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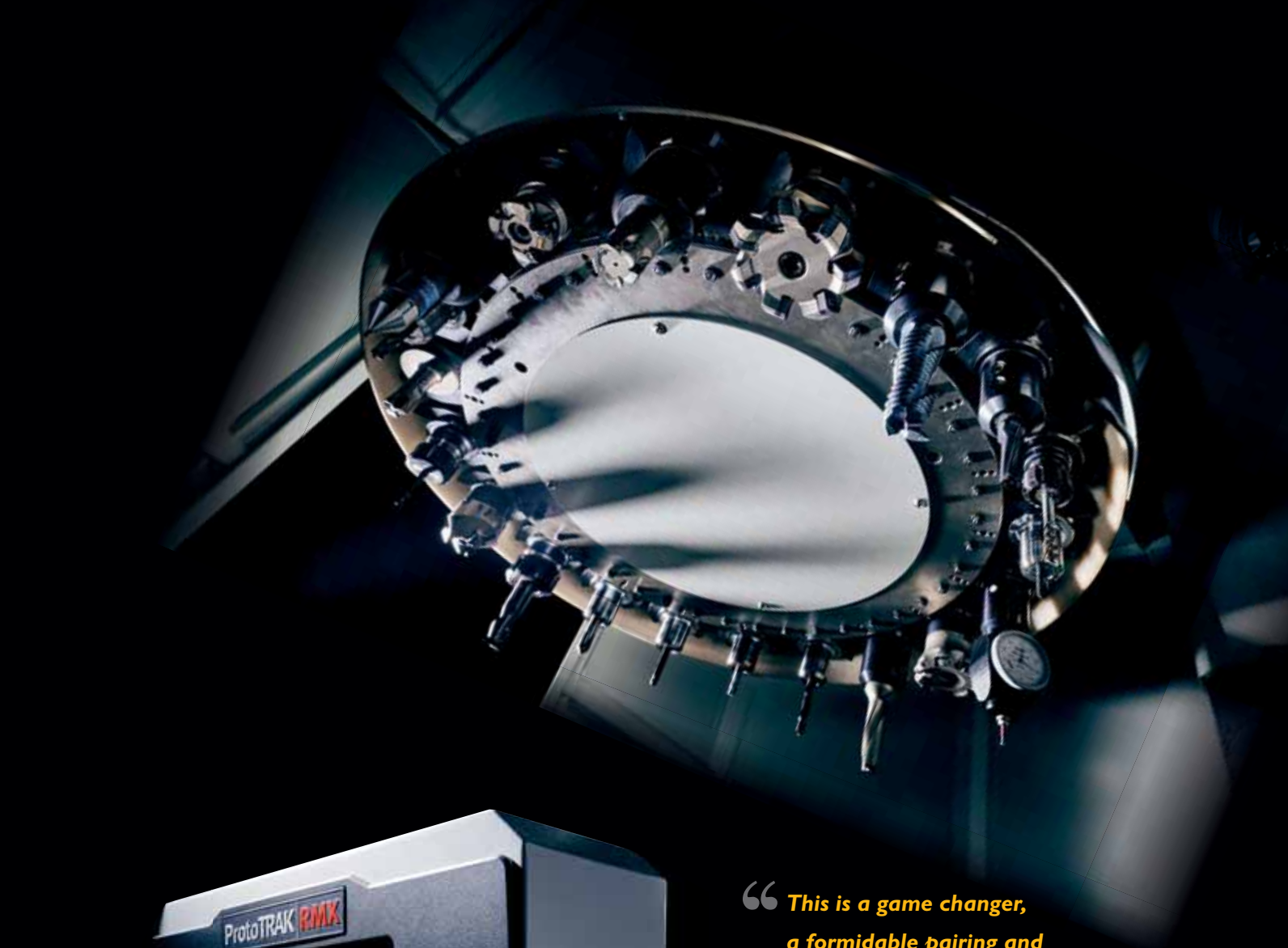

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- Welding

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Mazak to exhibit total vision for advanced manufacturing at EMO

The Yamazaki Mazak exhibition stand at EMO will showcase a total vision for modern machining that will enable machine users from across Europe to drive productivity and profitability.

Mazak will be showcasing a total of 19 machines and 12 automation systems to include both machine tool and laser technologies, live cutting demonstrations, advanced software solutions and the latest developments in its Smooth Ai control software.

Central to the Mazak vision will be a focus on offering solutions to the major challenges that face machine users, from productivity improvement through to skills shortages, energy prices, wage inflation, increased competition and a focus on the environment and how technology and advanced services can deliver increased profitability.

Mazak will demonstrate entry-level machines that increase productivity, profitability and competitiveness at an affordable price as a key theme, particularly for machine users new to Mazak technology. The entry-level machines, built in the UK and specifically developed for European machine tool users, include the CV5-500 5-axis machining centre and the new VCE-500 vertical machining centre that combine exceptional productivity with a highly competitive price point. In addition, the stand will also display a high-performance turning centre from the QTE range of machines.

Automation systems to increase productivity and mitigate the impact of skills shortages and increasing wages also form a key part of Mazak's vision. A total of 12 integrated automation solutions will be on display capable of delivering increased machine uptime, greater production flexibility, improved operator utilisation and reduced costs, working towards the ultimate goal of increasing ROI and profitability. The solutions on the stand will include easy-to-program machine-tending robots and more sophisticated automation to support the trend towards high-mix, low-volume manufacturing and the demand for 5-axis automation.

Mazak will also include new machining solutions for rapidly growing industries, such as EV battery manufacturing, showcasing the new FSW-460V, a hybrid machine principally designed for automated Friction Stir Welding while maintaining metal cutting capabilities. A new VCN series vertical machining centre equipped with high performance machining and the Mazak Ultraspindle to suit modern high-speed machining techniques will also be exhibited.

In addition, the latest advanced Mazak laser cutting technology, the OPTIPLEX 3015 NEO will also be on display, featuring the latest beam-shaping technology and the newest MCT 3 cutting head with intelligent functions, including Auto Nozzle Changing and Auto Focus Distance.

Yamazaki Mazak UK Ltd Tel: 01905 755755
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Hall 15 - Stand B14

NIKKEN CEO Tony BOWKETT becomes new MTA president

NIKKEN has announced that its CEO and president, Tony Bowkett, has been appointed by the MTA as the latest acting president. With more than 30 years of experience as managing director and founder of NIKKEN Kosakusho Europe Ltd, he has been responsible for the huge success and triumphs of NIKKEN's activities across Europe and beyond, which includes multiple subsidiary companies within the NIKKEN Europe Group, together operating in excess of 23 countries.

NIKKEN, under Tony Bowkett's leadership, is also a founding industrial partner and non-executive industrial board member of Sheffield's Advanced Manufacturing Research Centre (AMRC) and firmly believes in UK manufacturing and knowledge transfer as a vital wealth creator, focusing on developing and training the next generation of engineers.

NIKKEN has supported and exhibited at all MACH exhibitions since 1992, promoting NIKKEN's innovative and leading solutions and the manufacturing technologies sector in general.

Furthermore, with Tony Bowkett's experience in similar roles, such as a financial director and vice president of the MTA, he is equipped to support the MTA to the highest level and aspires to promote and develop the association to engage and network with its members and associates, ensuring that UK manufacturing technologies are recognised as critical parts of government economic strategy.

Tony Bowkett says: "It is a great honour and privilege to serve our association members and we now proudly represent over 300 companies. Together, we generate an annual turnover of more than £2 billion and employ over 20,000 people- collaborating with a vast UK supply chain, generating many millions in real wealth for the UK Economy. Through our live exhibition MACH, education, training, legislation and standards teams, we aspire to reach all of UK manufacturing industries. During my presidency, I would like to make it my mission to engage with our members and represent their best interests on local, national and international platforms."

On a personal level, he is a dedicated family man who has been happily married for 40 years with two daughters and a grandchild. In his spare time, he is a passionate golfer, sports enthusiast and traveller.

James Selka, CEO of the MTA says: "We are incredibly lucky to have a talented and strong board representing our members and are grateful that Tony has agreed to take on the role of acting president. He is a man who understands the challenges facing the manufacturing sector and the solutions that are required to see it flourish once again. We look forward to seeing Tony in his new role."

About NIKKEN

NIKKEN solutions are the power behind some of the worlds' most demanding products, helping to improve productivity and increase competitiveness in some of the most challenging applications possible.

Since 1989, NIKKEN Kosakusho Europe has been supplying Europe with the finest engineering products. NIKKEN is the European headquarters for Japanese based parent company, NIKKEN Kosakusho Works Ltd who operate across 3 continents with over 70 offices all over the world.

Based at the heart of advanced manufacturing in the UK, NIKKEN Kosakusho Europe is the European home of innovation and product development. It offers world-class solutions to all types of organisations and operates in a variety of industries including aerospace, medical, motorsport, power engineering, oil and gas & mould tool and die sectors.

About the MTA

The MTA exists to promote the interests and be the voice of the manufacturing technologies sector in the UK.

The Manufacturing Technologies Association is the UK's trade association for companies in the manufacturing technology sector. MTA members design, manufacture and supply the advanced machinery, equipment and intellectual property that enable the creation of the products we rely on from day to day and that drive our economy.

With the expanding scope of engineering-based manufacturing, the MTA has broadened the range of its support to the sector with the formation of a new cluster of trade associations and events. The cluster, including MACH, represents a united front, dedicated to furthering the interests of engineering-based manufacturing in the UK, in turn boosting business opportunities for UK manufacturers.

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Renishaw opens new Gloucestershire STEM centre

Gloucestershire-based engineering technologies company, Renishaw has opened a new Science, Technology, Engineering and Maths (STEM) outreach facility at its headquarters site in New Mills, Gloucestershire. The STEM centre will strengthen Renishaw's existing education outreach efforts, by providing a dedicated space for local schoolchildren to visit to learn more about STEM subjects and associated careers.

On June 23rd, to mark international women in engineering day, professional downhill mountain bike racer Rachel Atherton officially opened the facility. Renishaw has worked with Atherton Bikes to utilise additive manufacturing, 3D printing, technology to help push the development of bike performance and she has been a key part of that part of that drive to innovate in the highly competitive world of downhill cycling.

To mark the occasion, a group of students from Al-Ashraf secondary school for girls in Gloucester participated in an interactive engineering workshop in the centre and teachers from local secondary schools also had the opportunity to tour the new facility. There were also presentations about Renishaw's STEM outreach strategy and some of the company's female employees shared their career stories and answered questions from the teachers and students.

Renishaw's established STEM outreach programmes have strong links with many primary and secondary schools in Bristol, Gloucestershire and South Wales regions, providing support by running sessions that complement the curriculum and add context to the students' learning. The STEM outreach team also attends many school careers events to promote Renishaw's early careers opportunities, including work experience, apprenticeships, placement and graduate schemes, that help to provide a talent pipeline of people into the business.

The new STEM centre will also provide further opportunities to focus engagement with underrepresented groups as part of the company's commitment to the United Nations Sustainable Development Goal 8: decent work and economic growth. Renishaw is contributing towards the goal of reducing the proportion of young people not in employment, education, or training as part of its wider sustainability efforts.

"Research from the Careers and Enterprise company, the UK's national body for careers education, shows that if young people have four or more encounters with the world of work, they're 86 percent less likely to become NEET (Not in Education, Employment or Training)," explains Rebecca Bound, early careers STEM outreach officer at Renishaw. "We know from our own student feedback that our engagements can really have an impact and encourage more young people into the industry. We are committed to working with students from a wide variety of different backgrounds to encourage more diversity in the engineering industry.

"Following the success of Renishaw's first dedicated education outreach facility at our manufacturing site at Miskin in South Wales, we have invested in this additional centre in Gloucestershire. The new centre will provide schools with access to additional workshop equipment and offer interactive sessions on STEM topics, with the added benefit of being located within a site that can showcase real-life engineering experiences. We believe that this really helps to inspire the next generation of scientists and engineers."

For further information on Renishaw's education outreach programme or to arrange a visit to the STEM centre, visit: ***https://www.renishaw.com/en/stem-outreach***

Renishaw is a leading supplier of measuring systems and production systems. Its products give high accuracy and precision, gathering data to provide customers and end users with traceability and confidence in what they're making. This technology also helps customers to innovate their products and processes.

It is a global business, with over 5,000 employees located in the 36 countries where it has wholly owned subsidiary operations. The majority of R&D work takes place in the UK, with the largest manufacturing sites located in the UK, Ireland and India.

For the year ended June 2022 Renishaw recorded sales of £671.1 million of which 95 percent was due to exports. The company's largest markets are China, USA, Japan and Germany.

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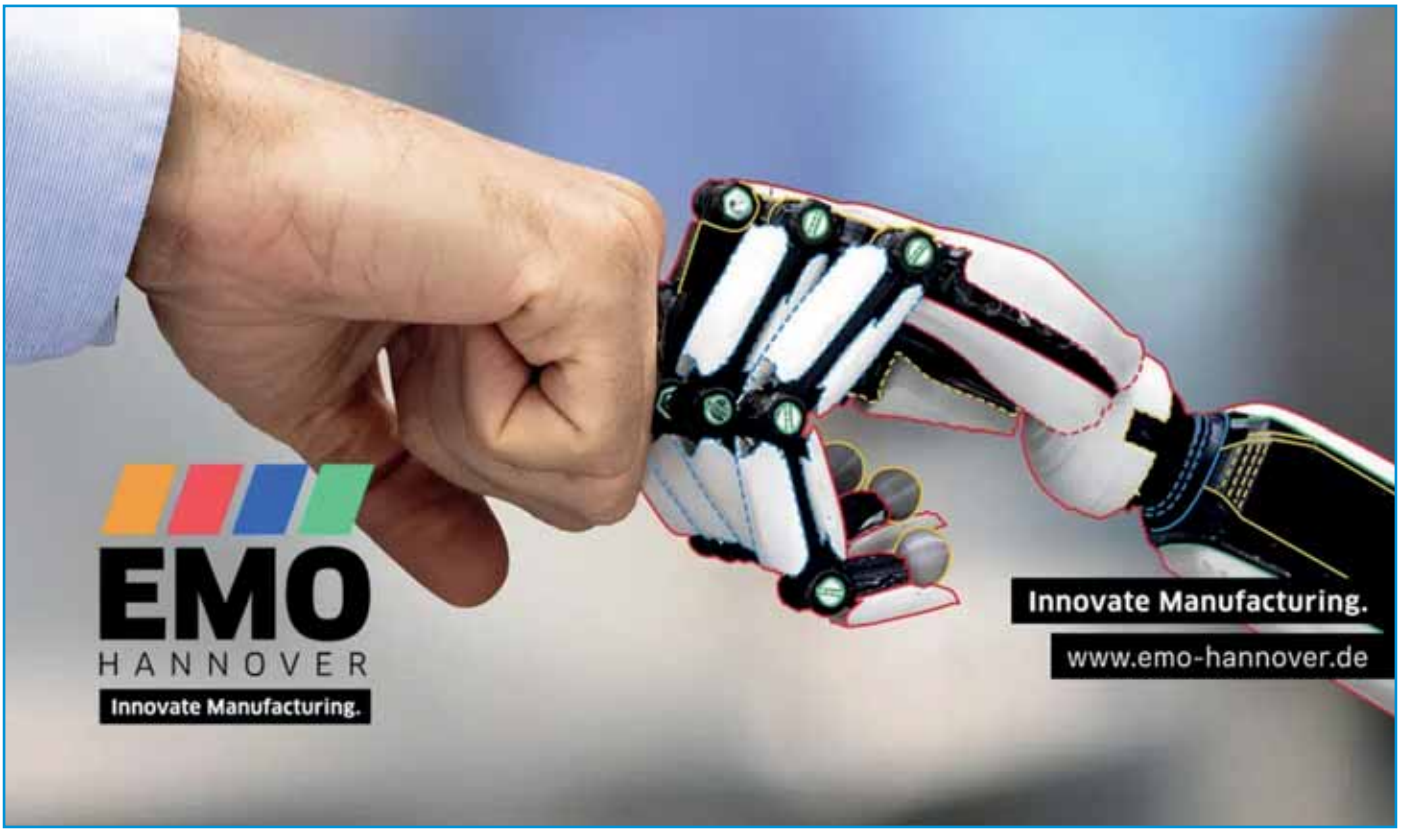
The Annual FANUC UK Open House will take place Tuesday 14 – Thursday 16 November.

Visitors will be able to see FANUC's latest technology, including its world-leading range in industrial and collaborative robots, machine tools and plastic injection moulding machines, alongside a range of guest exhibitors and demonstrations, displaying a wide variety of automation applications.



Leading trade fair for production technology returns

International manufacturers of production technology will be presenting smart technologies for the entire value chain at EMO Hannover 2023 from 18th to 23rd September. Under the banner of Innovate Manufacturing, the leading trade fair for production technology will showcase the entire range of modern metalworking technology which is at the heart of every industrial production process. The latest equipment will be on display, as will efficient technical solutions, product-related services, sustainable production methods and much more besides.

The main focus of EMO Hannover is on cutting and forming machine tools, manufacturing systems, precision tools, automated material handling, computer technology, industrial electronics and accessories. EMO visitors come from all major industrial sectors including machine and plant construction, the automotive industry and parts suppliers, aerospace technologies, precision engineering and optics, shipbuilding, medical engineering, tool and mould making, steel and lightweight construction.

EMO Hannover is the number one international meeting place for the industry. More than 2,200 exhibitors from 47 countries attracted nearly 120,000 trade visitors from around 150 countries at EMO Hannover 2019.

The claim of EMO Hannover is Innovate Manufacturing. This is aimed at industry, the exhibitors and visitors and EMO Hannover itself. All are facing major challenges and must constantly reinvent themselves if they are to survive in the international competition. The future of business, the future of connectivity and the future of sustainability in production are three topics that are currently dominating the business, political and social discussion in most industrialised countries. Production technology is helping to put forward solutions in all three fields. EMO Hannover will show everyone how. Carl Martin Welcker, EMO general commissioner explains: “At no other event in the world does the international production technology community, both the manufacturer and user sides, come together as cohesively as at EMO Hannover. What better place is there to discuss and showcase the latest trends, challenges and solutions then here.”

International production technology is changing at an unprecedented speed. As a leading trade fair for the machining industry and an international business platform, EMO is not only part of this change, it is actively shaping it. Since the services and products of its exhibitors now extend far beyond metalworking, the focus is even more clearly on the entire production technology than before. In addition, related topics and aspects such as industry-wide and cross-industry networking and training are moving more into focus.

Year-round communication platform for production technology

EMO Hannover makes this claim not only during the trade fair itself, but 365 days of the year, before and after the events as well as in between. Interested parties can find out more at ***www.emo-hannover.com/news*** about topics such as establishing new markets, ensuring the security of supply for energy and vendor parts, networking, data security and new business models, the

introduction of artificial intelligence to production, sustainability and energy efficiency, digital training and support in combating the shortage of skilled workers, as well as new products, solutions and services for production to name just a few. Production experts, machine suppliers, scientists, economic experts, company leaders and political decisionmakers will all be on hand to give their views. “The broad range of topics is evidence that production technology sees the importance of the bigger picture and is not an end in itself,” explains Carl Martin Welcker. “Comments and dialogue are most definitely welcome.”

Separate IIoT in production exhibition area

Innovation in production technology is increasingly being triggered by software solutions. For this reason, EMO Hannover is planning to feature a separate IIoT in production exhibition area. It will bundle IT solutions of all kinds, from data analytics, data management, digital twins and cloud services through to process monitoring, predictive maintenance, AI and cyber security. The target group is international IT manufacturers looking to appeal both to manufacturers and SMEs with their digitalisation offerings and also to the many small and medium-sized providers of digitalised manufacturing solutions.

They will encounter exhibitors from the entire value chain at EMO Hannover, including everything from production planning, manufacturing and automation through to quality assurance. The individual steps are intelligently networked in the factory by means of IoT solutions. These include horizontal networking between machines, systems, tools, measuring devices, etc. on the one hand and vertical networking from the shop floor to the cloud on the other. “EMO Hannover offers great customer potential for all companies in networked manufacturing, from both the exhibitor and visitor sides,” confirms Dr Wilfried Schäfer, executive director of VDW (German Machine Tool Builders' Association.)

Focus topic: Sustainability in production

Industry, too, is struggling to make itself more sustainable amidst the current debate surrounding climate change. This covers a whole range of aspects such as rapidly rising fossil energy prices, the reactivation of coal and nuclear power plants, the EU Green Deal, expanding renewable energies and improving the resilience of supply chains. Sustainability is a mega topic which is set to occupy business and society in general for many years to come, which is why it has been included as one of the Future Insights at EMO Hannover 2023.

As an enabler for greater sustainability in industry, production technology is at the heart of the inevitable transformation process. Technical solutions incorporated into machines to minimise CO_2 emissions are one side of the coin, improving the energy efficiency of the production process is the other.

“It will take a major effort by all stakeholders, suppliers and users to achieve the desired savings. But the transformation also offers opportunities for companies,” says Dr Wilfried Schäfer. “Businesses and researchers need to pull together on this. That's why VDW, in cooperation with WGP, is using EMO Hannover as a platform to create more transparency on what's available.”

This will include a special sustainability stand which will present the energy efficiency initiative of WGP, the association of leading production scientists in Germany. It is designed to help small and medium-sized enterprises in particular to make immediate savings through greater energy efficiency. A joint science stand spotlighting sustainability projects is also planned.

“The whole point of EMO Hannover is not only to showcase practical solutions for industry, but also to highlight research trends that could be marketed as tomorrow's solutions,” concludes Dr Wilfried Schäfer. “That's why it is important to network all the exhibitors who are making a contribution in this area and to publicise their involvement.”

https://emo-hannover.com/

Mazak to exhibit total vision for advanced manufacturing at EMO 2023

The Yamazaki Mazak exhibition stand at EMO 2023 will showcase a total vision for modern machining that will enable machine users from across Europe to drive productivity and profitability.

