestic circuit protection boxes you have in your cupboard at home to large systems that go into schools, hospitals, and commercial buildings. Some will be sold via electrical wholesalers and merchants such as Screwfix and some will go direct to contractors for large projects.

"This means that there is quite a lot of variability in what we are making, with medium to small batch sizes, down to one-offs, so we need to be very flexible in our manufacturing."

The new PX 1225 with the ETM is also used in conjunction with Multitools, which further



increases the number of available tools as Darran Lees explains: "In contrast to a traditional turret punch press where you only have a single punch in each tool, if the punch is under 12 mm diameter you can have ten of them in a multitool.

"We have 20 toolholder positions on the machine, with a further 40 toolholder positions in the ETM. On top of that we have 10 multitools, five with five individual punches in them and five carrying ten punches.

"That gives us an extra 75 tools in only 10

stations and a total of 125 tools available. We need that amount of tooling to cover the range of our products.

"On one job for electrical boxes we use all twenty tool stations including 4 multi-tools. That is 50 different tools on one panel."

He adds that an incidental benefit is that the multitools are very cost-effective. The drop-in punches are a cheap disposable item, whereas a dedicated punch tool would cost 20 times as much. "It saves you thousands of pounds," he says.

The ability to rotate any tool through 360 degrees adds another level of versatility.

"It is absolutely important to us," says Darran Lees. "If you saw the profiling of some of the shapes we punch, you would think that they would be done on a laser."

Perhaps the biggest benefit in terms of productivity comes from the ETM. Because all the tools are there and ready to be loaded onto the machine in seconds, setup time is almost completely eliminated. And if different tools are needed that are not already in the magazine, they can be loaded while the machine is still operating.

"We aren't doing high-volume work, so we could be doing 20 different jobs in one eight-hour shift, says Darran Lees. "Before we



had the ETM we might have taken up 25 percent of our production time with setting."

It also eases staffing requirements: "If we only have an operator available rather than a setter they can still run the machine if the tools are in the carousel and ETM. Anyone can run the machine as long as they are trained to operate it, they don't need to know how to set it."

He adds that LVD's Touch-P control is very intuitive and user-friendly: "It is very easy to learn how to load a program and get it running. The technology on the control makes it really simple to use."

In fact, the production team at Electrium were so impressed with the Touch-P control that they had it retro-fitted to the company's older PX machine. The final piece in the jigsaw is the ability of the PX punch presses to carry out a large amount of form work.

"I would estimate that 99 percent of our parts involve some kind of form tool," says Darran Lees. "Typical form tool functions include producing louvres and knockouts, embossing, bending and tapping. We are also keen on exploiting new tooling technologies such as rolling offset tools and a 'clicking' tool that allows you to simply click two sides of a box together without the need for any welding which saves us time."



Summing up the benefits of the new LVD Strippit PX 1225 with the Extended Tool Magazine, Darran Lees concludes: "The combination of the sheer number of tools we have available, the ability to rotate any tool through 360 degrees and the ability to carry out form work on the machine, gives us the capability to respond quickly to a large variety of production demands with minimal setup times."

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Metal distributor switches from manual to automatic band saws and achieves significant gains

Innovation is at the heart of the metal-working industry and it takes centre stage at Walter Metals LLC. Nonetheless, the Stow, Ohio-based tool steel distributor for Ellwood Specialty Steel in New Castle, Pennsylvania, USA, was experiencing bottlenecks because its four manual band saws were inefficient and required a significant amount of operator interaction to handle material. General manager Mike Kaufman says: "They were in need of replacement because of the age of the equipment as well."

To reshape its sawing operations, Walter Metals researched the offerings from various saw machine builders. Mike Kaufman states. "We started exploring options for how do we do things better, faster and safer."

The company eventually purchased two HBE411A Dynamic automatic horizontal bandsaws from Behringer. Mike Kaufman explains: "We looked at three or four other manufacturers, but none of them had the level of automation on the handling system that we saw with the Behringer."

Behringer also reportedly presented the lowest total system cost when compared to the other competitors being considered. The saw builder's extensive parts inventory and enthusiastic team of technicians further solidified the decision to partner with Behringer. "They have a large amount of supplies and spare parts on the ground in the United States," Mike Kaufman says. "As far as



service goes, typically we get resolutions in under 24 hours."

The parent company's familiarity with Behringer sawing systems also played a role. Mike Kaufman adds: "We have a long-standing relationship as an organisation and they're applied at several different divisions within Ellwood Group. I would guess in excess of 30 Behringer saws." The automated band saws are equipped with a PC operator control, an automatic loading magazine and an outfeed sorting unit to set a new standard for efficiency and precision,

Strictly solids

Installed in August 2022, Mike Kaufman says the horizontal band saws exclusively straight

cut solid round bar from 2 to 10 inches in diameter. The workpiece materials are tool and die steel, such as D2 and S7 and most of the steel is annealed with a hardness up to 42 HRC. The steel primarily comes from Ellwood City Forge Group in Ellwood City, Pennsylvania, in addition to other suppliers. When a round bar smaller than 2 inches needs to be cut, Walter Metals does it on the one manual saw it kept. The new saws can cut material down to 0.39 inches in diameter, but the loading magazine limits the system to two inches.