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In addition, the latest advanced Mazak laser cutting technology, the OPTIPLEX 3015 NEO will also be on display, featuring the latest beam-shaping technology and the newest MCT 3 cutting head with intelligent functions, including Auto Nozzle Changing and Auto Focus Distance.

Stand visitors will also be able to view more information about Mazak iCONNECT, a new digital service for existing Mazak customers that has a suite of free services, including product manuals and e-learning, along with a Machine-2-Mazak (M2M) subscription service.

This year marks 35 years of Mazak's flagship INTEGREX machines and the stand at EMO will display its track record of delivering outstanding productivity and the wide range of variants that make the INTEGREX capable of working across multiple applications, workpiece sizes and sectors. There will be multiple INTEGREX machines on the stand demonstrating the range's productivity, easy automation and gear cutting capabilities.

Environmentally aware manufacturing will also be a key theme with a focus on the practical technologies to deliver lower cost component production, including energy dashboards and digital services to help machine users measure energy usage and reduce CO_2 impact. The stand will also include machines developed to deliver the company's 2030 goal of environmental efficiency four times higher than their 2010 machine equivalents.

Richard Smith, European group managing director at Yamazaki Mazak, comments: "Our objective at EMO 2023 is to give visitors a total vision of advances in modern manufacturing that will inspire machine users from the smallest machine shop to the most advanced digital factory. It is a vision of how technology can help mitigate the impact of the challenges manufacturers face and offer a clear route to greater productivity, improved margins, more competitiveness and greater profitability. Our theme is 'Discover More' and that is because our machines are more productive, more affordable and more sustainable than ever before."

To register for complimentary tickets courtesy of Mazak, or schedule an appointment on the Mazak stand, visit: ***https://discover.mazakeu.com/emo23***

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On assignment at EMO

Mills CNC will be out in force at EMO 2023, checking out the latest innovative technologies and new product introductions and developments being showcased by both companies DN Solutions and Zayer from their respective stands at the show

Key personnel from Mills CNC are on a fact-finding mission at EMO to check out the latest offerings from DN Solutions and Zayer Machine Tools.

Mills CNC, the exclusive distributor of DN Solutions' and Zayer machine tools in the UK and Ireland and a leading automation systems' supplier to component manufacturers, will be out in force at EMO 2023 checking out the latest innovative technologies and new product introductions and developments being showcased by both companies (DN Solutions and Zayer) from their respective stands at the Show.

With its focus solely on the UK and Irish markets, EMO provides Mills with a unique insight into what it could soon be providing to customers, within its markets, in the near future.

Tony Dale, Mills CNC's CEO says: "Although we don't exhibit at EMO per se, the event is a great opportunity for us to get up close and personal to the latest technologies being exhibited by our two, key principals."

DN Solutions at EMO 2023: Hall 14 - Stand D06 & Hall 9 - Stand G54

Exhibiting from two stands, DN Solutions will showcase 20 advanced, cutting-edge machines at the show.

A key theme being promoted at the event by the company is 'flexible automation solutions' demonstrated through the integration of robot and work handling systems to a number of DN Solutions' machines.

These include:
- A Lynx 2100LSYB compact turning centre integrated with a collaborative robot
- A Puma TW2600M twin-spindle horizontal turning centre with a gantry loader
- A NHP 5000 horizontal machining centre with a Round Pallet System (RPS)
- A DVF 4000 5-axis vertical machining centre with an automatic workpiece pallet changer.

Other major themes being promoted by the company include:

SMART Technologies

Using and applying innovative technologies i.e., wireless, BLE (Bluetooth Low Energy) and voice recognition, in SMART Factory settings, to improve performance and competitiveness.

Green Technologies

Using eco-friendly mist-free solutions for oil/mist purification on the shop floor to significantly minimise energy consumption levels and improve workshop environments.

Zayer Machine Tools at EMO 2023: Hall 13 – Stand B52

Zayer Machine Tools will promote two of its latest, large-capacity milling machines from its 437 m^2 stand at EMO. These machines, the ZERO 4000 a powerful, dynamic and accurate horizontal ram-type milling machine and the AETOS 3000 an innovative gantry-type milling machine equipped with a moving bridge, fixed table and fixed cross beam, share centre stage on Zayer's stand which will be of interest to component manufactures

The Zayer Machine Tools stand will showcase a ZERO 4000, a powerful, dynamic and accurate horizontal ram-type milling machine

The DN Solutions will be showcasing a NHP 5000 horizontal machining centre with a Round Pallet System (RPS)

operating in the power generation, rail, aerospace, automotive and large mould tool sectors.

Tony Dale says: "EMO provides a window into the world of advanced manufacturing technologies and, from our perspective, a unique preview of the latest innovations from DN Solutions and Zayer Machine Tools.

"Many of the technologies being showcased by both companies will soon be available from Mills CNC to UK and Irish manufacturers."

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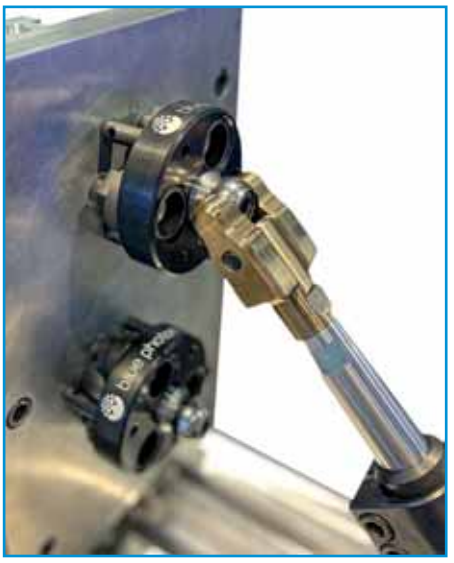
Okuma to launch next-generation control

A new CNC system, the OSP-P500, will be launched by Japanese machine tool builder Okuma at EMO. The smart machine control, which is manufactured in-house, combines highly productive and precise machining with ease-of-use, energy efficiency and safety features to protect against cyber attacks.

Initially, 5-axis machining centres in Okuma's MU-V series and the MULTUS series of multitasking turn-milling machines will be equipped with the new machine control. NCMT, the sales agent for Okuma in the UK and Ireland, advises that this latest CNC system has twice the computing power of conventional machine controls, shortening cycle times by up to 15 percent. It is particularly well suited to high-speed machining applications for achieving top quality surface finishes.

The control is equipped with an on-machine Digital Twin to facilitate high-precision simulation of machining processes, reducing setup times and speeding production. By performing these simulations on the machine itself, production can start immediately afterwards. Alternatively, with Digital Twin on a PC, simulation can be carried out offline while production is in progress on the machine.

Even inexperienced users benefit from the advantages of the control due to its user-friendly interface. A Smart OSP Operation function simplifies programming on the shop floor by providing automatic guidance through all the necessary steps. People without any prior experience can learn how to machine a component in one day.



Featuring a comprehensive security system, the control protects machine processes, programs and data from cyber attacks. Advanced identification of users and encryption of communication according to the OPC-UA standard prevents unauthorised access. Potential for damage can be minimised with specific anti-virus measures, such as a whitelist and functions for the direct identification of counterfeit programs or irregularities. Data backup and recovery functions are also integrated.

Thanks to the integration of Eco Suite Plus, the OSP-P500 reduces power consumption. Smart features record and analyse every operating status as well as CO_2 emissions, switching to energy-saving idling if expedient and automatically adjusting the power drawn by peripherals such as the chip conveyor.

Okuma is gradually launching a range of new Green Smart Machines onto the market, which will provide even more functions for saving energy. These intelligent machine tools will be controlled by the OSP-P500. They are designed to support a reduction of CO_2 emissions by reducing energy consumption, while still ensuring high quality machining.

It is notable that Okuma, which is celebrating its 125th anniversary this year, has been manufacturing its own OSP control system for nearly half that time. It also produces its own drives, encoders and virtually every other component part of its machine tools.

US firm Blue Photon has designed a new, photo-activated adhesive workholding system, comprising patented grippers and inserts, intended for use with stabiliser systems marketed by Big Daishowa and others that add extra rigidity to tall components while they are being machined.

The Workholding Stabiliser System will be launched in Europe at the EMO on the Blue Photon stand. Representatives from European sales agent NCMT will be on the stand throughout the exhibition to help with live demonstrations and answer questions.

The workholding system comprises a Blue Photon stabiliser puck, an adjustable stabiliser arm and a base mount, for which there are multiple options including T-slot, threaded hole and magnetic. The puck is positioned in an optimal location on the workpiece to provide maximum extra support during machining by transferring some of the cutting force to the machine table and structure.

The extra stability raises production throughput by allowing faster feeds and speeds to be programmed without affecting the surface integrity of the part and also increases yield by avoiding scrap and rework that could result from unstable clamping.

The puck attaches to the workpiece using grippers placed into fixed inserts. It is simply necessary to position the puck and turn on ultraviolet light from a Blue Photon controller to cure BlueGrip adhesive previously applied to the grippers. The process is completed in 60 seconds, minimising idle time and maximising throughput.

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Okuma: Hall 15- Stand B36
Blue Photon: Hall 5 - Stand B84

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HEIDENHAIN (G.B.) Limited
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Groundbreaking measurement automation for precision dies and edge preparation on round tools

At EMO 2023, Bruker Alicona, a leading provider of advanced metrology solutions, will show its latest developments for measurement automations for precision dies and edge preparation on round tools. These solutions set new standards in terms of speed, accuracy, repeatability, and traceability. Experience them live for the first time at EMO in Hannover.

Edge preparation, a fundamental process in precision engineering, holds immense significance in enhancing the quality of round tools. By carefully shaping and refining the cutting edge of tools like drills, drills with shaft, end mills and reamers, edge preparation eliminates imperfections, reduces tool failure and optimises performance. The process not only extends tool lifespan but also improves machining accuracy, surface finish and productivity. Embracing edge preparation empowers manufacturers to unleash the full potential of their round tools, achieving unparalleled precision and competitiveness in today's demanding manufacturing landscape.

Bruker Alicona's automated edge preparation measurement system revolutionises the process with just three simple steps. The round tool is securely clamped in the rotation unit, followed by automatic alignment to the CAD model using MetMaX, the proprietary software. Operators can effortlessly select the desired edges for automatic measurement and evaluation, streamlining the entire process.

“We firmly believe that the future of edge prep measurement lies in optical technology and MetMaX is the go-to software for this purpose,” says Urban Muraus, general manager at Bruker Alicona. “With MetMaX, manufacturers can focus on what to measure rather than how to measure, making the solution ready for production without requiring specific metrology expertise.”

Bruker Alicona's commitment to technological advancement extends to the precision die industry as well. By introducing automated measurement solutions for stamping dies, punching and bending tools, the company enables manufacturers to achieve unprecedented levels of accuracy, efficiency and reliability in their production processes.

Its turnkey automated optical measurement solution evaluates the complete surface of the form-giving shape for manufacturing tolerances as low as 0.010 mm, while tactile-based technologies reach limits such as long measuring times, limited 2D profile evaluations or compromises in accuracy and resolution.

The in-house software MetMaX ensures superior usability during the teach-in process, further enhancing its appeal to industry partners. Industry collaborators, including TE Connectivity, Stepper, Kleiner and Hailtec, have praised the future-proof nature of Bruker Alicona's solution, which incorporates full compatibility with PMI.

“With Bruker Alicona we are already able to automatically start and execute the measuring process in our production process. We are currently working on enabling networking with other machines so that machine parameters are automatically and continuously adjusted based on the measurement results,” explains Christian Hamann, business unit manager of tool technology at Kleiner.

Bruker Alicona is a leading provider of advanced production metrology solutions, specialising in optical 3D surface metrology and microscopy. The company's cutting-edge technology enables manufacturers to optimise their production processes, improve product quality, and gain a competitive edge. With a global presence, 150 employees worldwide and a strong commitment to innovation, Bruker Alicona is dedicated to helping its customers succeed.

Alicona has been part of Bruker since 2018 and now operates globally under the Bruker Alicona brand. Headquartered in Austria, measuring systems are developed, produced and distributed worldwide. An international sales, service and support team as well as selected distributors ensure regional customer proximity.

The company stands for agile development, high technological competence and is motivated to constantly drive innovation. Since its foundation as Alicona in 2001, it has been known for continuously improving both user-friendliness and production-suitability of optical measurement technology. This makes it one of the driving forces in the integration of measurement technology into production, thus constantly opening-up new opportunities for automation and increased productivity.

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Hall 6 - Stand E39

CITIZEN

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Taking place at our Turning Centre of Excellence in Brierley Hill, between 3-5th October, we'll be showcasing the Miyano brand, together with the latest machines from Citizen stablemate, Cincom – be sure to ask about our great Open House specials. We'll be demonstrating how these game-changing machines and their cutting edge technologies are reshaping CNC machining globally.

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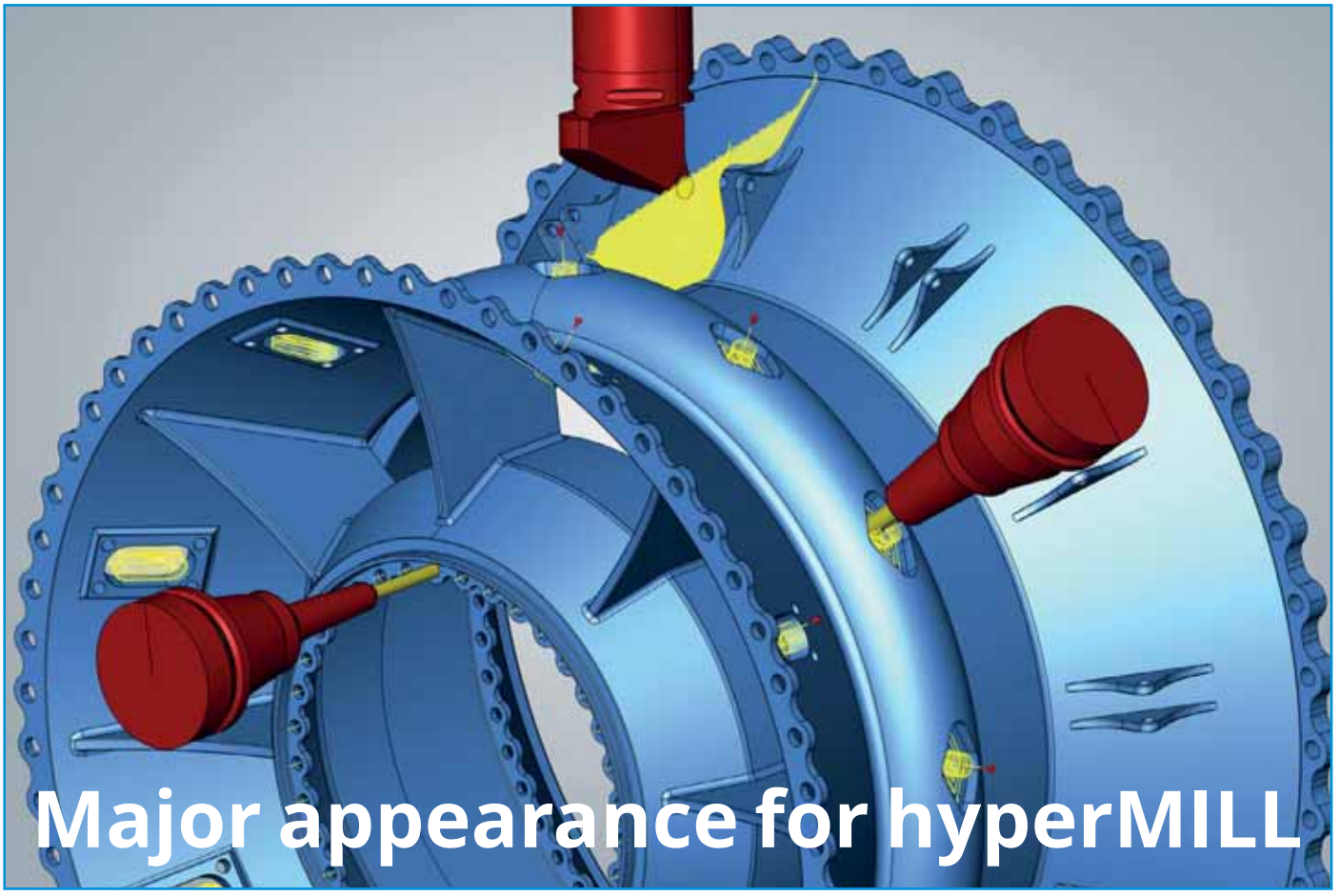

Major appearance for hyperMILL

OPEN MIND will focus on turning, milling and the importance of CAM software and MES in connected manufacturing environments at EMO 2023. The CADCAM manufacturer is more than aware of the importance of the world's leading trade fair for manufacturing technology, which is why this year's booth has been upgraded to be larger than ever before. Its stand covers 150 sq m and will give visitors a chance to learn everything there is to know about the hyperMILL® CADCAM suite.

Live demonstrations will take place on the stand on a GROB G350T mill/turn machine to display what the milling/turning technologies of hyperMILL TURNING Solutions can do. The live demos will also include milling, drilling and angle head support, as well as how to use a 'virtual machine' to simulate the machining of finished NC code. hyperMILL TURNING Solutions include technologies for turning, turn/milling and mill/turning, meaning they can be used for all corresponding machine configurations. Last but not least, OPEN MIND's demonstrations will also feature automation solutions to help make creating error-free NC programs simpler and faster.

Connected manufacturing

OPEN MIND has been positioning hyperMILL as a vital building block in the digitalisation of process chains since the acquisition of MES manufacturer Hummingbird in early 2022. Connected manufacturing will also be on the agenda at EMO under the motto 'Create the future of manufacturing together' to highlight the important role of the CAM system in a connected manufacturing environment.

Examples from multiple industries

OPEN MIND will again have a large number of show parts on its booth to help visitors truly understand what optimised machining looks like. The examples of industries in which hyperMILL is particularly valued will range from tool and mould-making to aerospace and medical technology. There will also be components from the semiconductor industry on display. These components have to meet particularly high requirements in terms of dimensional accuracy and surface quality.

Special education show

OPEN MIND will take part in the Nachwuchsstiftung Maschinenbau's special education show as a cooperation partner. This will be held in Hall 8 at EMO. The show is expected to attract over 3,500 students and around 1,500 trainers and teachers have been invited to attend. The next generation of engineers will have the opportunity to get a firsthand look at the hyperMILL CAM system and understand its practical importance within the process chain.

OPEN MIND is one of the world's most sought-after developers of powerful CAM solutions for machine and controller-independent programming.

OPEN MIND develops optimised CAM solutions that include a high number of innovative features not available elsewhere to deliver significantly higher performance in both programming and machining. Strategies such as 2.5D, 3D as well as 5-axis milling/mill turning and machining operations like HSC and HPC are efficiently built into the hyperMILL CAM system. hyperMILL provides the maximum possible benefits to customers thanks to its full compatibility with all current CAD solutions and extensive programming automation.

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Hall 9 - Stand A05

Roemheld to introduce new machine vice at EMO

German workholding equipment manufacturer Roemheld will launch a new, mechanically operated, centric, self-centring, machine vice on its stand at EMO.

Manufactured in the group's Austrian factory in Rankweil, the new Hilma.UC 125 vice is of modular build, intended for 3- to 5-axis prismatic machining applications. The design ensures easy tool access to the workpiece from all sides, allowing the use of short tools for high precision machining in a single setup.

Versatility in operation is ensured by having a separate vice base and two individual jaws that, when a single handle is turned, travel simultaneously inwards towards the centre to clamp the workpiece and out again to release it.

Clamping force exerted via the upper Diamond-Like Carbon (DLC) coated spindle is up to 52 kN. A central bearing on the lower, unloaded spindle, which is used for positioning the jaws, ensures that each component is clamped precisely in the centre of the vice. Repeatability of workholding from part to part is better than ± 0.01 mm.

As the clamping spindle is turned, force is applied to the workpiece via outer claws over the jaws. An active pull-down mechanism in the clamping jaws prevents the workpiece from lifting. Having both a tensioning spindle and an adjustment spindle prevents force being applied to the base, avoiding distortion.

The universal clamp, hence UC in the product name, can be adapted to accommodate a wide variety of prismatic and round workpiece geometries and sizes in just a few steps. The jaw opening can be extended quickly to 600 mm, one of the largest available on the market.

Numerous jaws up to 125 mm wide for securing a wide range of different raw and finished parts are offered as part of the modular system. Additional expense in buying extra workholding equipment is therefore normally avoided, even when production requirements are diverse.

There are several options for mounting the vice. It can either be secured directly to the machining centre table, or in a zero-point clamping system. Adapter plates are available for added versatility.

Roemheld UK Ltd
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Hall 4 - Stand E54

Perfecting high-mix CNC production with Fastems intelligent automation

The ever-growing complexity and change around industrial manufacturing needs intelligent automation that enables resilient and efficient high-mix production. Come to meet Fastems in EMO Hannover to hear the latest news, releases and insight that is relevant to both OEM and contract manufacturers

Flexible Pallet Tower for 4- and 5-axis CNC machines

To enable lights-out manufacturing and high spindle utilisation in high-mix production with 4 and 5 axis milling and mill-turn machines, including vertical 5-axis machines, Fastems launched its Flexible Pallet Tower (FPT) in 2022. This year Fastems is releasing and showcasing a new larger version for 1,000 kg payloads and 500-630 mm pallets. With an extremely compact footprint of just 19 sq m, FPT-1000 can accommodate 12 to 24 machining pallets of two different heights and enable order-based production with a single CNC. Fastems welcomes EMO visitors to see the system live at its booth.

Modular Flexible Pallet System for 4- and 5-axis milling machines fits for any shopfloor

Fastems is excited to announce launch of a multi-machine version of the above-listed FPT - Flexible Pallet System (FPS). FPS is a modular solution with a unique 360-degree design. Compared to typical flexible manufacturing system, FPS allows customer to place machine tools, pallet storage units and operator loading stations flexibly utilising all the four sides of the system. With the same maximum height of only 3.1-3.8 metres like FPT, FPS is a perfect fit for also low-ceiling facilities. FPS offers the full FMS benefits for producing high mix with minimum production setup times and maximum spindle utilisation. Like all Fastems systems, FPS can integrate CNCs of over 90 different brands and be later extended or upgraded if the production needs change.

Auto-Loading Cell maximises unmanned FMS production capacity

The Auto-Loading Cell (ALD) ensures that Fastems FMS runs unmanned around the clock, even when the pallet demand is extremely high. The robot cell loads and unloads the parts to and from the pallets automatically as well as re-clamps parts between machining operations. In addition to making sure the FMS never stops during nights and weekends, ALD can reduce the pallet and fixture need significantly,saving both money and space. Fastems live robot showcase at EMO demonstrates the principles of autoloading functionality, including clamping the part in different operations, into conventional clamping fixtures that are more affordable option compared to hydraulic or pneumatic fixtures.

myFastems

Visitors to the Fastems booth will be able to learn about myFastems. Offered as Software-as-a-Service (SaaS) product, as part of Fastems' automation solutions, myFastems provides powerful tools to help customers keep their Fastems systems up and running around the clock, for maximum availability and productivity. The digital service is available as a web progressive application and easily accessible via mobiles, tablets, or laptops, providing transparency to all Fastems systems: service history, spare parts usage, and comprehensive

system overview for connected systems, as well as alarm-based recovery instructions and support request tickets.

Factory Cockpit: Factory-wide transparency on central key figures

Last but not least, Fastems is presenting Factory Cockpit, a new solution that collects, integrates and analyses data from shop floor devices and IT systems. Factory Cockpit provides tools for real-time situational awareness and data-informed insights for part manufacturing, which help optimise the overall production flow and resource efficiency. With Factory Cockpit, real-time production statuses or important manufacturing KPIs such as OEE, utilisation and availability are easily available for all selected stakeholders, both internally and externally. From operators in the shop floor, to production managers, business managers and customers, the seamless information flow increases transparency and enhances collaboration throughout the whole production process, enabling manufacturing companies to lead and develop their manufacturing with data.

The offering includes consulting services in the material handling environment through to flexible manufacturing systems, robot-based automation solutions, software for production control and a comprehensive range of services. With these solutions it is possible to increase the capacity of machine tools and additionally optimise processes. With the help of the intelligent MMS software, production and tool management are efficiently planned, forecast, controlled, visualised and monitored.

Interested to learn more? Contact:

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Hall 12 - Stand D67

Starrag's revolution in titanium machining

Starrag is set to revolutionise titanium machining performances with its new ultra-rigid and robust STC 1250 HD horizontal machining centre, the first machine in its large-capacity class with hydrostatic guideways for zero friction/non-stick/slip movements. The machine, which will be one of the highlights of Starrag's EMO stand, provides users with: Unmatched roughing times, reducing roughing times by up to 50 percent and decreasing overall machining times by up to 30 percent; Reduced energy consumption rates during machining of 33 percent; More dynamic finishing and therefore more precise parts courtesy of higher acceleration and jerk rates plus frictionless/no micro-vibration in the X axis. Hydrostatic guideways also mean reduced maintenance demands compared to conventional box guideways.

While full details of the new machine will be available at the show, recent demonstrations not only showed how the hydrostatic guideways enable the 12-tonne column to be easily moved by hand, but they also proved the machine's impressive machining performance. Using porcupine, face and Starrag's own-manufactured solid carbide milling tools on a Ti6A14V frame door forging measuring 80 mm deep x 300 mm wide and 1,220 mm long, the machine also achieved roughing cuts up to four times deeper than would be traditionally achieved.

The STC 1250 HD will be on view at EMO alongside a representative selection of Starrag products from the Berthiez, Bumotec, Dörries, Droop+Rein, Ecospeed, Heckert, Scharmann, SIP and Starrag ranges and, as always, Starrag will be showing how its ethos of 'Engineering precisely what you Value' benefits customers of every size in all industry sectors throughout the world.

Starrag Group is a leader in manufacturing high-precision machine tools for milling, turning, boring and grinding workpieces of metallic, composite and ceramic materials. Principle customers are internationally active companies in the aerospace, energy, industrial, micromechanics and transportation sectors. In addition to its portfolio of machine tools, Starrag Group provides integrated technology and maintenance services that significantly enhance customer quality and productivity.

Starrag UK Ltd
Tel: 0121 359 3637
www.starrag.com

Hall 12 - Stand B50

Horn to launch boring bar with adjustable damping at EMO

German cutting tool and insert manufacturer Paul Horn, which offers 25,000 standard products and more than 150,000 special tooling solutions, will unveil new products and range expansions on its 580 sq metre stand at the EMO 2023 trade fair. One innovation will be a boring bar with adjustable damping, which will be shown carrying a grooving insert.

A long overhang can cause a turning tool to oscillate when boring internal geometries. In addition to causing chatter marks on the surface of the machined component, the vibrations can lead to a significant reduction in tool life. For unfavourable length-to-diameter ratios, even damped boring bars may vibrate under certain conditions.

To address this problem, Horn has developed a boring bar that can be set to match the oscillation amplitude during machining. Precise adjustment enables vibration-free turning, resulting in better surface quality and a significant increase in insert life.

The damping element, a carbide rod supported in O-rings, is adjusted from the outside by turning a screw to fine-tune the pre-tension of the rings. This allows the boring bar to be set accurately to minimise the vibration that is predicted to occur during a machining cycle.

As standard, Horn offers the boring bars from stock in length-to-diameter ratios of 5:1 and 8:1. Higher ratios are available as special tools. In the case of grooving, Horn offers the S224 double-edged system. The manufacturer's BK 224 cassette system ensures a stable interface between the boring bar and grooving insert. To increase process reliability further, the tools have an internal coolant supply.

Markus Horn states: "We are convinced that the optimum machining solution is created in conversation with our customers and EMO is an ideal opportunity for exchange of ideas. We are looking forward to advising our customers and interested parties on their current projects and future challenges. As a precision tool manufacturer, we not only have to master our own products but the entire machining process, right down to the material being cut."

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EMO: Hall 5 - Stand A54

Dugard at EMO

At the forthcoming EMO show, engineers from Dugard Machine Tools will be on hand to welcome UK customers to the exhibition stands of some of its leading technology partners. With a host of new innovations on show from Hanwha, SMEC, Chevalier, Ibarmia and Kitamura, the Dugard team will be in Hannover to support UK manufacturers.

On **Stand B14 in Hall 17**, Hanwha will be showcasing its new XV20/26 series of sliding head turning centres that now incorporate a rigid double-hinged B-axis unit and improved Y2 back tooling unit. With enhanced billeting motors for both the main and sub-spindle and a powerful 2.2 kW cross motor, the exciting new XV20/26 is certain to pull crowds at Europe's leading machine tool exhibition. Another crowd-pleaser from Hanwha is the XDI 26/32 sliding head turning centre that incorporates 3-path 9-axis independent opposite gang tools that will deliver unparalleled levels of productivity and flexibility.

Only a short journey from Hanwha at EMO will be the much-anticipated arrival of the re-vamped T-Series of 5-axis universal machining centres from Ibarmia. Exhibiting on **Stand B44** in **Hall 13**, Ibarmia is excited to invite manufacturers to its stand to review the new T-Series of machines for processing large-diameter components with unsurpassed levels of productivity that are achieved through automation and multitasking technology.

On **Stand A10** in **Hall 16**, SMEC Machine Tools will be presenting its latest line of machining centres, turning centres and multi-axis technology while Kitamura will be demonstrating its latest high-speed machining centres in **Hall 14** on **Stand D36**. If you would like to investigate any of the new technologies available from Dugard's technology partners at EMO, please contact your local Dugard representative.

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DMG MORI promotes machining transformation at EMO

At this year's EMO trade fair in Hannover, DMG MORI will present and demonstrate on its 9,000 sq m stand a new Machining Transformation (MX) framework based on four innovative technology and solution pillars - Process Integration, Automation, Digital Transformation and Green Transformation.

Under the title DMG MORI City, the company will introduce holistic production concepts for applications in multiple industries based on cutting-edge machine tool technology, from universal and production CNC turning machines to 5-axis milling and mill-turn centres to additive manufacturing platforms.

Among the 39 machines and 20 automation solutions on show, there will be a number of world premieres including the CTX beta 450 TC turn and mill centre, the CTX 450 and CTX 550 universal lathes and the INH 63, a horizontal-spindle, 5-axis machining centre. To be introduced also are the modular PH Cell 800 pallet handling system and the UH-AMR 2000, an autonomous robot for material and tool handling.

Process integration is a part of MX that DMG Mori has been driving forward for decades. 5-axis simultaneous milling and turning operations in one working area is now widespread for optimising the machining of complex workpieces. Today, DMG MORI integrates other machining technologies as well, such as grinding, gear milling, ultrasonic machining and direct energy deposition additive manufacturing.

The advantages are clear: shorter throughput times, higher machine utilisation and better-quality components. In DMG MORI City, the CTX beta 450 TC turn-mill centre will provide a particularly good example of process integration.

Flexible automation solutions also play a significant role in MX. They increase productivity by maximising machine utilisation, including during unattended shifts. Automation also ensures consistent component quality.

Intelligent digitisation is a further integral part of MX. Artificial intelligence, the Internet-of-Things, big data and digital twin are just a few topics that significantly

influence and optimise processes. DMG MORI offers its customers the opportunity to fully network and monitor their production so that they are able to create competitive advantage and build new business models.

The fourth pillar of MX, Green Transformation, represents a way to achieve climate protection goals and compensate for rising energy prices. The so-called DMG MORI Green Economy comprises resource saving in machine production, energy-efficient machine operation and partnerships for the advancement of green technologies.

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Hall 2 - Stand A21

Take it to the next level

WFL Millturn Technologies will present two turning-boring-milling machines at EMO: the M50 MILLTURN / 3,000 mm and the M80X MILLTURN / 4,500 mm. Visitors can experience the M80X live with a demonstration of the machining of a gear shaft, including measurement of the gear teeth. Both machines feature a new design and are equipped with Sinumerik ONE. A mobile robot installed on an Automated Guided Vehicle (AGV) is set to be another highlight of the event. It will demonstrate how to load and remove tools and workpieces.

The M80X MILLTURN with 4,500 mm machining length and 1,000 mm turning diameter is equipped with a grinding attachment and a vibration damped Silent ToolsTM Plus boring bar. Visitors can see what the machine can do for themselves with a live demonstration of the machining of a gear shaft measuring 800 mm in diameter and 1,824 mm in length. During the demonstration, gear teeth will be produced using WFL FLANX cycles. 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, impeller and generator shaft profiles. The demonstration workpiece has a diameter of 600 mm and a length of 2,355 mm.

WFL turning-boring-milling machines now feature Sinumerik ONE from Siemens with its new user interface. The new machine control system is impressively modern and user-friendly. Meanwhile, the integrated SIMATIC S7-1500F PLC enables PLC cycle times that are up to 10 times faster than its predecessor. Boasting a selection of innovative technology functions, Sinumerik ONE optimises the machining speed, contour accuracy and machining quality. Sinumerik ONE makes machine tools more productive and therefore faster, more flexible and more efficient.

Mobile robot automation

The demonstration of a mobile robot installed on an 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, 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 EMO in Hannover.

Improved performance with smart tools

The integration of smart sensors enables detailed tool information and machining states to be called up on the machine control system, a tablet or a PC. Various sensors installed in the Silent ToolsTM Plus boring bar provide data on load, temperature, deflection and more. Signals are transmitted via Bluetooth so that the machine can respond interactively to a defined trigger event. The process can be visualised and documented, making it fully transparent. The use of an inductive coupling to power the sensors instead of an accumulator is a completely new feature. The vibration damped boring bar will be showcased on the M80X MILLTURN/4,500 mm.

In combination with the "iControl" process monitoring system, the operator enjoys the ultimate level of protection for the machine, workpiece and tool to ensure reliable and economical production, especially in prototype production or for small batch sizes. On the one hand, the machine and tools should be used with maximum productivity; on the other hand, the process should run as stably and reliably as possible. The up to 16 process signals to be monitored are configured by WFL at the factory according to the machine equipment and displayed live on the controller's display. Important process signals are the forces or torques of the NC axes and spindles, but also the signals sent by the sensors integrated in the Silent ToolsT Plus boring bar.

Measurements on the MILLTURN

By implementing a wide range of measurement methods, WFL is able to both ensure and improve the quality of components. The automation of all measurement processes is an essential step towards autonomous and low-personnel production.

Thanks to the ability to scan profiles and then evaluate the results, WFL has developed cycles specifically for gearing technology which can be used to measure elements such as the tooth flank profile or the flank line. The measurements are then analysed. The analyses and logs meet the general industry standard for gearing technology. This means that gearing can be checked and logged in accordance with the industry standard after machining.

Ultrasonic measurement will also be demonstrated live to EMO visitors. The automatically exchangeable ultrasound measuring probe enables a fully automatic measuring process. The large measurement range and automatic, error-proof measuring process are the main advantages. Ultrasonic measurement is ideal for determining and compensating for the tool drift of very deep centre holes.

Operational data acquisition with myWFL

Another highlight at EMO will be the myWFL Cockpit operational data acquisition system. Machine and program states over time, productivity and technical availability will all be displayed, either on the machine control system, PC or mobile device via a web browser. This means that the user can always be well-informed about their machine productivity.

The new myWFL Energy energy usage measurement device integrated into the myWFL Cockpit displays the current power data as well as the energy and compressed air consumption of each workpiece.

The Condition Monitoring cycle integrated into myWFL continuously records the status of the axes and spindles during a measuring run and saves them to the machine control system. Possible changes can easily be detected and displayed via the Condition Monitoring Viewer.

myWFL Health Check performs semi-automated measurements of the B-axis, tailstock and main and counter spindles to check the machine geometry. The software includes cycles and testing instruments to measure and log the geometry. Thanks to the integrated recording of measurement data, it is possible to identify long-term trends. myWFL Health Check can be used on all machines and machine control systems.

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Email: simon@kyalmachinetools.co.uk www.kyalmachinetools.co.uk

Hall 13 - Stand B51

ETG presents agile new AXILE

As the UK's premier supplier of high-technology machine tools, the Engineering Technology Group (ETG) is now introducing the new G8 machining centre from AXILE. Since entering into an agreement with AXILE to be the exclusive UK and Ireland technology partner, ETG is already enjoying a significant level of enquiries for the extensive range of high-end 5-axis VMCs, heavy-duty double-column machining centres and mill/turn machine tools.

The AXILE G8 has a powerful gantry design that perfectly balances rigidity and precision, which is ideal for the machining of complex workpieces. With a maximum loading capacity of up to 1,300 kg on a swivelling rotary table, the agility of the G8 enables the production of a wide range of large components. Also, in the G8 Series is the G8 MT. This machine option offers both milling and turning in one machine, greatly increasing operational flexibility, reducing setup times and offering the potential to efficiently machine a wider variety of parts in a single setup.

The flexibility of the AXILE G8 and G8 MT is built upon a high-quality cast base that offers a structural foundation that optimises vibration damping and limits thermal behaviour. The machine has a chip disposal unit integrated directly under the table and a huge U-shaped closed gantry design that slides along two symmetrical axes to optimise accessibility and stability. From an agility perspective, the AXILE G8 and G8 MT have direct driven servo motors, double symmetrical and synchronised axes and linear scales with a 0,1µm resolution as well as double roller type linear guideways. All of these features minimise backlash, vibration and elasticity to optimise precision and performance.

Both the G8 and G8 MT offer a table size of 800 mm diameter with X, Y and Z axes of 670 by 820 by 600 mm with a maximum feed rate of 60m/min. The swivelling A-axis moves to +/-120 degrees with a 360-degree continuous C-axis. As standard, the built-in spindle is a 20,000 rpm asynchronous motor that is supplied with tools from two tooling carousels that present 32/64 position tool change. It can also be equipped with larger magazines up to 120 positions.

For the G8 MT mill/turn variant, the rotary A-axis swivels at up to 100 rpm while the rotary speed of the C-axis can reach up to 1,000 rpm for turning. Based on unique torque motor technology, the A and C-axes are driven by powerful 20.4 and 55 kW motors that provide a remarkable level of speed and dynamics. Both variants of the machine are also available with the option of Heidenhain, FANUC or Siemens CNC and of course the groundbreaking ART Monitoring System.

This digital platform from AXILE is undoubtedly a system that demonstrates how technologically advanced the brand is. The ART Monitoring System delivers agile smart machining that enables 24/7 automated production and allows operators and key decision makers to digitally manage processes by monitoring all wear components, energy consumption and fluids such as lubricant and coolant, supplying real-time status updates on the machine and its components. AXILE's ART™ empowers manufacturers to make informed decisions, optimising operations and greatly improving production efficiency. The ART Interface is available with remote access and usable via any portable devices such as laptops, tablets and mobile phones.

Customers can specify the machine to suit their exact requirements with a choice of CNC control, spindle, tool carousel capacity, chip conveyors, tool and workpiece measurement and much more. For further details, contact your local ETG representative.

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Experience automation and innovation up close and personal

At EMO 2023, GROB will be presenting its latest machines and services. Visitors will see six machines live on-site, demonstrating the machine builder's latest technologies and innovations.

GROB-WERKE has been showcasing its technological innovations at EMO, the world's largest trade fair for the metalworking sector, every two years for over four decades. Also, this year GROB-WERKE will have its whole range of technologies on display. Visitors can look forward to a 4-axis mill machining centre and a 5-axis mill-turn machining centre, each with rotary pallet storage system. Also, from the family of 5-axis universal machining centres, a G150 and G350 in combination with the highly efficient GROB robot cells await visitors and will be putting their productivity to the test live at the exhibition.

But the metal cutting technology for frame structure parts and battery trays will also be on show. With the G720F two-spindle machine, GROB is presenting one of the largest machines that it has ever exhibited at an external exhibition. In addition to metal cutting machines, visitors can also look forward to the GMP300 liquid metal printing system. What's more, the company will also be presenting its services, the GROB-NET4Industry digitisation products and highlights from the electromobility segment.

Visitors have the opportunity to meet the company's experts directly and gain valuable insights into the latest developments and trends. "We are very excited to be part of EMO 2023", says Christian Müller, member of the board & CSO at GROB-WERKE. "EMO is an outstanding opportunity to meet with customers and other industry experts and gain a valuable insight into the latest developments and trends. We are confident that our machines and services will be received with great interest by the visitors to the exhibition."

For generations now, GROB as a family-managed company has stood for first class products, future-facing technologies and absolute reliability. From sales to engineering and production to commissioning, its qualified engineers and technicians meet the most discerning customer requirements. This gives GROB a leading position in the construction of highly-innovative production and automation systems.

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EMO: Hall 12 - Stand B12

Subcontractor progresses to 5-axis machining

Daimon Wellington, owner and managing director of subcontract machining firm Wellington Engineering, standing in front of the Hurco VC500i 5-axis machining centre

The Hurco VC500i 5-axis machining centre in operation at Wellington Engineering, Hayes

In its 20,000 sq ft, purpose-built factory in Hayes, near London Heathrow airport, subcontractor Wellington Engineering uses 45 CNC machine tools to produce parts for sectors as diverse as aerospace, medical, semiconductors and cryogenics. The latest machine to arrive on the shop floor, in mid-2022, was a Hurco VC500i machining centre.

Owner and managing director Daimon Wellington comments: "We recently adopted a strategy of looking to take on more complex prismatic machining work and had already identified a number of contracts. It was just a question of finding a suitable machining centre.

"Full 5-axis capability was the next step up for us in terms of technology and as we use a lot of Hurcos, we decided to source our first true 5-axis machining centre from them."

The cantilever-type VC500i is ergonomically designed for easy operator access, has a 520 x 450 x 400 mm working volume and a ± 100 degree swivelling trunnion carrying a rotary table, ideal for machining five faces of a component in a single setup. It drastically reduces the number of separate operations needed compared with using the subcontractor's 3-axis machines, including those fitted with single- or 2-axis dividing heads.

Working area of the 5-axis VC500i, showing the rotary table / swivelling trunnion positioned from front-to-back, instead of in the more usual side-to-side arrangement. Doors on two sides open to allow ergonomic operator access

Daimon Wellington continues: "Our other machining centres were taking too long to produce the increasingly complex components. Productivity drives profits and we have had excellent results in this respect since the 5-axis Hurco was installed.

"Parts come off much quicker and we are not tying up the capacity of our other machines and their operators. Also, there are far fewer issues with workholding and there is less deburring and hand fettling, all of which saves time.

"With 5-axis strategies, jobs are coming off more economically in shorter cycle times, giving us more confidence to tell customers reliably when they can expect deliveries."