With the introduction of the Behringer saws and their automated systems, Walter Metals witnessed remarkable improvements, according to Mike Kaufman. Efficiency soared as the company reduced material handling time by 50 percent, which previously caused bottlenecks: "We don't have those bottlenecks." The 18-employee company operates two eight- to 10-hour shifts, depending on the workload, at its 40,000-sq.-ft. facility and Mike Kaufman says two saw operators and one material handler were required each shift previously and now each shift has one operator and one material handler. He adds: "We do almost two times the amount of production on two saws than we did on four."

Walter Metals loads up to eight bars into the cassette for each saw and the cassette indexes the material into place for sawing, Mike Kaufman explains. The saw's



programmable logic controller knows the number of pieces required for each bar, when a cut is completed and where to send the remnant so the next bar indexes in and sawing continues.

The automation enabled the company to make “lights out”, or unattended, machining a reality. The band saws can run up to eight hours unattended, which generally occurs every workday. If the company is especially busy, it will perform lights-out production on a Friday night, which would require a Saturday shift. Mike Kaufman says: “We don’t set it up Friday evening and walk away until Monday.”

The lights-out capabilities presented an unexpected windfall as Mike Kaufman explains: “We have had challenges keeping up with the machines, which is a good problem. The PC operator controls have been pivotal in this transformation, allowing the programming of multiple different orders to run overnight.”

Having PC operator control also provides diagnostic and fault-logging features to give Walter Metals a roadmap to quickly troubleshoot an issue, Mike Kaufman says: “The faults that come up are easily diagnosed, whether it’s a safety circuit issue or other.”

In addition, accuracy improved and customer warranty claims decreased significantly, he says. The repeatability of the cut length allows Walter Metals to tighten the tolerance from 1/8 in. to less than 1/16 in. and the machine can achieve even tighter tolerances.

Gauges on the saw detect band wear, along with other conditions, speeds and feeds are automatically adjusted as Mike Kaufman explains: “It tries to optimise the cut while it is in the cut.”

The HBE411A Dynamic features a servo down-feed system in which the saw feed is carried out by means of a ball screw and servomotor, Behringer reports. This arrangement results in significantly shorter idle times and more precise feeds to boost sawing performance and extend blade life.

Mike Kaufman says Walter Metals uses bimetal blades because they are suitable for sawing the variety of different tool and die steel that it handles: “We don’t see a huge advantage in going to carbide.” The company follows a regular preventive maintenance schedule, which includes daily cleaning of proximity switches, sensors and similar components.



The 50 percent increase in capacity that these automatic horizontal band saws provided has not only improved productivity but also opened opportunities for growth,



according to Mike Kaufman. Walter Metals can now take on additional customers, contributing to the fulfilment of corporate goals for expansion and success.

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Combined storage and sawing facility for drives manufacturer

SEW-Eurodrive, a leading global manufacturer and supplier of electric motors, gear units, gear motors and associated automation, has installed an advanced storage and sawing system in a new high-bay warehouse integrated into a recently extended, 62,000 sqm production facility in Graben-Neudorf, southwest Germany. Both the automated store and the sawing equipment were supplied by German manufacturer KASTO, whose UK subsidiary in Milton Keynes describes the installation.

The order placed by SEW was one of the largest ever received by KASTO in its 180-year history. Within the 4,000 square metre warehouse, the supplier has installed a Unicomcompact honeycomb storage system with 5,140 cassettes having a load capacity of three tonnes, as well as an integrated KASTOcenter sawing centre with 450 locations for tube or bar.

The Unicomcompact offers high-density 3D storage in a compact footprint to maximise the use of space. An overhead gantry crane transports material to seven KASTOpick split outfeed stations where it is separated by lifting mechanisms and transferred to the infeed roller conveyors of the saws. There is potential to connect three further outfeed stations if required.

Eight automated KASTOvariospeed C 18 production circular saws have been supplied to process stock up to 180 mm in diameter. The heavy-duty, CNC production saws cut solid material as well as tubes and profiles to length.

The KASTO sawing centre comprises buffer storage for material and a KASTOtec SC 4 high-performance, horizontal bandsaw with infinitely variable cutting speed. Stock



Eight automated KASTOvariospeed C 18 production circular saws process stock up to 180 mm in diameter.