Wellington Engineering uses machine efficiency software to monitor cycle times and the uptime of its plant. Immediately apparent were the efficiency benefits of completing a job in two operations maximum on the VC500i, rather than having to put it up four or five times on different machine tools. One of the advantages is that manufacturing procedures are less complicated. Previously if the operator of one of the machines called in sick it would disrupt the entire process chain,

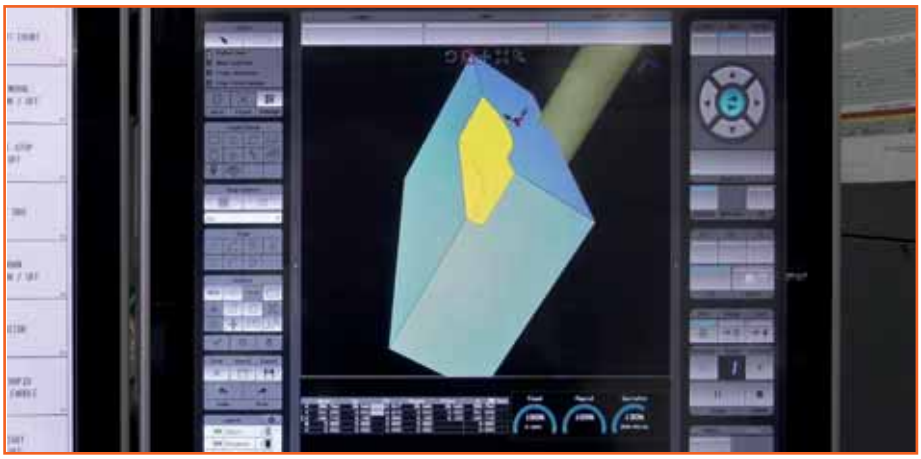
but that is no longer the case, greatly improving efficiency.

In Daimon Wellington's opinion, there is a shortage of young talent coming through in manufacturing these days, so it is highly beneficial to install a machine that can do the work of four or five yet be operated by just one person.

He explains: "With Hurco's support and the ease of conversational programming using the Max 5 control, we are getting around the skills shortage and producing high quality components in fast times. Our operators especially like the ability to edit during the machining process, giving confidence that the part will come off right first time.

"We are now absolutely looking at jobs in a different way. Whenever we produce an estimate to quote for a new job, we always look at it as one that will potentially go onto the 5-axis machine. That is because of the benefits it brings, especially when we are able to use simultaneous 5-axis cycles, which is impossible on our other machines, while the VC500i is equally beneficial for 5-sided work."

He is delighted to be receiving reports from customers saying that the prices he is now charging are competitive with those of low-cost sources overseas. It is largely due to being able to cut down massively on setup times as well as the cost of jigs and fixtures for presenting components at multiple specific angles to the spindle. The subcontractor is now quoting successfully for work that it had previously considered but had to turn down, as its prices were too expensive.



The Max 5 conversational CNC system controlling the VC500i is described as easy to use by Wellington Engineering's operators

In conclusion, Daimon Wellington's overall perspective on his latest machine tool investment is that the main benefit is the high level of output. Jobs that would normally take three to four weeks to complete are produced in days, without all the work-in-progress involved manufacturing parts on several machines sequentially. The other significant advantage is that the 3- and 4-axis machines on the shop floor are freed up for simpler work.

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EMO: Hall 12 - Stand D68

The promising segment

It is apparent that 5-axis machining is becoming increasingly popular in modern metal cutting. 5-axis machining provides significant advantages such as machining complex-shaped parts by use of one setup without changing the location of the workpiece, high machining accuracy and reduced cycle time.

Advanced technology of workpiece fabrication has led to increased capabilities of precise forging, casting and mainstreaming Additive Manufacturing (AM). This has resulted in the increased complexity of workpiece geometry, decreasing machining allowance and material by cutting operations and achieving end results which reflect the final shape of the workpiece. The requests for high-performance cutting tools intended for finishing and semi-finishing geometrically complex surfaces are now vitally important.

Ball-nose milling cutters are considered traditional tools for machining 3D surfaces. Ball-nose cutters are the most common tools for semi-finishing and finishing profile in milling operations. Progress in the field of 5-axis machining centres and a significant step forward in modern CAM systems have emerged tools with a different cutting geometry, referred to as segment or barrel-shape endmills. Even though these tools are well known to machinists, they remain ignored. 5-axis machining combined with CNC software and computer modelling of complex tool configurations has reemerged the use of circular segment endmill applications.

The cutting edge of these endmills is an arc that represents a segment of a circle with a radius larger than the nominal radius of a tool. For comparison purposes, in ball-nose cutters the tool radius is the radius of the cutting edge. Machining surfaces using 'passes technique' segment-type endmills enables a substantially increased step size compared to ball-nose cutters, thus reducing the cutting time. A 3-axis CNC controlled cutting process cannot guarantee the correct position of a barrel-shaped cutting tool when machining complex surfaces. The 5-axis machining concept allows taking full advantage of segment endmills.

Depending on the orientation of the cutting edge relative to the tool axis, segment endmills possess various configurations such as pure barrel, tapered barrel, lens and oval or parabolic shapes. The form of the tool

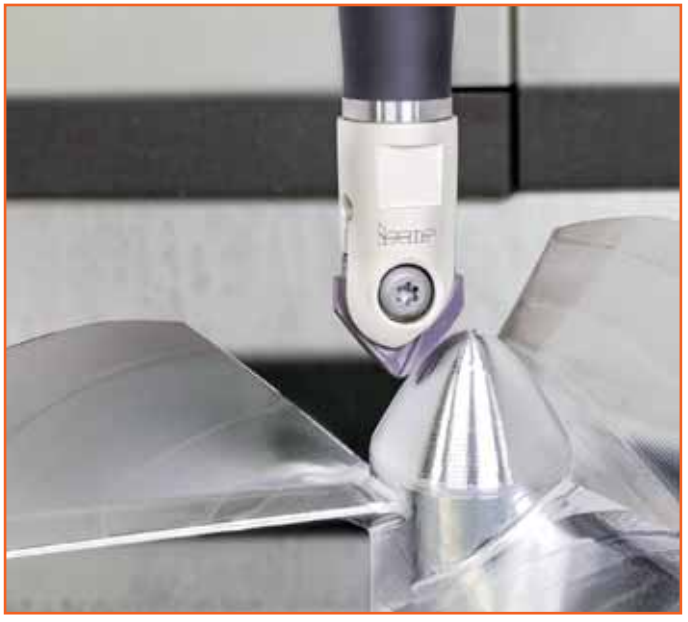
cutting edge determines the tool application. For example, lens-shaped tools are suitable for both 5 and 3-axis machines, while endmills with a tapered barrel profile are intended for 5-axis machines. Segment cutter designs appear in multi-flute solid endmills that deliver ultimate tool accuracy and maximise the number of teeth on the cutting tool.

The ISCAR NEOBARREL tool line includes several tool families. These are solid carbide endmills (SCEM) in a diameter range of 8-12 mm. The 10 mm oval-shaped solid carbide endmill has an arcuated peripheral cutting edge in a radius of 85 mm. This endmill quadruples the step size repeatability compared to a 10 mm ball-nose cutter and provides the same machined surface finish quality.

ISCAR MULTI-MASTER tool line refers to assembled tools that mount exchangeable carbide heads. This line offers new barrel-shaped heads that feature the same cutting geometry and diameter range as SCEM and provide a wide array of options within the MULTI-MASTER line for 5-axis machines. The exchangeable head concept featured in the MULTI-MASTER tool line guarantees rational use of cemented carbide with a true economical advantage. Diverse tool bodies, extensions and reducers enable the customisation of a modular tool assembly for complex machining projects.

Recently, ISCAR unveiled a new family of segment endmills which utilises the single insert tool design principle. It is a known fact that the accurate parameters of a single-insert tool are lower when compared to a cutter with exchangeable carbide heads, not to mention the solid carbide endmill. Precision can be compromised if we analyse how a single insert tool, with two teeth, can compete against a multi-flute SCEM or carbide head tool. To dissipate the arisen doubts about the reasonability of the single insert segment tool design, we should consider several aspects.

The single-insert tool concept facilitates cost-effectiveness by expanding the diameter range of segment mills. These cutters feature nominal diameters of 16-25 mm. A durable insert structure and highly rigid insert clamping enable increasing the feed per tooth in comparison with the feed values that are recommended for solid carbide endmills and exchangeable heads. This ensures an appropriate level of feed and speed to machine productively. When operational stability is poor, decreasing the number of teeth contributes to vibration control. Inserts mounted on the BALLPLUS tool family can transform the tool to a segment endmill by use of



inserts only. ISCAR BALLPLUS tools include a diverse choice of tool bodies, adapters and extensions, which greatly simplify tool customisation. Choosing a single-insert segment tool design is now more logical and justified.

In modern manufacturing, barrel-shaped mills have good prospects. The metalworking industry has found many uses for applying a multitude of cutting barrel designs. These include solid carbide endmills, cutters with exchangeable heads and single-insert tools all of which have formed a complete segment of profile milling tools with a challenging future.

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Powerful and productive

New 5-axis machining centre F 6000 from Heller

At EMO 2023, Heller will present the new generation of its F 6000 machining centre to international trade visitors for the first time. The 5-axis machine with head kinematics has been designed from the ground up for flexible series production. Like all Heller machines, it sets a benchmark for cutting performance and precision. Other highlights include free chip fall, short idle times, optimum automation capability and compatibility with the H and FP series for a wide range of workpieces. The F 6000 also scores with first-class equipment and expandability with technologies such as mill-turn, interpolation turning or power skiving. The team led by Heller's head of development, Dr Manuel Gerst, kept a close eye on these topics, as well as consistent standardisation and the use of key components 'Made by Heller'.

Highlights of the new generation include the completely redesigned swivel heads and the new integrated motor spindles specially developed by Heller. The spindle units deliver the highest levels of precision, dynamics and cutting performance for 5-axis machining.

For combined milling and turning operations, the machine is equipped with the optional Mill-Turn function, in which the high-torque Direct Drive Turning (DDT) rotary table plays a key role. In line with the trend towards complete machining, this eliminates the need for reclamping on separate turning machines. The results are improved workpiece accuracy and significantly reduced cycle times, especially for series products. The pallet changer is included as standard as the first level of automation. The new 'Automation ready' option enables easy integration of the Heller rotary pallet storage (RSP) and Heller's standardised linear magazine solutions at a later date.

To ensure that all of the above benefits are maximised in day-to-day production, Heller's design engineers have focused on clear and easy operation, as well as good accessibility to all work areas. The new Siemens SINUMERIK ONE control fitted as standard and the convenient control unit in panel design with 24" touch screen make operation easy. At the same time, increased access to the work area and the optional new SETUP-Assist make it easier to set up processes on the machine.

At EMO 2023, Heller will present the new generation of its F 6000 machining centre to international trade visitors for the first time. Its main characteristics are a high level of productivity, flexibility and precision

At the heart of Heller's trade show appearance at EMO in Hanover will be 360° Performance, a holistic view of the requirements of modern production. To achieve this, Heller focuses on five solution areas. In addition to the F 6000, the company will be presenting products for the digitisation of production, a comprehensive range of services as well as innovative manufacturing processes and technologies for complete machining on a single machine at EMO.

Heller was founded in Nürtingen, Germany in 1894 as a small craft business. Today, the global group of companies, employing more than 2,600 people, develops and produces state-of-the-art CNC machine tools and manufacturing systems for metal-cutting applications. Five production facilities in Europe, Asia and North and South America ensure a reliable supply to customers from many different sectors. In addition, Heller is represented in all major markets with its own sales and service subsidiaries as well as qualified service partners. The Heller product range comprises 4-axis and 5-axis machining centres, mill/turn machining centres, special-purpose and process machines, machines for crankshaft and camshaft machining as well as coating modules. The portfolio is supplemented by a modular range of services and an expanded spectrum of solutions for the digitisation and automation of production.

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EMO: Hall 12 - Stand C68

XYZ UMC-5X takes to the skies

The Rolls-Royce precision machining facility in Derby manufactures fixtures for intermediate pressure turbine blades. Previously, it subcontracted the machining but wanted to bring this in-house so evaluated a number of 5-axis CNC machining centres to suit its requirements.

Thomas McAllister, toolroom manager says: "We chose the XYZ Machine Tools UMC-5X for its price performance metrics. It was installed in December 2022 and we have used it extensively for 3+2 machining giving us accuracies of 10 microns."

The turbine blade fixtures are all designed to use an Erowa pallet, which is the standard for the factory. Each blade may have nine fixtures to hold it in different orientations according to the operations to be performed such as grinding or die sinking, locating the blade on 8 points all working from the main datum point of the blade design. CAD models for the design of each fixture are programmed in hyperMILL CAM software for the UMC-5X.

Thomas McAllister continues: "The machining requires compound angles and typically we braze supporting pads on the fixture, machining these to suit the individual blade. For the machine, we specified a BLUM tool setter and RMP 600 Renishaw probe; the kinematics option on the control and the linear roller system for the best area of contact and fastest axis travel. These options enable us to optimise the accuracy of the machine and check that the machined blade supports meet our quality requirements."

Rolls-Royce's machine has 30 tool pockets and is using 26 of them to machine its current fixture designs which are used on intermediate pressure blades.

The UMC-5X comes with the Siemens 840DSL Touch Screen control and has full 5-axis capability. Heidenhain RCN238 high resolution rotary scale encoders on the pivot centres give the direct drive C-axis performance of 90 rpm and ±5" accuracy, while the A-axis achieves 45 rpm and ±30". Machine accuracy over 300 mm is 6 microns and it includes linear encoders on 3 axes. Other features include dynamic collision monitoring, thermal spindle compensation, spindle vibration supervision and a direct drive spindle. The optional kinematics chosen by Rolls-Royce runs automatically, recalibrating the axes to eliminate errors by taking account of sources of inaccuracy such as temperature variations.

Currently there are around 25,000 XYZ Machines in use in the UK and typically, XYZ Machine Tools can deliver a new UMC-5X within 3 months with many of its other machines in stock for delivery within 2-3 weeks. Comprehensive training and support is provided by its fleet of 16 service engineers located around the country and its team of in-house specialists. Showrooms and training centres are located in Slough, Nuneaton, Huddersfield, Livingston and Sheffield as well as its head office in Burlescombe were it holds around 20,000 different spare parts on the shelf.

Thomas McAllister concludes: "We manufacture about 40 complex fixtures each year. The UMC-5X will pay for itself in less than 2 months."

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Vision Engineering continues expansion of its UK manufacturing capability with new Biglia lathe

Vision Engineering, a leader in ergonomic microscopy, digital 3D visualisation and metrology solutions, has bought a third fixed-head lathe, an Italian-built Biglia B620YS, for its production facility in Send, near Woking, Surrey. Supplied by UK and Ireland sales agent Whitehouse Machine Tools, the machine was installed to turn a range of aluminium components for the top-quality objectives in Vision Engineering's third generation of Mantis eyepiece-less 3D inspection microscopes, launched at the beginning of June 2023.

The choice of this turning centre was based on a set of specific requirements. There is no milling content in any of the cycles, so only turning tools are required and a single tool turret was therefore sufficient. Excellent turned surface finish is essential so that no marks are visible after the parts have been anodised, as a good cosmetic appearance is important for customer acceptance.

Dimensional accuracy is also key to ensure perfect perpendicularity for precise lens placement and to facilitate clean-room assembly, bearing in mind that anodising deposits a layer of variable thickness that uses up some of the drawing tolerance. Additionally, lathe delivery was needed in a short time frame to enable Vision Engineering to ship Mantis 3rd Gen stereo microscopes to its worldwide distributors in time for the launch, as well as to maintain production momentum in the immediate aftermath.

Machine shop manager Scott Blackwell says: "The Biglia lathe was available ex-stock from the Whitehouse showroom in Kenilworth. This was an advantage due to the large production volumes that needed to be achieved across the range of aluminium objectives for our latest microscopes, which meant that extra turning capacity was needed quickly.

"Our other two fixed-head lathes, both twin-turret models, were from a Japanese manufacturer so it would have made sense to return to the same supplier for consistency of programming and operation. However, the Biglia installation has turned out well. The lathe is a real workhorse, the turned parts it produces are impeccable and the unmanned running has proved to be very consistent."

He explains that better than the +0, -50 microns typical drawing tolerance is held without manual intervention and inspection shows that midway in the tolerance band is routinely achieved. Bearing in mind that there are many hours of lights-out production every week and cycle times are relatively short, (from 10 minutes for an objective body down to three minutes for a spacer, if the bar-fed lathe were not reliable, a lot of scrap could be produced during unattended running.

The B620YS was supplied as a turnkey installation by Whitehouse Machine Tools, including preparation of some programs and unlimited training. Provided as part of the package was support, together with Mastercam, in developing a post processor to translate toolpath information from Vision Engineering's CADCAM system, a Multifeed 80 bar magazine from Hydrafeed, Sandvik Capto C3 tooling, Tungaloy standard tooling and a JNS parts catcher that was modified to increase its depth so that it can accommodate all of the many components produced during lights-out operation. Parts handling was an important consideration for this application due to the high level of cosmetic appearance required.

Between the beginning of February and the end of May 2023, 11,000 objective components were produced in readiness for the Mantis 3rd Gen launch. Annually, 21,500 parts are expected to be turned to satisfy predicted global sales across the range of instruments, so there is considerable spare capacity on the Biglia for further machining.

The turning centre will therefore be deployed on production tasks for different objectives in other inspection equipment manufactured by Vision Engineering, as well as on R&D work for a sister company in the subcontracting sector, Hinckley-based Milturn Precision Engineers. That will entail turning thin-wall components to tighter tolerances, down to 10 microns total and will also involve the use of driven tooling in the 15-station Y-axis turret.

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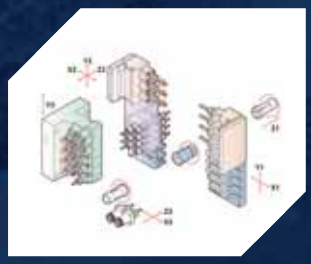

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Automation and plant modernisation support contract machinist's growth

An increase in annual turnover from £3 million in 2016 to £8 million currently is reported by contract machining specialist Unicut Precision Engineering, Welwyn Garden City, which has spent £1.7 million in the last two years on new production and inspection equipment.

About half of the investment went on two more Cincom sliding-head lathes and two additional Miyano fixed-head lathes from Citizen Machinery, bringing the totals of the bar-fed lathes on site to 24 and 11 respectively. The remaining funds were used to purchase three new items of inspection equipment and to extend the automatic pallet storage and retrieval system linking three 5-axis machining centres on site.

Jason Nicholson, owner and managing director of Unicut comments: "Efficient production is not just down to automation but also depends on how well you monitor the machine tools on the shop floor and use the data to make informed decisions.

"We use PSL Datatrack to help with this and will shortly be progressing from manual extraction of production data from our machine tool controls to directly downloading it over a network for remote monitoring."

Regarding turning, which currently accounts for 85 percent of Unicut's turnover, he says that standardisation on Citizen lathes with their user-friendly, intuitive Mitsubishi controls greatly helps to mitigate the current shortage of skilled setter-operators, which he sees as a worldwide problem. Use of this CNC system throughout the factory also speeds the training of staff and allows operators to swap easily between machines.

Programs are normally prepared offline with Esprit CADCAM and also using Citizen Machinery's own Alkart CNC Wizard programming aid. The latter guides operators through creation of part programs with the help of a built-in code library for machining processes, reducing the amount of time spent typing in G and M codes and consulting manuals or other programs.

The latest turning centre additions were two 65 mm bar capacity Miyano BNE-65MYY models, each featuring a pair of Y-axis turrets and the latest Mitsubishi 15-inch touchscreen control. They joined five smaller fixed-head lathes in the same series to form a seven-machine cell for producing hydraulic and pneumatic components in large volumes, typically from 2,000- to 10,000-off.

Each turret has 12 live stations, so an extensive variety of milling, drilling and other driven tool operations can be carried out in-cycle, almost always enabling one-hit production of parts. Sometimes prismatic machining accounts for more than 90 percent of a cycle, so at first glance the components look as though they have been produced on a mill.

Two-axis CNC movement of the sub spindle facilitates superimposed machining, whereby tools on both faces of the top turret can simultaneously cut front-end features on bar stock and reverse-end features on a parted-off component. With the lower turret also working at the main spindle performing pinch turning, milling or drilling, for example, or perhaps OD turning while axial drilling is in progress above, three tools can be in cut at the same time.

Both of the BNE-65MYYs have been fitted with an Iemca Maestro 80 low-vibration bar magazine that allows ergonomic loading of stock at waist level. Bar from 10 mm diameter upwards can be turned at the lathe's maximum rotational speed without having to change over the guide channel, minimising idle time when processing a range of different material sizes.

Jason Nicholson is also a long-time user of sliding-headstock lathes from Citizen Machinery, having bought his first one in 2000. In 2018 he was an early adopter of the lathe manufacturer's Low Frequency Vibration (LFV) software, which was included in the operating system of the Mitsubishi control on one of two 12 mm capacity sliders bought in that year.

At the time, he said that the ability of the

programmable function to break stringy swarf into shorter chips was eliminating the need to periodically stop the lathe to clear away clogged swarf, raising productivity. The LFV lathe was therefore left with confidence to run unattended, including overnight and at weekends, even when turning ductile metals and plastics, increasing throughput further. Impressed with the trouble-free performance, he bought two similar, improved versions of the lathe with LFV in 2022.

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Latest machine tool investment pays dividends

Mills CNC, the exclusive distributor of DN Solutions, formerly Doosan and Zayer machine tools in the UK and Ireland, has recently supplied Ad Hoc Engineering Ltd, an engineering design and precision subcontract specialist based in Warwickshire, with a new DN Solutions' vertical machining centre.

The machine, a best-selling DNM 4500, was installed at the company's 1,700 sq.ft. facility in March 2023 and has been positioned, in close proximity, to three other Doosan machines acquired by the company over the last nine years.

These machines comprise an 8" chuck Lynx 220 lathe, installed in 2014, a DNM 500 II vertical machining centre, installed in 2015 and a 6" chuck Lynx 2100 lathe, installed in 2019.

Collectively, these machines, boosted by the recent addition of the DNM 4500, provide the company with an impressive and flexible in-house machining resource.

The new DNM 4500, like the other machine tools the company has at its disposal, is being used to machine a range of high precision components and families of parts for proprietary flow meter and scientific instrumentation products, designed in-house by the company.

Once machining and inspection have been completed, parts are sent out for different surface treatment operations before coming back to the company for final assembly, testing and delivery to a range of customers operating in the electronics and process control and measurement sectors.

Parts machined on the new DNM 4500 are typically made from solid aluminium, mild steel and stainless-steel bar and billets and are machined in a range of batch sizes, prototypes and one-offs through the thousands-off, using advanced workholding and fixtures that include pallets and tombstones.

Part tolerances are tight but not excessively so, with the main machining requirements being consistency, repeatability and fast processing speeds.

A new machining centre

With demand growing for its design, machining and assembly services, the company made the decision, back in 2022, to improve its milling capacity and capabilities.

Two, older machines the company had at its disposal were creating production pinch points that were affecting throughput and output. After careful consideration the decision was made to replace both with a new, higher specification machining centre.

John Watts, owner and director, explains: "We provide comprehensive, high-quality machining services to customers and are a vital cog in their process chains. As such, we need to be able to anticipate and respond quickly to their changing production requirements.

"In order to maintain these supply chain relationships, we needed to strengthen our in-house milling capabilities by investing in a reliable, high-performance production-oriented machine that would meet our and our customers, immediate and future requirements."

As a consequence, the company drew up a detailed specification checklist for its new machine tool investment with a number of 'must haves' which included:

FANUC CNC control to ensure the quick and easy transfer of parts and programs between the new machine and its previously acquired DNM 500 II machining centre; Large machining envelope to enable the machining

of large and/or smaller, multiple parts in a single setup; Powerful spindle capable of machining a range of different materials and delivering fast part processing speeds; Reliable, versatile and proven machine with an established track record; Quick availability and a competitive price; Proactive after-sales services provided by the machine tool supplier.

John Watts continues: "As an existing Doosan user, we have good relationships with Mills CNC. We like their business approach and the three Doosan machines we had from them in the past have all performed well and haven't missed a beat. It therefore made sense to contact Mills and, having discussed our needs and requirements with them and seen a DNM 4500 in action at their showroom facility in Leamington, it was a 'cut and dried' decision."

About the DNM 4500

The DNM 4500 is a powerful, precise, flexible and reliable 3-axis machining centre.

The machine supplied to the company is equipped with an 18.5 kW/12,000 rpm (BT 40) direct-drive spindle, a 30-tool position ATC, a large worktable, 1,000 mm x 450 mm with a 600 kg maximum load and features the advanced Fanuc 0iMP control with a 15" touchscreen iHMI

The DNM 4500 has a rigid-design and build as well as roller-type LM guideways which, along with its integrated thermal compensation systems, ensure high accuracies and repeatability's even during long periods of operation.

Fast rapid rates, 36 m/min and quick tool change times, 1.2 seconds tool-to-tool, guarantee fast part processing and, as a result, higher productivity, improved efficiencies and reduced lead times.

To help realise the machine's productivity potential and optimise performance, the machine was supplied, as part of the investment package, with though-spindle coolant capability, 20 bar, as well as a Nikken CNC 202 4th-axis rotary table for fast and accurate part indexing.

The company further augmented its machine tool purchase by investing in a precise, flexible and expandable workholding system, comprising plates, vices, clamps, from Micro-Loc that enables quick job setups and changeovers and the machining of large and/or multiple smaller parts.

Summary

The DNM 4500 has, as was intended, significantly increased the company's machining capacity and capabilities. John Watts concludes: "We needed a fast, accurate and competitively priced machining centre and, with the DNM 4500, that's exactly what we have got."

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Guhring keeps spindles turning for sliding head subcontractor

For more than 30 years, Birmingham-based Rowan Precision Ltd has been manufacturing high-quality parts for customers and, for much of this time, the company has relied upon Guhring UK to supply its cutting tools.

As a subcontract machining specialist to industries such as the defence, medical and aerospace sectors, AS: 9100 and ISO: 9001 accredited Rowan specialises in sliding and fixed head multi-axis turning and 5-axis machining. With more than 10 sliding head turning centres on the shop floor, the company has an enviable reputation for medium to high volume lights-out manufacturing of small components. It is here that the service from Guhring has played a pivotal role.

Commenting upon the longstanding relationship with Guhring UK, Matthew Lowe from Rowan Precision Ltd says: "We've had a good relationship with Guhring for many, many years and they supply us with high-quality tooling and excellent technical advice. When we need something, they are here to have conversations and meetings about upcoming jobs and we can talk about the processes with the Guhring technical team. We cut anything from plastics up to titanium, the high EN numbers, iridium platinum and other challenging materials and Guhring will sit down with us, look at our drawings and give us what we require to do the job."

Looking at specific tools, Matthew Lowe says: "We use a bit of everything. This ranges from Guhring's Micro end mills, the Diver cutters, the RF Speed and a lot of the Ratio range of through coolant drills. We also use the grooving tools and we use the micro-boring system. We have an entire range of products and they are all very easy to use. We have confidence that when we run lights out, we know how long the tool is going to last and how many parts we can run with a single tool. Every component and every drawing has a defined tolerance, we need to ensure that the tooling we use can work within that tolerance for a certain period of time. The Guhring products certainly provide that confidence, giving us the ability to run our machines lights out."

With such a diverse selection of Guhring tools being utilised at Rowan Precision, the company also makes use of the Guhring TM Multi-Vending machine to ensure the correct tool is always on hand for the multitude of components the company manufactures.

Considering specific applications, Matthew Lowe adds: "We recently needed tools for a particular job and Chris Bush from Guhring came in and spoke to us about the application, the material and the number of parts we would be running. From this, Chris Bush came back the same afternoon with suggestions and tool data from Guhring. We moved forward and purchased these tools and they are working very successfully. This is an excellent level of service as it supports our aims to achieve optimal machining performance and tool life."

Guhring UK sales manager, Chris Bush says: "We've had a strong relationship with Rowan Precision for many decades and as soon as they have a new component, they will give us a call and we will come in and take a look at the component, the drawing and recommend the tools best suited to the application."

Chris Bush concludes: "Rowan Precision has a lot of sliding head turning centres machining small components, so they purchase our Micro Precision line of tools. This encompasses everything from milling cutters to drills. We supply a lot of Micro Diver tools and Micro Milling cutters and these are perfect for all the typically hard-to-machine materials at Rowan Precision. This can range from Grade 5 Titanium to 316 Stainless and everything in between."

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Floyd introduces PCD turning tools

The Applitec TOP-Line 700 Series is the tool of choice for precision turning, parting, grooving and profiling on small turning centres and sliding head machine tools. Now, the Swiss manufacturer has expanded its impressive range with the introduction of an entire line of Polycrystalline Diamond tipped inserts that are all now available in the UK from Floyd Automatic Tooling.

Now, with the introduction of a completely new line of PCD inserts, Floyd Automatic can present the benefits of this series to manufacturers machining a diverse range of non-ferrous materials. The Applitec TOP-Line 700 PCD Series now enables the best-selling 700 Series to perform on anything from gold, silver, copper, brass and bronze through to more challenging materials such as aluminium alloys, glass and carbon fibre reinforced plastics, thermoplastics, graphite and lead-free brass that is a particular challenge for subcontract machine shops.

With its serrated insert teeth and corresponding toolholder clamping system and two insert screws that combine to deliver unparalleled precision and repeatability, the Applitec 700 Series provides rigidity, stability, high performance and astounding surface finishes. Utilising Applitec's unique twin screw 'offset teeth insert location system,' the two clamping screws pull the teeth together so the insert does not vibrate, presenting perfect results for PCD turning.

Like the existing carbide version of coated indexable inserts in the 700 Series, the new 700 Series PCD line is available with a range of parting-off inserts, front and back turning inserts and also grooving and turning inserts. Each of the cutting tools for the respective processes is available with a range of geometries, insert widths, lengths and radii with both left and right-hand designations to cater for the diverse needs of the marketplace.

Applitec has presented this new PCD Series to deliver a multitude of benefits for end users. Firstly, the TOP-Line 700 PCD Series will extend tool life and deliver more consistent results when compared to solid carbide tools that present a shorter tool life. In comparison to carbide tools that may only offer tool life of a few days or weeks, PCD tooling is designed to work for months, resulting in reduced downtime and higher productivity. This makes PCD tools a great choice for high-yield production facilities as well as smaller shops where the return on investment will be quick due to more efficient workflows, fewer tool changes and decreased cycle times. In addition, the TOP-Line 700 PCD Series can run at machining parameters up to 10 times faster than solid carbide tools, reducing lead times and increasing throughput.

Applitec has developed this series to correspond with customer feedback as more manufacturers are experiencing expanded material versatility in their machine shops. Once considered a cutting material for niche applications, PCD is now applied to an extremely diverse range of applications that vary from the machining of aluminium to composites and even abrasive plastics. This achieves exceptional surface finishes, which reduces and in many instances eliminates secondary operations. For further details on how to reduce your cycle times and expand the potential of your machine shop, contact the tooling specialists at Floyd Automatic Tooling.

Floyd Automatic Tooling provides the turned part and precision component machining industry with specialist tooling to a wide variety of subcontract and OEM component manufacturers. The products offered are from some of Europe's top names providing quality at realistic prices. While the principle ranges of products are for the popular CNC sliding head automatic lathes, this has been enhanced to include milling tools, spindle tooling and driven tools for fixed head lathes, VMC's, multi-spindle machines, CNC tool grinding machines and rotary machines. This is supported by technical expertise based on many years of experience and product development with machine suppliers and tooling manufacturers.

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Investing in the future of engineering

How SRD is futureproofing its machining practises with the help of CERATIZIT

A family business that prides itself on a personal touch with customers, SRD is an engineering company based in Bicester, Oxfordshire, which specialises in manufacturing automotive parts. Servicing highly competitive industries such as Formula 1 and motorsport, SRD is renowned for a fast turnaround for parts. Having been in business for over three decades, it has grown into a modern company with over 150 employees, seeing a notable amount of growth in the past 6-7 months.

However, even companies at the forefront of their industries need to keep up to date in order to stay competitive. This was certainly true for SRD. For many years, SRD has relied on tried and tested machining techniques to provide the excellent service they are known for. Though, with a recent higher demand for products and a need to fulfil more orders at a quicker rate, it turned to CERATIZIT for help.

Working with Nev Frisby, technical sales engineer for CERATIZIT, it examined its machining processes, inserts and tools and outlined some areas where improvements could be implemented. Firstly, the management team from SRD were invited to a training day at CERATIZIT's Tech Centre in Sheffield. Led by Shaun Thornton, technical manager for CERATIZIT UK & Ireland, SRD learned about the most up to date tooling and machining practises, as well as being given the chance to put these tools and materials to the test in the workshop downstairs. Back in the workshop, Nev Frisby set up a tooling 'swap out', where new inserts could be tested without expense to see if they would work for them, it wasn't long before SRD began to achieve some incredible results.

In some instances, SRD were making a time saving of 30-40 percent on roughing cycles meaning that part production significantly

increased. Tool life has also been increased through the use of CERATIZIT's inserts and the EcoCut inserts are now seen across the workshop. The wide selection of tooling and inserts available in CERATIZIT's extensive catalogue also meant that SRD were able to find the appropriate tools for each job. The constant line of communication between both companies meant that technical support was always on hand. Furthermore, Nev Frisby's regular visits, supported by Drew Pettifar, an application sales engineer for CERATIZIT, allowed them to get intimately acquainted with SRD's machines and machining needs, ensuring that whatever they recommended would be sure to make a positive impact.

The professional relationship between CERATIZIT and its customers is built on trust and mutual respect. For SRD, CERATIZIT did more than just provide excellent tooling paired with technical expertise. Jack Wignall, business developer at SRD, says: "CERATIZIT encouraged us to continue to grow. It's a good reminder that there is always room for improvement in engineering, no matter how efficient you think your processes are
I definitely think this is the start of continuous improvement for SRD as we are determined to stay at the top of our game and futureproofing the company means that we need to be up to date with tooling and machining techniques."

The focus on futureproofing the company for SRD extends beyond its approach to highly specialised, precise machining. SRD invests in its apprentices and is passionate about providing high quality, skilful training to them. Each apprentice working at SRD is given all the support they need to succeed in this industry. Whether that's more time set aside for them to complete course, or whether it's speaking to different people in the workshop, SRD is renowned for how positive a place it is to complete an apprenticeship.

The future looks bright for SRD and everyone who works every day to continuously improve themselves alongside the company they are passionate about working for.

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New Walter coating for the X·treme Evo Plus DC180 Supreme drill

With its new X·treme Evo Plus drill, Walter is launching a new tool in the DC180 Supreme product range. The Krato·tec™ coating technology that has been specially developed for drilling and reaming tools now extends the market potential of the solid carbide drills. This is a credit to the WJ30EZ grade that has been developed in-house at Walter with an AlTiN multi-layer coating that enables the drills to reach the highest cutting speeds. It also enables the drill to be used universally in all ISO materials from groups P, M, K, N, S and H.

When compared with alternate products, the DC180 Supreme has a tool life that is up to 50 percent longer. The drill with internal coolant channels can be used with emulsions, oil and Minimum Quantity Lubrication (MQL). Its geometry incorporates a straight cutting edge that gives it a high level of stability and process reliability. Walter offers the DC180 Supreme with a diameter from 3 mm to 20 mm for a diverse range of applications.

As standard, Walter has introduced the DC180 Supreme in dimensions of 3XD in accordance with DIN 6537 short and also 5XD following DIN 6537 long to its range. The tool specialist can also offer special tools with intermediate sizes and step drills upon request with short delivery times via its Walter Xpress service.

The Walter Xtreme Evo Plus drills from the DC180 range are part of the Supreme product line. This line has been developed for large-quantity production runs and heavy-duty drilling operations. Thanks to its impressive tool life, high productivity and high wear resistance in demanding applications, the DC180 Supreme reduces costs and is ideal for difficult machining operations of ISO M and S materials. This makes the Walter Xtreme Evo Plus drills perfect for applications in the aviation industry. Moreover, the tool is also suitable for applications that demand the machining of a high number of bores, such as in the automotive industry. Further application areas include general mechanical engineering, mould and die making and the energy industry.

New G27 geometry from Walter expands the M5137 milling cutter range

With the Xtra·tec® XT M5137, Walter introduces a shoulder milling cutter that brings with it incredible benefits for machining ISO materials P and K. Firstly, users benefit from double-sided indexable inserts with six usable cutting edges. This provides an attractive price-to-cutting edge ratio. Secondly, the milling cutter has an approach angle of 90° and is capable of ramping, circular interpolation milling and pocket milling.

This combination is something the market has not seen before now. Following on from the successful launch, Walter is now expanding its M5137 range to include the new G27 indexable insert geometry for universal use.

While the G57 geometry that was previously available, primarily excelled in average to good conditions with low cutting forces and average feeds such as pre-machined workpieces, the sintered G27 now completes the Walter range. The geometry can be used for challenging jobs as well as unstable clamping arrangements, interrupted cuts or forged skin.

Both geometries are suitable for face milling, shoulder milling and pocket milling, as well as circular interpolation and ramping in steel and cast-iron workpieces and in stainless and difficult-to-cut materials. The Walter range now includes the cutter body with bore adaption and Weldon shank. It is also available in new inch-diameters from 1 to 4". The high process reliability and cost-efficiency achieved through low cutting tool material costs and the wear-resistant Tiger·tec® grades make the milling cutter a particularly good choice for users producing mid-range quantities.

Walter rounds off its range of solid carbide universal milling cutters

With the Xill·tec MC230 and MC233 Advance milling cutters, Walter has introduced two ranges of solid carbide milling cutters that can be used universally for all ISO materials from groups P, M, K, N and S. Furthermore, the series can be used for all standard

roughing and finishing applications and milling strategies.

As part of a second launch stage, the Tübingen-based tool manufacturer is now rounding off this range with Xill·tec two-edge and eight-edge milling cutters. Offering diameters from 2 mm to 25 mm with cutting lengths from 1 to 5XD, these long cutting lengths enable Walter to embrace the trend for dynamic milling as a standard application in the universal range. One of its major advantages is that the entire tool length can be used and achieves high material removal rates. There are also a variety of geometries with each developed for a particular application, material and machining strategy.

The Xill·tec MC230 Advance basic range also sees the addition of new Xill·tec milling cutters from the MC233 Advance range. Designed with chip breakers, the new tools are suitable for high chip volumes such as dynamic roughing applications. Essentially, the tools are suitable for applications where the chips need to be kept short and safely removed from the cutting area despite using long cutting edges.

When compared with market competitors, both milling cutters have a tool life that is around 30 percent longer when used at the same cutting parameters with the same material types. This is credited to a variable helix geometry that is coordinated with the number of teeth and the cutting-edge length. This also combines with the new tough Walter universal grade WK40TF with a TiAlN coating. The TiAlN coating has been developed and manufactured in-house by Walter for Xill·tec solid carbide milling tools.

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TC Cuts tooling costs and cycle times for prestigious subcontractor

Celebrating its 30th year of business, Tml Precision Engineering is a Tier 1 & 2 subcontract manufacturer that invests in the very finest technology to service leading OEMs and supply chains in the aerospace, motorsport, medical and renewable energy sectors. To extend its competitive advantage, the Norwich-based company has been utilising cutting tools from Tamworth-based Industrial Tooling Corporation (ITC).

Working to ISO: 9001 and AS: 9100, Tml has invested in the very latest technology with multi-pallet 5-axis machine tools from Matsuura and DMG MORI, mill/turn centres from Mazak and turning centres from Mazak and Nakamura-Tome (ETG). With high-quality machine tools offering extended periods of unmanned machining, Tml was looking to improve its tool life whilst simultaneously reducing cycle times and consequentially its commercial advantage, an initial market review led to ITC being chosen to deliver the results based on service capability and technical support.

Local ITC technical engineer Dan Smith called upon the Norfolk manufacturer and initially trialled several ITCs 2041 Series of solid carbide end mills for aluminium machining. Applied to a series of battery system components for a Norfolk-based automotive OEM, the initial trial proved fruitful with productivity rates and tool life both improving. The improved results led to the 2041 Series and other aluminium specific end mills being adopted on the shopfloor at Tml. It also gave the manufacturer confidence in both ITC's products and the expertise of the technical engineering team to trial the WIDIA range of indexable turning tools. The results were once again impressive.

The WIDIA Victory Series of CNMG and WNMG indexable inserts from ITC for machining steel and stainless were applied to a family of more than 10 different flow regulator and pipe assembly components to undertake rough turning. Machined on one of the company's Mazak Integrex mill/turn centres, the ITC engineer swapped out the previous inserts and retained 'like-for-like' cutting data with the four-edged inserts. The ITC WIDIA Victory turning series yielded a tool life of 16 parts per insert edge compared to the previous four parts per insert edge. This significant tool life saving has proven hugely beneficial for Tml, especially as the pipe assembly parts are high-volume components manufactured throughout the year.

Following the earlier successes established for aluminium milling and the subsequent introduction of small diameter end mills to the mill/turn machines, ITC had an opportunity to look at other milling projects and the results did not disappoint. An aluminium component that is regularly machined in batches up to circa 100-off required 30 mm of metal removal on the face. Previously, Tml was using a 4-flute solid carbide end mill from a rival supplier, which was resulting in poor tool life and surface finishes. This was primarily caused by vibration and poor chip evacuation. Furthermore, with poor surface finishes and excessive noise and vibration, Tml had to use one end mill for rough machining and a second tool for finishing. The ITC engineer rapidly eradicated this with the introduction of a 16 mm diameter ITC 4104 Series aluminium roughing tool with chipbreaker. To maximise the rigidity of the setup, the ITC Technical Engineer introduced a BIG KAISER HMC chuck to complement the end mill.

The combination of the 4104 chipbreaker end mill and the BIG KAISER HMC chuck

enabled Tml to take a full flute 30 mm depth of cut and run at 10,000 rpm with a 1.8 mm step over and a feed rate of 7,200 mm/min. On a batch of 80 parts, the ITC 4104 Series proved to be a more cost-effective tool that subsequently reduced the cycle time by upwards of 20 percent and improved the surface finish substantially to the point that a secondary finishing tool was not required. The single tool machined the entire batch of 80 parts and saved more time with no additional tool changeover or cost implications. The combined benefits of the respective tools have been significant after just six months of working with ITC.

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If you are looking for functionality and aesthetically attractive plastic cases to protect sensitive equipment and instrumentation, rose plastic has the solution with the RoseCase ErgoLine. The ErgoLine is extremely adaptable to specific product requirements and it can be configured to your exact needs. The ErgoLine range is also available in Bio HDPE and Post-Consumer Recycled (PCR) material.

From a functional perspective, the ErgoLine is available in a vast range of standard sizes with bespoke solutions available. To ensure unparalleled protection for your products and instruments, the ErgoLine is manufactured from a robust, hardwearing Polypropylene with the option of plain, convoluted or die-cut foam protection inserts.

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New face-milling cutter to produce aluminum battery racks

Battery systems will continue to evolve over the coming years and new developments and shapes will be required. For OEMs, this will entail producing near-net shaped battery system parts based on more complex designs. Machining these designs will require efficient and lighter-cutting tools, to minimise impact on the machine tool and ensure the component stays in shape.

The role of OEMs is also evolving as they get more involved in battery production, which McKinsey & Company attributes to "the backward integration of OEMs from packs and modules up to cell production." At the same time, the race is on to build lighter and more efficient Electric Vehicles (EVs) that travel for longer distances with a maximised vehicle range per charge.

Furthermore, manufacturers must produce these more-complex components to the highest quality and with high productivity. How can manufacturers achieve this while maintaining a low cost-per-component? The answer lies in more efficient cutting tools, which have good accessibility and are as light as possible to allow quick tool changes.