The new storage system at SEW is a combination of a KASTO Unicomcompact honeycomb storage facility with 5,140 cassettes and a KASTOcenter sawing centre with 450 storage locations.



At SEW, the KASTOtec SC 4 automatic bandsaw cuts material up to 260 mm in diameter, although the machine has a capacity of 430 mm.

including tool steel and difficult-to-cut materials such as titanium and nickel alloys from 22 to 260 mm in diameter is cut into individual pieces.

A KASTOsort robot handling system sorts and stacks the cut pieces. The innovative solution independently selects grippers, containers and stacking patterns. Automated guided vehicles retrieve the boxes of cut pieces and transport them to their destinations in production.

As steel can be magnetised by transportation and friction, which can cause issues during production, KASTO has implemented a demagnetisation system in the goods-in area. A crane unloads material from a lorry onto a buffer chain conveyor. A barcode reader determines if the material is ferrous and if it is not, it goes immediately

into store. If it is, the stock is routed to a bypass area where the transport cassette moves through a coil carrying a demagnetising alternating current.

A KASTOlogic warehouse management system (WMS) ensures seamless flow of material throughout the facility. The software optimises the travel paths and checks and evaluates system changes. KASTO integrated the sawing machines and material handling into the WMS to achieve full automation of the entire process. KASTOlogic communicates with the SEW's SAP enterprise resource planning system through an interface to provide an end-to-end, digitalised system.

Max Schmitt, group production systems project manager at SEW said, "KASTO customised the storage and sawing systems to meet our specific needs.

"The equipment supplies our new production facility at the Graben-Neudorf site with the correct materials, fully automatically, no matter whether the batch size is one or 10,000.

"Only three to four people are needed to operate the warehouse, which at a time when there is a general shortage of qualified personnel is a tremendous advantage."

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Prosaw and Gentiger to host Open House event

Established almost 30 years ago, Gentiger Machinery has been producing both precision turret milling machines and CNC high-speed machines. With such a rich history in high-speed machines, it has more recently developed the GT Series Automatic Bandsaw.

After Gentiger's international launch of the GT Series throughout 2022/23, Prosaw Ltd of Kettering, Northamptonshire, entered an exclusive partnership to represent the company and promote the GT range to the UK market.

Following Prosaw's own 60th anniversary Open House in October 2023, it was able to secure orders for three of the GT-6 models. Early indications from these users showed an increase in production along with significant savings in power consumption. Proving that the machine is more than just green in colour.



Once again, this year on October 15th and 16th, Prosaw and Gentiger will be holding an Open House event dedicated to the GT machine, along with a world-first display of the latest GT-4.

During the two-day event, visitors will be given an in-depth look at why they should consider the Gentiger GT for their next purchase. While Prosaw will be cutting a selection of material grades using both bi-metal and carbide blades, customers are invited to send their own sample materials ahead of time for testing the machine's efficiency and strength.

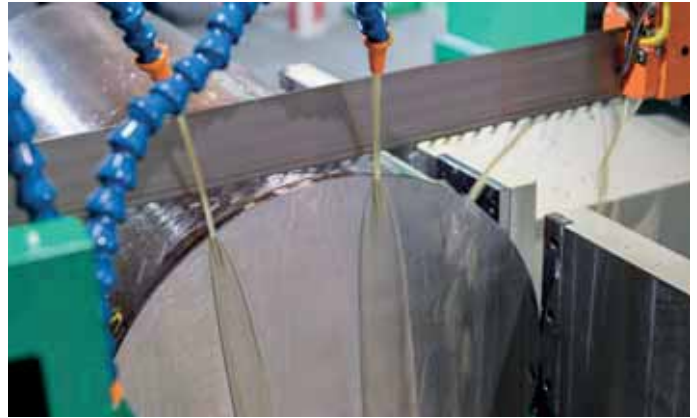
If you would like to hear the Gentiger 'roar', Prosaw invites you to register and join them on October 15th and 16th at their Kettering Technical Centre.

Since its formation in 1963, Prosaw has specialised in all aspects of metal sawing and is today accepted as one of the UK's leading suppliers of metal sawing machinery and associated material handling and measuring systems.

The company operates from a 35,000 sq.ft. base, centrally located on the A14 at Kettering and serves the whole of the U.K. and Eire.

Within these premises is a purpose built 5,000 sq. ft. showroom containing a large representative selection of machines from a range exceeding 200 models. All showroom machines are readily available for demonstration, test cutting and evaluation. Guests are welcome to visit to have a look at the range of machines without any obligation.

The company's range of machines extends from simple manual operation through to semi-automatic, automatic, full CNC and special purpose, with models suitable for all machineable ferrous and



non-ferrous metals, including many non-metal materials.

Standard machine capacities range from the smallest section up to 2,500 mm diameter solid, 1,500 mm wide structural sections and 6,000 mm plates.

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