Manufacturers are turning to 'lightweighting', which entails building cars and trucks that are less heavy as a way to achieve better fuel efficiency and handling.

As one of the lightest metals in the world, aluminium is established lightweighting solution. Aluminium is almost three-times lighter than iron and, although of lower strength than iron, is still very strong and corrosion resistant.

The power train of a European passenger car typically contains around 80 kgs of aluminium, which means the engine, gear box, suspension parts, housings are an obvious area of interest for light weighting measures. Aluminium may also be used in the batteries themselves.

Here, let's focus on aluminium battery racks. These components generally have smaller faces with more threads, holes and other features. Another important consideration is electric battery racks for trucks, specifically larger models driven away from built-up areas, which measure up-to two metres in length.

Battery racks require an assortment of machine tools and applications like milling, rimming and more. Yet even larger battery racks don't require large tools and are, instead, made up of smaller faces with more features, threads, and holes. Therefore, they require shoulder and face milling tools or reamers that can produce components to the required quality and tolerances.

For machining battery racks, Sandvik Coromant recommends using its M5 family of dedicated automotive aluminium milling cutters, including the M5F90 face-milling cutter designed to machine parts without burring, scratching or chipping. The cutter is dedicated to machining thin-wall aluminium parts and, to achieve this, it is equipped with a smaller cutter body of 25–80 mm or 0.98-3.15 inch in diameter. The M5F90 also contains brazed Polycrystalline Diamond (PCD) tips, so requires no adjustment and secures very reduced runouts.

In one instance, the M5F90 was used to machine an aluminium battery tray. This was an ideal application for the new concept face-milling cutter because the application required that the tool be used to clean surfaces in the first machining stage of the newly-cast aluminium part in a single operation, without burring.

Its dimensions were approximately 980 x 600 x 130 mms. Overall, 48 tools were used to machine the component including solid carbide drills, solid carbide end mills, High-Speed Steel (HSS) taps, brazed PCD reamers, brazed PCD milling cutters and, lastly, the M5F90 cutter. The aluminium component was machined in a 5-axis machining centre, equipped with a HSK 63 high-speed tool holder.

The M5F90's brazed PCD inserts have stepwise cutting edges in both senses, radially and tangentially. This characteristic lowers the power consumption allowing to run with higher cutting parameters, which eliminates burrs and reduces vibrations during machining. The latter advantage, in particular, helps give reliable performance with improved tool life and increases the number of components machined.

In the end, the battery tray machining application demonstrated a key advantage of the M5F90. Specifically, that it enables roughing and finishing in a single operation, thus saving time. This was demonstrated with in the machining of the aluminium battery tray; the component was machined in 20.3 minutes. With this enhanced tool performance, OEMs can get more involved in producing battery systems, while setting themselves apart from competitors.

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MMC expands its indexable milling cutters series

Mitsubishi Materials has added a smaller type, the WWX200, with 09 size inserts to complement the versatile WWX400 series of true 90º corner milling cutters for face, shoulder and copying applications. Featuring economical double-sided trigon inserts with six cutting edges, WWX has been designed to meet all the needs of the modern metal cutting industry and is now especially suitable for smaller components and lower powered machine tools.

The innovative and accurate geometry of the insert pocket, together with precise locating of the inserts on the tool body, ensures that a true 90° wall can be machined on components. In most cases, this eliminates the need for secondary finishing operations, thereby saving valuable production time and costs. WWX400/200 cutters can perform at high feed rates to ensure usability and efficiency across a wide choice of applications. The body features four contact faces inside the insert pocket, plus the use of a large screw, that provides high insert clamping strength and stability without compromising accuracy. This means it can be used for semi-roughing as well finishing operations. To further enhance usability and dependability, each body has internal through coolant channels that exit to supply high pressure cutting fluid directly at each insert.

The unique carbide inserts feature six usable cutting edges that offer lower costs and excellent process reliability thanks to a negative seating geometry but provide a positive sharp cutting action. This generates low cutting forces and together with an increase in insert thickness compared to conventional types, also provides excellent resistance to breakage.

Furthermore, a high maximum depth of cut of up to 8.2 mm enables efficient shoulder milling capabilities. In order to meet component surface finish expectations, the bottom of all inserts feature a large radius geometry that acts like a traditional wiper.

Three different chipbreakers are available, the L, M and R breakers for light, medium and rough machining respectively. These can be matched with an extensive selection of eight different coated and uncoated carbide grades, providing choices that ensure the ideal combination can be chosen to effectively machine a wide range of materials.

The new WWX200 series of arbour type face mill cutters are available from Ø40 - Ø160 in coarse, fine and extra fine pitch geometries. Shank types from Ø25 - Ø50 can also be ordered.

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New MicroTurn line for unleaded brass alloys

For manufacturers that witness the scourge of stringy swarf when using small boring tools to machine materials such as unleaded brass or aluminium, Floyd Automatic Tooling has now introduced an exciting new addition to the Ifanger MicroTurn internal boring tool system. Materials such as unleaded brass, create a 'birds nest' effect with the swarf and this results in manufacturers manually intervening during machining cycles to remove the swarf to prevent re-cutting of the swarf and also the potential for component damage.

With the arrival of these new geometry Ifanger MicroTurn boring tools, lost production time, poor surface finishes and the inability to conduct long-running unmanned machining are now eliminated when conducting internal turning and boring operations. This frees up your machine shop to manufacture high-quality components whilst running for extended periods unmanned. Overcoming this challenge, the Ifanger MicroTurn has a unique geometry design that gives end users the confidence to produce a wide variety of parts from materials such as lead-free brass.

The new Ifanger MicroTurn is available in two different types: the MicroTurn MTEP for rough internal turning and boring and the MicroTurn MTEF for finishing operations. Each of the designations is available in three product length ratios of 2XD, 3XD and 5XD that presents tools from 26 to 53 mm in length. Supplied with a through coolant facility, the MicroTurn series is available with a robust 4 mm or 6 mm diameter solid carbide shank that minimises vibration whilst enhancing strength, longevity, tool life and performance. The MicroTurn MTEP for roughing is available in diameters from 2.5 mm to 6 mm diameter, enabling manufacturers to efficiently machine bores and intricate internal features from 2.5 mm diameter and upwards with incredible productivity levels. To achieve even greater results when machining non-ferrous alloys, Ifanger has also developed the MicroTurn series with an optional Diamond Like Coating (DLC) that can ramp up productivity and tool life performance on a host of materials.

Complementing the MicroTurn MTEP for roughing is the MTEF for finish turning. The geometry of the MTEF presents the highest quality surface finishes and performance when conducting turning operations on small bores. To maximise performance on the smallest and most detailed bores from 1 mm to 2.2 mm diameter, the MTEF has a sharp edge for unparalleled precision whilst tools from 2.5 to 6 mm incorporate a 0.05 mm corner radius to prolong tool life and reliability.

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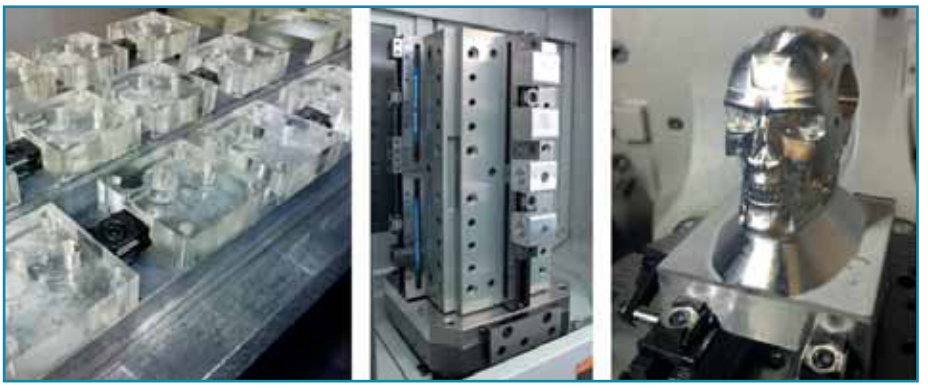
Evolution of workholding

In recent years, machine shops have paid more attention to both material flows and the attachment of workpieces in their machine tool purchases. Automatic pallet change is also being increasingly utilised more with vertical machine tools.

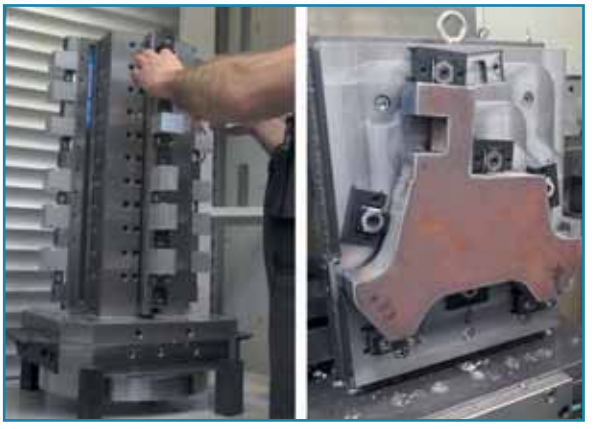
It is becoming more common to incorporate a pallet pool with the machine to carry out even long unmanned work cycles and many within the industry are also considering when a full-blooded Flexible Manufacturing System (FMS) would be a sensible investment. All of these technologies offer completely new possibilities with significant improvement in plant utilisation and efficiency, but at the same time also place new demands upon the fixturing concept system used.



Density of packing of workpieces

As soon as NC machines hit the market it was realised, that due to their large size, the traditional machine vise is very rarely suitable for attaching batches larger than one piece. The development of the low-profile clamp at OK-Vise Oy in the early 1980s became an intrinsic part in overcoming this problem and was quickly adopted industry wide. Thanks to its small size, the filling rate of the machine could be increased. In other words, the machine tool could accommodate more workpieces at a time. Typically, the workpiece setup is then in a matrix formation. As a result, the average workpiece loading, unloading and tool change times decreased radically.

Since then, in some applications, the priorities have continued to evolve, necessitating a parallel development in fixturing solutions to keep pace. For example, with the advent and increasing use of 4-axis machine tools, the workpiece can usually be completed with two setups when traditionally up to six manual setups were required. This has led to more and more 4-axis machines clamping workpieces in a row instead of a traditional matrix typical in 4-axis machining.



In 5-axis machines, on the other hand, the goal is often to machine the workpiece from all possible directions. The simplest and most common way is to clamp one piece at a time to allow the spindle and tool to move freely, this in turn has also driven fixturing solution development. In most cases, however, two setups are still required per finished workpiece.

Setup change evolution

The Fixturing Concept product family, developed and manufactured by OK-Vise Oy, includes numerous fixturing components that can also be used to clamp very challenging parts.

The system is modular and many pieces can be changed by moving the positioning elements. These include stopper modules, side guides and riser blocks. The fixturing components are based on and evolved from the OK-Vise low profile clamps.

When the workpiece is complex in shape, dedicated fixturing must be used. In this case, many machine shops consider that the most sensible option is to build a fixture on the plate and change the fixture with some manual quick-lock method or zero-point clamping, which can also be applied to a fully automated fixture change.

Automation

Increasingly the industry is moving towards unmanned production. Today automation related to fixtures usually involves two approaches: Either the fixture plate or workpiece clamping is automated. This also changes the way raw material and unfinished goods are buffered for next work steps.

If an automated pallet change system is in use, like for machine pallets or zero-point plates, then the entire fixture is changed with the pallet. The workpieces in the fixtures are clamped to fixtures manually, eg during a day shift.

If the workpiece is unloaded and loaded automatically, for example with a robot, an automatic clamp is required, which historically has been operated mainly with hydraulics.

Automation is one of the priorities of OK-Vise Oy's development and in 2022 the company introduced an electrical clamping system. It is not only suitable for modern machine tool systems, but also enables completely new ways of changing setup and workpiece loading.

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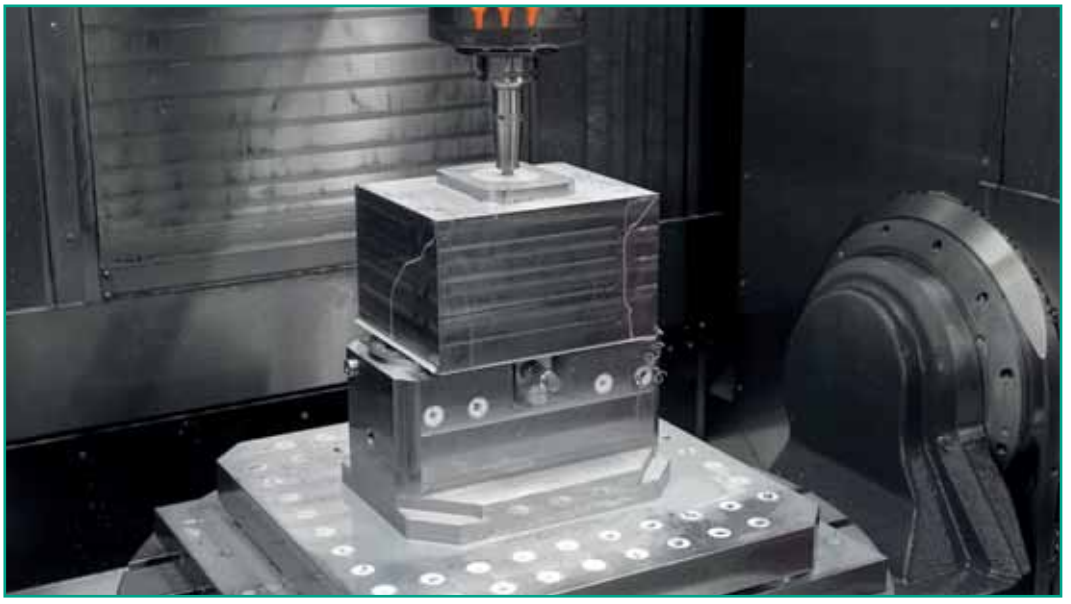
Workpiece clamping technology from AMF supports highly efficient production of precision components for plastic manufacturing



The good quality of plastic products depends on how pure the plastics melt is and how exact the volume of granulate is. Accordingly, the granulate and filter systems as well as the screen changers have an overriding importance. They must be precisely made, run without interruption as much as possible and reliably filter out foreign matter and dirt particles. As a manufacturer with great competence and production depth, MAAG in Grossostheim, Germany has relied in its production on modular workpiece clamping technology from AMF for more than ten years. Zero-point clamping systems, among others, help keep machine running times and productivity high.

"With our young team, we have made production much more efficient through numerous investments in the last five years. The modular workpiece clamping technology from AMF with the zero-point clamping systems at the centre contributes considerably to drastically reducing setup times across all processes," reports operations manager Ali C. Bal of Maag Germany GmbH in Grossostheim. The German factory of the Swiss MAAG Group makes high-precision components and capable machines that are essential for granulate and polymer production. The purity of the melt in the production process is just as important a requirement for the high quality of the final product as the uniform grain size of the granulate. Here, the granulate and filter system in general and the screen changers in particular play an overriding role. That the high-precision production of these components can keep pace with the growth of this MAAG area is due to investments. The comprehensive AMF workpiece clamping technology in strong and flat zero-point clamping modules makes an important contribution to low setup times.

"When the investment offensive started, we didn't have to start from scratch, since at MAAG they have been familiar with our clamping technology for over ten years," reports Peter Unseld, the AMF sales engineer serving MAAG. MAAG screen changers are known and proven due to the double-piston construction, which in all sizes and designs doesn't require additional seals. As a result, these CSC screen changers work very robustly, reliably, and without leaks and maintenance. Of course, this requires highly precise machining of the stainless steel materials. For example, the gap between the cylindrical deep-hole drill holes and the pistons are only a few hundredths of a mm.

The screen changer housings are milled, drilled, ground, turned and honed on a total of ten 3-, 4- and 5-axis machining centres as well as several turn-milling centres. Clamping solutions from AMF are installed everywhere to ensure that the changeover between processes and machines takes place quickly and reliably without large set-up times. The trick here is modularity. Clamping plates with breadboard for pinning, hydraulic KH10- and KH20 zero-point clamping modules, block-clamping systems, collets and many components from the modular construction kit of clamping and fixture systems from AMF provide the great flexibility that operations manager Bal desires. Added to this are several clamping pillars equipped with 30 KH20 modules that likewise can be setup on base plates equipped with zero-point clamping modules. As a result, clamping can take place horizontally.

"Despite all flexibility, what's important for us is that build-up doesn't get too high and that the workpieces, some of which are quite large, can be processed without danger of collision using the machines that have a collision circle between 600 and 1,500 mm," Ali C. Bal notes.

Manuel Nau, sales manager at AMF, can reassure him: "That is exactly the advantage of our installation modules, base and mounting plates. Although they can apply great force, they don't build up very high. That permits many possible combinations and ultimately the great flexibility and speed that cutters desire. That's like plug-and-play."

The hydraulic screw-in modules KH10 and KH20 can pull in workpieces with up to 20 kN of pull-in force and hold them in place with up to 55 kN of holding force. And so they are also suitable for direct clamping of workpieces. If a clamping plate or workpiece is pulled in, the pressure line can be decoupled as spring force mechanically locks it.

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EMO: Stand 4 - Stand C56

Enhancing safety and maximising productivity in lifting and handling

When you're working with heavy materials such as steel and other ferrous metals, safe and efficient lifting and handling is essential. But this often comes at a price, with businesses forced to make the choice between cost and safety.

Eclipse Magnetics believes that you shouldn't have to make that decision. After all, you can't put a price tag on safety. That's why it created the innovative new Ultralift E magnetic lifter, offering high performance lifting at a competitive price. So, you can prioritise both safety and productivity without the inflated price tag.

The brand new Ultralift E magnetic lifter utilises the latest magnetic technology to provide a cost-effective lifting solution. With capacity to lift up to 1,000 kg, depending on model, the technology is extremely easy to operate and requires no electricity for operation.

This enables Ultralift E to deliver world class results when handling ferrous loads compared to traditional methods such as slings, chains, hooks and grabs. With a guaranteed Working Load Limit (WLL) of 3:1, you can rest assured that the Ultralift E

provides a safe and efficient way to lift ferrous loads in your factory, workshop or warehouse.

The Ultralift E magnetic lifter has been designed with safety at the forefront. It uses permanent magnetic technology and is suitable for single person operation. Not only this, but it also features a safety catch which must be pressed before the magnet can be switched on or off. This provides further reassurance that the load cannot be accidentally released when in use.

The innovative design of the Ultralift E means that it is supplied with a 12-month warranty. Eclipse Magnetics also offers an annual ServiceCare package, along with in-house repairs by its own skilled engineers.

Productivity is key in every industry and the Ultralift E makes productivity a priority. This magnetic lifter is simple and easy to use, enabling quick single face engagement with the load. Simply press the safety button and lift the lever to turn the magnet on and off it's as easy as that.

The Ultralift E is a cost-effective solution for safe, high-performance lifting, requiring low investment. There are no ongoing running costs as it runs on permanent magnetic technology rather than electricity and there is no risk of damage to the load.

Ultralift E can be used for both flat and round section steel so you only need one lifter. Combined with its compact size, this can help to optimise your storage space and reduce your inventory.

With no electricity required for operation, the Ultralift E is a sustainable choice for businesses. Not only that, but it is also supplied in fully recyclable packaging.

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Error-proofing and traceability

A guide to reducing quality escapes, recall costs and production inefficiency via unique part identification

Pryor technology specialises in part marking equipment and traceability software and it often gets heavily involved with customers on their journey to improve traceability in their manufacturing process.

This normally involves adding a permanent mark, directly on to the part itself via one of the following processes: dot peen marking, laser marking, scribe marking, or chemical etching. The applied mark can consist of human and machine-readable codes the form a unique part identification and that once applied, can then be used for error-proofing and traceability. To highlight how this works and how it can easily be implemented, Pryor likes to split the process into four distinct areas:

1. Process control

On most occasions, process control for error-proofing and traceability can be split into two areas: machining and assembly. The key element in both of these areas is the operators, human error remains the most significant cause of quality escapes in manufacturing.

One approach to reducing these quality escapes is automation and fully robotic, vision guided marking systems are provided for that reason. They can identify a component, select the relevant marking data and layout and place it automatically in the right place. No operator is involved in the process.

However, automation is not always appropriate, cost-effective or possible. Furthermore, even when automation is not in use, cross checks that no process steps have been missed can provide 100 percent process control and by using unique IDs and simple software tools, process errors can be prevented.

In the case of processes on a single component, a unique ID should be permanently applied to the component. If every process requires a scan of the ID prior to initiation then it can be ensured that no steps have been missed, performed in the wrong order or under incorrect parameters. For example, perhaps a process needs to be completed within a certain timeframe, or in certain ambient conditions. This input data can be used to prevent a process from starting.

When it comes to assembly of components into a finished product, if every component has a unique ID, then scanning each prior to its assembly ensures that nothing is missed and assembly is made in the correct order. Again, if other parameters need controlling, they can be linked to each step of the process, which cannot be progressed unless all conditions are met. Operator instructions can be shown on screen and equipment controlled with digital I/O, ethernet or various fieldbus control options.

2. Data capture

While process control is about preventing errors, the implementation of a unique ID on every component and linking them to manufacturing data provides an additional, powerful tool.

The data can be stored quickly, building up a significant bank of information about production processes. This “Big Data” can be used to improve efficiency and productivity, identify trends and highlight problems. The data can also be linked with other production management systems in line with a wider Industry 4.0 implementation.

ID scans at specific, regular points in the production process automatically log cycle times and can be matched to production parameters: ambient temperatures, shift numbers, operator ID. The list and quantity of data is never ending.

Reports can be generated for individual components, or for each process step, considering numerous parameters. Trends can be studied and production improvements proposed. The impact of improvements can be monitored and checked.

3. Production monitoring

Analysing Big Data to improve production processes is one thing, but flagging up bottlenecks and issues in real time means that problems can be prevented in the first place.

This concept is commonly referred to as Andon, a Japanese production concept using traffic lights to indicate issues in a production process, so that manufacturing and maintenance engineers can intervene early and correctly to prevent hold up further down the line.

Numerous extensive and complex software products exist to do this and have been implemented on large production lines for many years. If unique ID scans are already being performed throughout production, for reasons of process control, traceability or data capture, then it is a much more simple step to add on production monitoring.

Settings are made for each process and if scans are not happening at the specified rate, frequency or intervals, flags can be set and alarms raised.

The concept can be implemented on much smaller scale production processes. With less investment required, Andon enters the realms of SMEs, batch production and traditional manufacturing processes, not just a fully automated vehicle production line.

4. Life-cycle traceability

One of the most powerful benefits of a unique ID is that of error-proofing traceability.

No matter how many components there are in your product, they can all be uniquely identified with a Data Matrix code. This means that at any point in the product’s life-cycle, either before it leaves the production facility or after years in the field,

any component can be scanned and a full production history instantly recalled.

This gives huge savings in fault finding, with the ability to examine everything that happened to that component in your facility and under your responsibility. Even when parts are replaced in service, the database can be updated with a new scan.

The data attached to an ID can be any format. A video log of the actual production process, a still image of the product at the time of production and test results are also logged in the part history.

Once the root cause is identified an even bigger benefit comes into play. All other components with the same possible issue can be instantly located, their final assembly location is known and its unique ID picked out. Recalls can be targeted, specific and fast.

Furthermore, a Data Matrix code can carry a lot of information: up to 2,335 alphanumeric characters. So, data can be permanently hard coded onto a part for immediate recall. Rather than simply marking a manufacturing date and batch number on a product, a large amount of data can be stored. Or, if this is considered sensitive, the unique ID of the product can instantly read back a full manufacturing history of the component.

This is a big step on from logging batch codes in a spreadsheet but does not require the investment of a full MES or SAP type system.

The Unique ID

A unique ID can be recorded in many different formats.

Modern vision tools can read and log human readable text ("Optical Character Recognition" or OCR).

Traditional barcodes can store a line of numbers to find an entry in a database.

RFID tags can communicate large amounts of data with non-contact readers.

The industry standard has become the Data Matrix code. It can carry a large amount of data, even when marked in a very small physical area. And because they can store the same data in multiple ways, Data Matrix codes can withstand significant damage while remaining readable.

Whatever the format, however, an important feature for traceability is that the ID is completely unique and is applied to the part in a permanent way – be it laser etched, dot marked or engraved. Ink can rub off and labels can be removed. To ensure full life-cycle identification and recovery of manufacturing data the ID needs to be as long lasting as possible.

With a unique, permanent ID production processes can be controlled, manufacturing data collected and components traced and recalled.

This saves money, reduces waste and improves customer relationships.

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New smartphone controlled portable marking system

Connect Series Buddy

The new portable Wireless Buddy Dot Peen System is redefining the boundaries of permanent marking to give the user complete marking freedom. You can mark in an indoor or outdoor environment without any distance limit thanks to the smartphone that accompanies the user as a wireless controller.

The Buddy provides a secure and completely wireless system driven by an android smartphone app, developed by Technomark, that includes an ergonomic marking head. The intelligent and intuitive app means that anyone can use the marking system in a matter of minutes.

A Buddy marking head can connect to several smartphones with the same licence, and each smartphone can control the marking head successively. The Buddy and smartphone pair up using a secure WiFi protocol, therefore no SIM or internet connection is required.

A range of 11 force settings enables marking at different depths, allowing a wide range of materials to be marked including metals, plastics, wood and some leather. Deep marking is still visible after painting and other post marking treatments. It can also mark on painted surfaces. This machine is therefore suitable for a wide range of industries, including aerospace, oil & gas, automotive and fabrication.

A wide variety of data types can be marked including alphanumeric data, logos, QR codes and datamatrix, and text on an arc. Variable data, such as a unique batch numbers, can be added by using the mobile phone screen to enter the value. To automate data entry and eliminate human error, the scan licence enables the option for 1d and 2d barcodes to be scanned for data input. A font creator licence is also available to allow custom fonts to be designed. It also has multi-lingual capability.

The app has two operator modes, the administrator and production mode. The administrator mode allows programs to be created, edited and machine parameters changed. The production mode only allows the operator to select a file and enter variable information. This ensures that no files or parameters are changed by an unauthorised operator.

With a 60mm x 30mm marking window, the marking head is ergonomic, manoeuvrable and compact enough get into awkward places to mark. Its design allows 360-degree orientation, so it can be positioned at any angle to mark. This is made easier by the fact it only weighs in at 2.8 kg. It has a robust construction with drop-proof protective bumpers as well as an illuminated marking area for increased visibility.

Advanced 22V lithium battery technology allows for uninterrupted marking all day. This state-of-the-art battery has been designed specifically for Technomark to guarantee the machine's lightness, performance, and durability. The battery is integrated into the marking head, mitigating any risk of misplacement or theft. Its Battery Monitoring System "BMS" provides real-time information on the life and health of the battery, as well as the number of markings made, the WiFi connection status and which marking file is currently being used. The combination of durability and portability make it essential for nomadic and flexible use.

The Buddy gives extra stability when marking steel surfaces using four magnets at the base of the marking head. The multifunctional non-slip support foot also

features a V shaped foot to allow marking on curved surfaces, such as pipes and tubes, as well as an optional support guide ideal for marking on the edge of plate metal.

The Buddy is also supplied with a storage dock to support the head when not in use with a workbench mounting option. The dock can neatly store spare stylus, springs and the support guide, as well as a tool for checking the condition of the spring and the sharpness of the stylus.

With Technomark's patented IDI technology, the software automatically detects any difference in height on the surface of the component to allow for a consistent quality mark when facing a height difference of 3 mm-8 mm during the marking cycle.

The Buddy can also be supplied with a tough carry case.

The Buddy is the latest addition to the Connect.Series range from Technomark which is one of three systems in the range. The Easy is a hand held portable system and the Combo combines both a portable and bench 2in1 system. Both these systems offer more fully featured software than the Buddy. The Connect.Series machines were designed to be robust, energy self sufficient and equipped with embedded intelligence designed for Industry 4.0.

The Easy offers freedom to users thanks to its wireless connectivity between the head and its controller (its secure Wifi connection protocol offers a freedom of movement of 10 metres). It is available with two marking window sizes (120 x 60 mm and 60 x 30 mm). The Marking head has an advanced 22V lithium battery which allows marking up to three times longer than similar machines on the market before recharging is required.

The controller for the Easy and Combo, with its compact size, has a large 10" touch screen and pairs in just a few seconds to the marking head thanks to the RFID technology. It can connect to the network and exchange data with erp systems. Its intuitive software developed by Technomark makes marking possible within three clicks.

The Combo model offers great flexibility by allowing the user to switch from portable use to benchtop mode in less than 10 seconds. It is equipped with an ergonomic and universal mounting base to make column height adjustments quick and easy and allows clamping and fixing. The Combo when in benchtop mode can be used with a rotary axis

to mark around the diameter of cylindrical items. In order to offer turnkey solutions there are various stands and holder options to create dedicated marking areas both static and portable.

Universal Marking Systems are Technomark's sole partner in the UK and offer full support to help you find the best solution for your marking application. Minimal maintenance is required for the Buddy system but we are always on hand and offer long-term support. If you would like to see it in action please get in touch and we can arrange an on-site demonstration.

Universal Marking Systems
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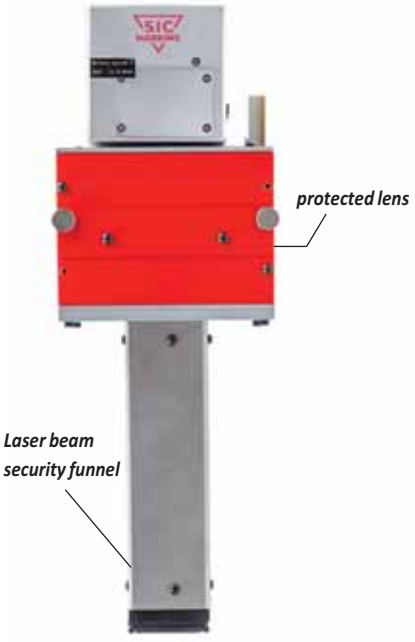
Funnel integrated technology hits the stage

Over the last 30 years there has been a boom in the traceability and identification of manufactured components. Many industries want to directly laser mark these, however there are some parts that are just getting larger and larger.

Casting and pressing companies sometimes have such large parts that they simply cannot fit these into a standard sized Class 1 laser enclosure leaving many companies wondering how they can mark them.

Even though it launched a new range of large XXL-Box class 1 enclosures in 2022, SIC Marking saw this problem as a new challenge for 2023. It has now launched its Funnel Integrated Technology (F.I.T. for short) as a complete all in one solution that combines all



of the necessary components and settings to mark larger parts in a simple, safe and economic way within the customers production line and budget.

The FIT tunnel eliminates the need to enclose the entire part for the laser marking process by enclosing just the marking area. The compact design allows for the FIT system to be retrofitted easily into an existing robotic cell.

This ready to integrate and secured laser marking system comes as a 'Tunnel Style' Class 1 compliant enclosure. It is a compact and easy to integrate solution with a single connection to a PLC. The F.I.T. can be mounted to a robot head for presenting to a

stationary part or fixed in position allowing the robot to present the part for marking.

Not only is the F.I.T. adapted for production environments with its maintenance drawer for the cleaning of the lens, it has built-in shock protection preventing the funnel from damage. The F.I.T. tunnel can be adapted to your marking needs with three window sizes available as standard: 24 mm x 32 mm, 100 mm x 32 mm and 100 mm x 100 mm. Custom sizes can also be accommodated.

The F.I.T. is available as a basic chassis or as a complete solution with protective covers, a cooling system, electrical cabinet and tooling as well as an optional integrated Cognex vision system for 2D verification / validation or 3D lens for marking curved or angled surfaces.

For a demonstration of the new F.I.T. and / or any of the other laser marking systems in SIC Marking's extensive range, get in touch with SIC Marking UK in Warwick, UK where one of the very knowledgeable engineers will be happy to talk to you.

The SIC Marking Group was formed in 1992 and has been growing ever since, as a result of its development in new sectors, winning many local and international customers, in addition to many takeovers.

The increasing number of its distributor partners and the opening of subsidiaries on the 3 continents have given it an acknowledged presence and international reputation.

It has 10 subsidiaries, mobilised for promotion, implementation and customer support in France, Spain, Italy, UK, Germany, Canada, USA, Mexico, China and Korea. They also deploy its marking and traceability solutions locally on behalf of international groups.

Furthermore, its 40 exclusive distributor partners enable it, overall, to serve more than 50 countries worldwide.

Expertise

For the last 30 years Sic Marking has specialised in industrial marking and traceability, with a team of more than 150 engineers worldwide. It has considerable expertise and experience in laser, dot, peen and scribe marking technologies. The company tries to offer its customers solutions that enable them to manage their product quality and flows, in the particular context of their own sector and of their specific production conditions.

Innovation

Sic Marking is continually investing in research for new solutions that integrate the latest technological developments in its field and any changes in the markets in which it operates. On average, it devotes 10 percent of its revenue to R & D which enables it to improve its solutions and to launch at least two new products on the market every year.

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TLM expands laser portfolio with Ultrashort pulsed lasers from FOBA

As the UK distributor for some of the world's leading laser technology manufacturers, TLM Laser is able to boast a comprehensive portfolio of laser modules and systems. A further benefit of these enduring partnerships is the fact that TLM is always able to offer the latest generation laser technologies which can revolutionise many different manufacturing processes. The latest addition to TLM's range, from partner FOBA Laser, is a new Ultrashort pulse laser system. The pulse width of Ultrashort pulse lasers is in the femtosecond to picosecond range. These laser types are able to offer a number of distinct advantages in many material processing applications.

Ultrashort pulse lasers produce an intensive beam of light which allows high precision processing, whilst at the same time minimising the amount of heat absorbed by the surrounding area. Due to the adjustable pulse duration, from the femtosecond to the picosecond range, the heat input remains so low, despite the high pulse energy, that even temperature-sensitive materials can be marked precisely, reliably, and economically. The fine structures that are created by the laser process prevent the reflection of light, so that the laser marks produced appear deep black and also offer excellent readability from different viewing angles. Almost any material can be marked with the F.0100-ir laser system. From metals to heat-sensitive components and even transparent materials, this laser marker opens up many new possibilities.

Laser marks produced using the new FOBA USP laser appear deep black

This new laser marking system is ideally suited to applications within the medical sector, where its performance characteristics allow it to produce high contrast marks on medical instruments made of stainless steel, titanium or even plastics. These same attributes also make it ideal for various other applications in the production of automotive and electronic components.

Depending on the material being processed, marking speeds up to five times faster can be achieved when compared to the results obtained when using nanosecond laser systems. In addition, FOBA's F.0100-ir offers one of the most compact designs in the field of ultrashort pulse lasers and can therefore be easily integrated into production lines and laser marking machines such as the FOBA M-Series.

The recent launch of FOBA's new USP laser, further enhances the laser processing capabilities on offer from TLM Laser. The company's Andy Toms comments: "The launch of this new laser system from FOBA will open up many new opportunities for us particularly within medical sector applications." The technologies described here are just a small part of the comprehensive range of laser technologies and solutions available from Bromsgrove based TLM Laser.

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FOBAS new USP laser is ideally suited to applications within the medical sector

LK celebrates 60th anniversary

Established in 1963, LK Metrology has an impressive heritage dating back to the birth of Coordinate Measuring Machine (CMM) technology. Founded by former Rolls Royce engineer and CMM pioneer Norman Key and his father-in-law Jim Lowther, the company is credited with many innovations in the CMM industry. In 1972, in partnership with Rolls-Royce, Norman Key worked alongside the person who would co-found Renishaw a year later, Sir David McMurtry, who today is its executive chairman, to develop the now industry standard Renishaw touch-trigger probe.

Other industry firsts accredited to LK include successive introductions to the market of the bridge-type CMM, inspection software, exclusive use of air bearings and granite guideways, carbon fibre composite spindles, microprocessor-controlled drive systems, true thermal stability of the measuring platform and a high-accuracy horizontal-spindle CMM.

With its headquarters, product development and CMM manufacturing facility in Castle Donington, UK, the company is headed by owner and CEO Angelo Muscarella, whose ASF Metrology group bought the company in 2018. It now not only manufactures CMMs but has also added to its product portfolio a range of FREEDOM branded portable measuring arms and many metrology accessories. They include a new range of laser scanners, a surface roughness probe, stylus cleaning and sensor changing equipment, an indexing table and a checking gauge for CMM calibration. First written in 1977, LK's renowned CAMIO measurement, programming, analysis and reporting software is continually enhanced to provide leading functionality.

Angelo Muscarella comments: "When I acquired LK, many staff had been with the company for decades and continue to give their total commitment. They and indeed I are proud to work in such a prestigious company. There is dynamism throughout our network of offices and distribution companies around the world, with everyone sharing common values and operating as a family.

"We are looking forward to maintaining our rapid growth and would like to thank all our customers for making this possible.''

LK staff looking after the various sales regions have been keen to add their comments too. For example, Brian Samson, managing director of LK Metrology Inc in New Hudson, Michigan is pleased to report strong trading in the United States: "We and the Precision Measurement Group of the Cross Company have finalised an agreement that brings the LK line of CMMs and related metrology products to the Cross Company's calibration labs and service centres across Southeast and Central US."

Last year, LK USA was awarded a large contract to supply 35 new CMM cells to a new aerospace manufacturing facility, with installation of all systems due for completion by December 2023. The supplier is also experiencing a resurgence in CMM retrofit enquiries and has added a dedicated technical product specialist to focus on this area. To support contract inspection services, the technology and demonstration centre in New Hudson has been expanded by 21,000 sq ft to accommodate a total of six CMMs and two FREEDOM portable arms.

At the UK headquarters, the customer demonstration area, training facilities and factory were all extensively refurbished in 2022, including a complete redecoration, new windows, doors and flooring, plus environmentally-friendly lighting and ventilation systems. A new engineering research team was put in place and the company was accredited to ISO 17025 for testing and calibration and ISO 9001 for quality management.

Business in Asia continues to be buoyant. Paul Druce, LK's service manager based in Castle Donington who is familiar with this market says: "We have an exclusive master distributor in China. This financial year has seen sales of more than EUR 1.8 million, with 15 machines ordered. It represents a 62 percent increase on the previous 12 months in this fast-growing market.

In terms of product development, LK has been very active of late not only in respect of its CAMIO software but also with hardware introductions. It recently launched a high-end laser line scanner with a nominal 20 mm line length, the SLK20, and a larger version is imminent that can be interchanged between a CMM and a manually-operated portable measurement arm. Recently released also was the SRP12.5 probe to offer surface roughness measurement as part of quality inspection on a CMM.

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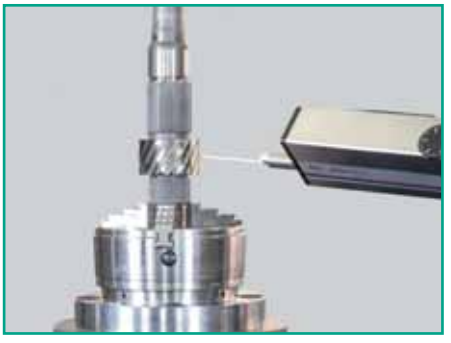
Roughness measurement on gears for aircraft engines

Measurement of gears in aircraft engines
Gears for aircraft engines must meet the highest standards. The measurement data must be precise and must not damage the workpiece in the process. When Mahr learned about the specific task of a renowned industrial company, two additional criteria had to be met: The efficiency of the measurement time and the quality in the gear roughness machine had to be improved. In short, Mahr had to deliver a measuring system that would not damage the helical twin gears and at the same time convert the previous manual measuring process into a fully automatic system to avoid human error and save time. When Mahr's project manager took responsibility for this task, he knew quite well how to solve the problem and fully satisfy his customer.

Overview of the MarSurf Engineered Series 1300 measurement station

Introduction of a new measuring concept: skidless tracking

With the previous measuring solution, the data not only fluctuated depending on the operator, but sometimes the measured double helical gears were also physically affected during the measurement; they could not be delivered. The reason for this: the gear was clamped and rotated during the measurement. This causes clamping forces to act on the workpiece, which can lead to damage. Mahr's project manager had a better idea and the right solution at hand. Instead of moving the workpiece, he suggested rotating the probe while the workpieces were being straightened. So, he introduced the MarSurf Engineered Series 1300 which uses skidless probing. The drive unit rotates to adjust its position to the angle of the gear, so the gear itself does not move. What's more, the MarSurf Engineered Series 1300 could be used as a fully automated system, offering all the advantages the company hoped for.



Roughness measurement on helical gears: The automatic rotation axis changes to the next tooth according to the tooth pitch of the gear

MarSurf Engineered Series 1300: easy to use

The customer chose a custom solution from Mahr Engineered Solutions and was not disappointed. Previously, the gearbox was mounted on a locator. This made it difficult to mount it in the same position and was a time-consuming process. That has changed with the MarSurf Engineered Series 1300. Even the operation is easier now. The dedicated gear measurement software ensures that a wide range of gears can be measured easily and quickly. The relevant gear data, e.g. number of teeth, diameter, module and angle of the helical teeth, only need to be entered and the measurement sequence is calculated accordingly. After starting the utility program, the drive unit is adjusted by the corresponding helical gear angle, the machine automatically determines the starting point and starts the measuring routine. The operator merely carries out a visual inspection. No metrological or specific knowledge of the measuring station or programming knowledge for measuring sequences is required to carry out the measurement.

Measurement in machining direction in the smallest tooth flanks, module 1 and higher

From two hours to eight minutes measurement time

Once the company started measuring with the MarSurf Engineered Series 1300, the benefits became obvious. With the fully automated measurement of the S 1300, the stability of the measurement results was improved and the measurement time was reduced from two hours to eight minutes. This allowed the company to recoup its investment in the S 1300 within two years. With this innovative technology, Mahr has helped its customer overcome its challenges and ensure the highest quality of double helical gears for aircraft engines.

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ITS. GmbH uses mobile surface measurement to create perfect implants

In order to treat fractures surgically, surgeons need implants that not only provide excellent support, but which can also be easily removed once the fracture has healed. To guarantee the smooth surface of the implants, ITS. GmbH successfully uses the SURFCOM TOUCH 50 measuring device from ACCRETECH.

All it takes is a slip and an awkward fall to break a bone. Where a fracture is complicated, surgery is unavoidable. Implants in the form of nails, screws and anatomically shaped plates, among others, provide the stability required. These implants have to meet high standards, because they usually have to be removed after healing and the smoother its surface, the better.

For a sufficiently smooth surface and bio-compatibility, the implant manufacturer ITS. has recently started anodising its implants in-house in order to work more effectively and to be able to offer excellent quality. During the anodising process, the titanium implants are coated with a very smooth, bio-compatible oxide layer that smooths micropores and the finest cracks, thus reducing the possible integration into the bone tissue and the dreaded cold welding of screws. “In order to be able to guarantee the smoothest possible surface of the implants, we determine the surface roughness of the implants using the SURFCOM TOUCH 50 from ACCRETECH before and after anodising,” reports Lukas Feichtenschlager, product manager at ITS.

Fast measurement of even hard-to-reach places

Surgery should be performed as early as possible to stabilise the fracture for movement and weight-bearing. Screwing is often combined with other methods, e.g. with traction screws through a plate. Such a plate is made of titanium grade 2, but the screws are made of a harder titanium alloy. This way the holes do not need threads. If a set screw is used, it creates a thread in the plate itself. Nothing is cut and therefore there is no dirt in the wound during the operation. To guarantee the smooth surfaces of the implants, they are measured before and after anodising at predefined measuring points with the SURFCOM TOUCH 50 from ACCRETECH. Thanks to its high stylus axis range, even hard-to-reach places can be measured, which is a great advantage because implants are often irregularly anatomically shaped and therefore rarely have flat surfaces. About three parts per minute are tested.

“We bought the unit because it is good value for money and in this price range the unit is unbeatable. The system is also simple and can be operated with a short training session for the employee,” summarises Lukas Feichtenschlager. In addition, he points out that the measurement data not only guarantees the high quality of the implants, but also forms a basis for the research and development of new implants. For example, ITS. will soon be launching a new hip nail.

Some specifications need to be observed

The confirmed quality of the implants depends on the correct use of the measuring equipment and the chosen measuring strategy and this includes not only the right choice of probe. Since dust deposits or lubricant residues on the surface distort the measurements, the user must ensure that the probes are well maintained and have clean surfaces. Factors such as temperature, humidity or potential sources of vibration also affect the measurement result. The environmental conditions must therefore be checked in advance, because customers rely on the measurement results being correct, i.e. the implants being sufficiently smooth, because ultimately the well-being of the patients depends on this.

For ITS., it is practical to be able to measure workpieces directly in production thanks to mobile surface measurement. Individual parameters and measuring conditions for different workpieces can be stored in the instrument memory and called up as required. Changing between workpieces is quick and uncomplicated and a large area of production can be covered with it.

In order to be able to offer the ideal implants for surgical fracture treatment in the future, ITS. is conducting research with surgeons to optimally adapt the geometry and composition of the implants to the possible treatment options. “With our dedicated focus on developing and expanding our portfolio of implants and services, our goal is to soon be able to serve more than 90 percent of all trauma indications and the SURFCOM TOUCH 50 is

indispensable here," reports Lukas Feichtenschlager.

Excellent operability thanks to smart user interface

The measuring system offers high resolution over the largest measuring range in its class thanks to an advanced detector. The probe can be changed to suit deep, long or small bores as well as round surfaces, making it easy to measure different types of workpieces, ideal for checking irregular, anatomically shaped implants.

The Z-axis measurement range covers 1,000 µm to 2,000 µm, with a minimum resolution of 0.0001 µm. It eliminates time and effort aligning the workpieces. The device not only measures flat surfaces, but also detects the roughness or waviness of graduated or round surfaces with a single measuring track. Levelling and zeroing before measurement is also possible without any problems. Measurements of vertical surfaces, overhead measurements and measurements of narrow areas are also possible.

The transportable, compact feed unit is easy to install and offers an X-axis measuring range of 50 mm, a guiding accuracy of 0.3 µm /50 mm and a vertical positioning range of the detector of 50 mm. Safe positioning at constant speed is made possible by operating the feed unit in the X direction from the amplifier screen.

The self-explanatory screen makes it easy to set measurement conditions, perform calibration, measurement and analysis safely and makes operation simple and intuitive. The instruction manual itself is designed like a manual for household appliances. A quick reference illustrates the basic steps so that the user does not have to write procedures.

USB/micro-USB ports are available as standard. A total of 15 measurement conditions and 20 measurement results can be stored in the SURFCOM TOUCH evaluation unit. For more, a USB memory stick can be connected to the standard USB port. The evaluation unit is also equipped with a micro-USB connection and with a USB cable, measurement data can be transferred to the computer and evaluated. This is an advantage for ITS because it means that there is always sufficient storage space and data processing capacity available when large amounts of data are generated in the development work for new implants.

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From empowering makers to empowering bakers

How the global food industry has played a fundamental role in the development of metrology

If you're dubious that the world's most celebrated chefs have earned their metrology stripes, consider this: professional kitchens contain more measuring equipment than some factories. The regular tinkering of chefs with probes, sensors, scales, thermometers and a whole plethora of heating and cooling devices means they use most of the seven SI base units on a daily basis.

How many other professionals exhibit such metrology prowess? That's quite an achievement and we've not even touched on molecular gastronomy. In all seriousness, the world of food is driven by measurement, from ingredients, crop yields and pricing to processing, preparation and preservation. But perhaps more interestingly, food has driven the world of measurement. No other industry has had such a profound impact on the development of metrology than the global food system.

The relationship between food and metrology goes way back. You might even call it a chicken and egg situation. Some of the first units of measure were created to support food production and distribution. As human civilisation grew, so did food production and with it trade across increasing distances. All of which required a standardised system of weights and measures. Historians tell us that the early spice trade began around 1,000 years B.C. Journeys like that must have had a massive effect on global measurement systems. Suddenly there was an increased need for reliable measurement systems. Maritime trade, in particular, required precise navigation and distance measurements, time keeping and long-distance communication.

Now consider this: the first units of measure were not just about food, they were food. One of the earliest known units of mass is "the grain.''

There's at least one unit of measurement based on food still in use today. That's the carat, used since ancient times to measure the weight of gemstones and, more recently, the purity of gold. The carat is based on the weight of the edible seeds of the Carob tree, which are thought to grow to an unusually uniform weight. This has been explored in detail by several academic studies, most recently Turnbill et al 2006.

The historical links between food production and metrology are numerous. Let's now consider the current situation and look ahead to the future. The links between metrology and the global food system are more important now than ever.

According to a UN report, around 800 million people faced hunger and starvation in 2020. Nearly one in three people in the world did not have access to adequate food, that number has increased by 320 million since last year. From field to fork, the food industry is highly complex. Success touches on everything from soil quality and annual rainfall averages to processing and logistics.

Since the very beginning, metrology has stepped up to facilitate and improve food production and distribution around the world. It gives us the tools to maximise crop yields and the knowledge to enable data-driven decision resource management and sustainable agricultural practices. Smart digital technologies make production faster, more efficient and more sustainable. That applies to food production as much as it does to any other industry.

Smart digital metrology systems provide increased accuracy and precision in food production. With so many facing food poverty, it's vital to eliminate waste and operate with the utmost efficiency. Metrology in global food systems ensures food quality by providing objective, reliable measurements. There's real-time monitoring of food products throughout the supply chain with connected systems giving traceability across the entire system.

One of the most exciting areas where metrology is impacting the global food system is in warehousing and distribution. Modern facilities are increasingly using automated, robotic technology to pick and pack products, operating with an almost hive mind mentality and the science of metrology

makes it all possible. These robots rush around on a finely produced grid of tracks in warehouses the size of several football pitches, hundreds of them all moving at once. Each individual is in constant communication with the rest, so they never crash but pass by each other just a few centimetres apart.

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ZEISS introduces new integrated system for serial block-face imaging

Understanding cellular ultrastructure in 3D context with ZEISS Volutome

The newly introduced ZEISS Volutome is an in-chamber ultramicrotome for ZEISS Field Emission Scanning Electron Microscopes (FE-SEM). It is designed to image the ultrastructure of biological, resin-embedded samples in 3D in life sciences.

Scanning Electron Microscopy (SEM) in general can be used to explore intricate, ultrastructural 3D information with various methods collectively known as Volume EM (vEM). Serial Block-Face SEM (SBF-SEM) is the vEM technology of choice for researchers who prefer easy sample preparation in combination with a highly automated imaging process enabling the acquisition of large volume datasets.

ZEISS Volutome is an end-to-end solution for serial block-face imaging from hardware to software including image processing, segmentation, and visualisation. The ultramicrotome can be easily replaced by a conventional SEM stage, converting the 3D FE-SEM into a standard FE-SEM, making the system adaptable to a multi-purpose environment.

Imaging of biological structures with high resolution in large volumes can last for days. Therefore, SBF-SEM requires stable acquisition conditions over a long period of time. ZEISS Volutome allows highly automated and unattended cutting and imaging. During image acquisition, images are simultaneously pre-calculated for stitching and z-stack alignment. Results are at the user's fingertips in one click.

ZEISS Volutome comes with the new high-speed, high-sensitivity detector that is specially designed for serial block-face imaging: ZEISS Volume BSD enables high-contrast images even at low acceleration voltages. In combination with the ZEISS patented Focal Charge Compensation, charge-prone samples can be easily imaged without compromises by charge neutralisation at the block face. Furthermore, the built-in ZEISS Volutome stage facilitates the acquisition of large volume EM datasets.

Serial block-face imaging with ZEISS Volutome can be used to study cellular structures in any biological sample that has been prepared for electron microscopy. Neuroscience, cell biology and plant science are prominent research fields to mention or imaging of tissues in general.

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Bowers Group drives UWR team's metrology capabilities

As a leader in metrology solutions, Bowers Group has embarked on an initiative to support the University of Wolverhampton Racing Team by gifting the team a selection of technologically advanced, handheld metrology devices that utilise Bluetooth for fast and effective data capture.

The group's primary objective is to help foster innovation and precision within the UWR team, driving them towards triumph on the racing track. By equipping the team with top-of-the-line metrology devices that adhere to industry standards, it helps to significantly boost their motor racing abilities as well as enhancing the students' learning experience.

Data analysis and collaboration

The team's metrology arsenal has been significantly enhanced with the latest additions, featuring the highly advanced Sylvac digital caliper and the cutting-edge Bowers DigiMic, developed exclusively by the company. These devices are equipped with Bluetooth technology, enabling swift and precise data capture.

Additionally, Bowers has taken a step further by introducing Sylcom Pro, a powerful support system that facilitates data analysis and collaboration. This comprehensive software offers a wide range of functionalities, including the ability to display values in various modes, upload part drawings with dimensions, showcase agreed-upon tolerance levels, and provide pass/fail readings.

The collected data can be effortlessly exported to Excel, facilitating its utilisation in generating reports. Furthermore, the M-bus modules enable seamless connectivity with multiple probes and instruments, further enhancing the versatility and compatibility of the system.

Elevating performance

Harnessing Bowers Group's expertise in metrology data management and analysis software, the team gains an unprecedented advantage in its ability to swiftly, accurately and comprehensively process, visualise and interpret measurement data. This capability empowers it to make precise, data-driven decisions that exceed traditional racing boundaries, elevating its performance both on and off the track.

Paul Bates, technical & business resource manager at the University of Wolverhampton says: "It's our responsibility to teach students on the ground about industry standard procedures, equipment and software that they will use in their future careers once they leave university. The Bluetooth-enabled hand tools and SPC software from Bowers Group are industry standard and therefore the perfect way to ensure our students get the best start.

This donation from Bowers Group allows us to take an important step forward in our teaching both for the racing team and at the School of Engineering's metrology room."

By leveraging this new technology, the team optimises every aspect of its racing performance, identifying areas for improvement, leveraging their newfound understanding of metrology principles and its profound application in the dynamic racing industry. This collaborative approach creates an environment conducive to continuous learning, bringing about a relentless pursuit of knowledge and growth that propels the team to the forefront of its field.

Driving success on the track

The partnership between Bowers Group and the University of Wolverhampton Racing Team aims to empower aspiring engineers to push the boundaries of innovation and performance. By providing access to this industry-standard metrology tooling and fostering a culture of precision and excellence, the collaboration is helping shape the future of motor racing engineering.

The team's ability to leverage advanced measurement tools, analyse data and work with industry experts positions them for success on the track and in their future careers by gaining valuable hands-on experience, allowing them to stay at the forefront of technological advancements in the field.

Bowers provides the widest choice of cost effective, quality measuring instruments currently available. Supplementing Bowers' own range of gauges, its sole UK agent status means that it can offer its UK customers superior products from many preeminent metrology companies, such as Trimos, Sylvac, Gagemaker and Wyler.

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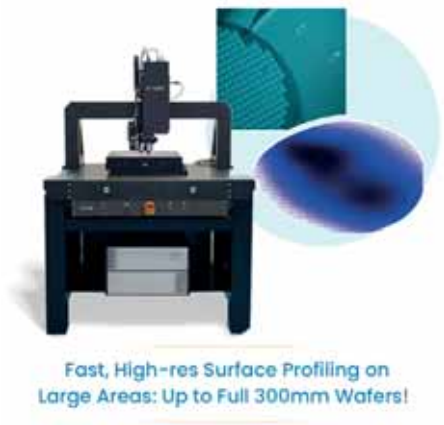
Covalent offers fast, high-res surface imaging for full wafers with CT300 system

Covalent Metrology, a premiere analytical services provider in North America, has announced the installation of a high-speed profilometer from cyberTECHNOLOGIES, a leading manufacturer of advanced 3D surface measurement systems for industrial and scientific applications. The CT300 scans an order of magnitude faster than previous systems and accommodates a substantially enlarged scan area while maintaining nanoscale vertical precision. Ready now, the tool works best for non-contact imaging analysis on semiconductor wafers, PCBs, BGAs, micro-lens arrays, and microfluidic devices.



Optical profilometry is ubiquitous for measuring and mapping the subtle topographic features of flat surfaces. The CT300 is especially useful for inspecting wafers used to develop advanced nanomaterials and semiconductor devices. With a vertical resolution better than ~500 nanometres, the CT300 system can accurately measure surface roughness, map topographic variations, and quantify bow or warp across wafers up to 300 mm in diameter. These data empower engineers to refine the yield and quality of their fabrication processes.

Flexible optics in the CT300 preserve its high lateral resolution and broaden the range of its applications. In addition to wafers, more textured and 3-dimensional surfaces can also be characterised. Specialised detectors facilitate accurate depth measurements on and below the surface of transparent materials. The CT300 is a prime system for analysing the hollow glass channels in microfluidic devices or measuring crucial parameters in finely-controlled optical materials, such as micro-lenses, light sensors, and components.

Beyond its flexibility and resolution, the CT300 is also unbelievably fast. It uses a linear sensor array to scan line-by-line, rather than the point-by-point raster used by past systems. This accelerates measurement speeds by an order of magnitude, enabling Covalent to offer faster turnaround times and more affordable imaging services on an expanded range of sample types.

"With the CT300, Covalent can continue to provide our clients with cutting-edge profilometry and topographical analysis capabilities," says Dr. Avery Green, director of Thin Film and optical metrology at Covalent Metrology, "It also marks an exciting expansion to our higher throughput solutions. Covalent can now offer differentiated services that help position us as a leader in surface analysis for semiconductors, optics, consumer electronics, medical devices and beyond."

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Cimatron releases version 2024

Cimatron powers up version 2024 with unparalleled tools for advanced toolmaking

Cimatron, a leading CADCAM software supplier for the mould & die industry has released version 2024 with stronger core capabilities across all areas of the product while incorporating new technology through collaboration with Sandvik Coromant. Cimatron 2024 simplifies and automates many tasks for tool designers for higher productivity and more options for digital connection.

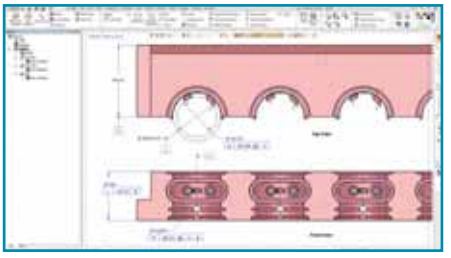
Efficiency remains a key focus, with a number of advanced user workflow updates including multi-view spacing, batch-processing for drawing updates, tangent control for blending faces, and an easy option for capping internal islands. CAD users will enjoy many new features for 2D drafting as well, such as importing PDFs as real geometry and text, new minimum distance dimensioning, enhanced symbols and improved Geometric Datum and Tolerancing (GD&T). Cimatron 2024 also introduces a clean new GUI for controlling drafting standards, improved draft analysis visualisation and automated chain selection of chamfer faces.

Mould makers gain powerful CAD enhancements for rib construction with added functionality for working on multiple curves in a single operation and automatically extending rib geometry to part side walls. In addition, Cimatron 2024 can now create partial ribs in complex scenarios where a complete rib cannot be produced. Within mould design, the construction of 3D runners has been improved, providing better design control based upon constant volume, vertical orientation or section orientation.

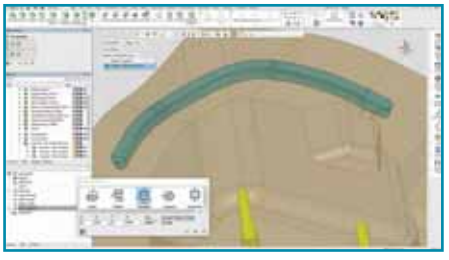
Electrode design is a critical aspect of the mould production process. Version 2024 includes automation for the Burn Body operation to optimise the electrode body shape, control of electrode extensions and non-cutting rules for manual construction.

Die designers can now easily build 3D drawbead geometry to control material flow during the drawing operation in order to achieve the optimal forming of a part without cracks and wrinkles. The new routine will generate the drawbead based upon section type and automatically blend the result into the binder faces.

Cimatron 2024 represents another significant release to support CAM operations from basic 2D up to complex 5-axis. The Enhanced Automatic Feed Control (AFC) routine has been completely redeveloped and optimises stock removal for roughing operations by automatically controlling the feed rate, resulting in smoother motion, faster machining times, longer tool life and fewer changes on the machine spindle and axes. Live benchmark testing with Sandvik Coromant has reduced cutting time more than 10 percent on CNC machines.

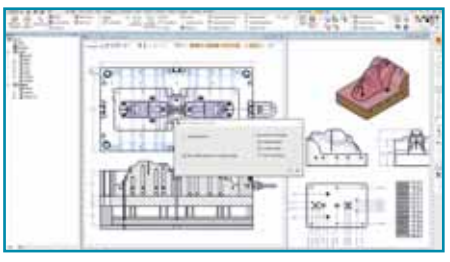


Improved geometric datum and tolerancing (GD&T) control in Cimatron 2024

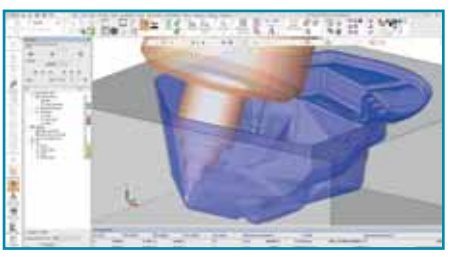


Construction of 3D runner design based upon constant volume of vertical orientation and section orientation

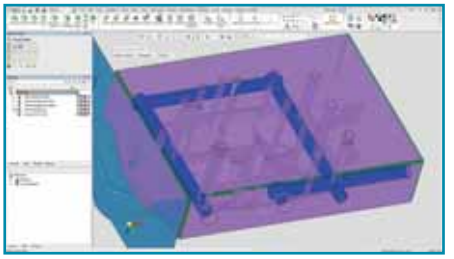
Easily build 3D drawbead geometry to control material flow during the drawing operation



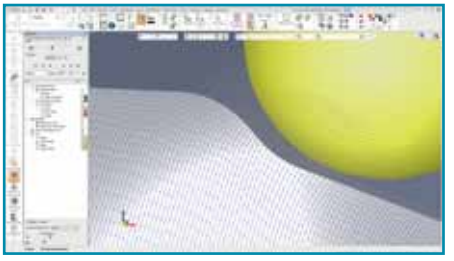
Batch drawing updates has been introduced to Cimatron 2024



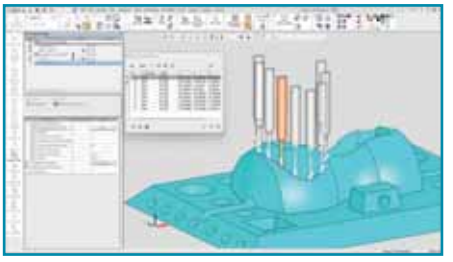
5-axis auto tilting has been improved with calculation time gains of over 25 times in certain cases



Cimatron 2024 enables the auto selection and chaining of chamfer faces



Toolpath node visualisation helps CAM users predict finishing toolpath quality



The On Machine Inspection Probing module now supports multipoint selection and cylindrical-shaped probes, enabling more versatile and precise inspection processes

A new option for pre-drilling during roughing operations prevents cutters from plunging into blind pockets. Cimatron will automatically define the optimum position and depth for pre-drilling as part of the roughing procedure.

Cimatron 2024 introduces a new 3-axis deburring procedure to create chamfers or fillet shapes along sharp edges. CAM users can generate constant width or constant depth chamfers, as well as constant width or constant radius fillets.

For 5-axis machining, the software now allows the automatic use of remaining stock from previous 3-axis operations during roughing. This enables the use of shorter cutters for greater stability. Furthermore, the 5-axis auto tilting feature has been significantly enhanced with calculation time improvements of up to 25 times in some cases. This significant boost in efficiency enhances productivity and reduces overall machining time.

In terms of CAM advancements, Cimatron 2024 introduces several notable features. The On Machine Inspection Probing module now supports multipoint selection and cylindrical-shaped probes, enabling more versatile and precise inspection processes. Toolpaths can now be split based on tool life or cutting length, providing greater control and optimisation during machining operations. A new NC Template Manager has been implemented, simplifying the editing process for users. Additionally, the ability to display toolpath nodes offers valuable visualisation capabilities, aiding CAM users in predicting the quality of finishing toolpaths, particularly when utilising Fine Surface Quality options. Furthermore, the toolpath simulator calculation time has been significantly improved, resulting in an average productivity gain of over 30 percent.

Cimatron 2024 places a strong emphasis on digital connectivity and this release unlocks the power of Sandvik Coromant by establishing direct integration with the CoroPlus® Tool Library and TDM tool management system. By leveraging the CoroPlus Tool Library, users gain access to a vast collection of over 900,000 cutting tool items, with the system making intelligent tool recommendations based on material, operation and tool type. This integration optimises the machining process, delivering better results without the need for manual data entry.

Discussing the new release, Cimatron vice president Antonio Parisse says: "We are delighted to launch Cimatron 2024. There is a good balance between product innovation and customer-driven enhancements. Leveraging Sandvik's cutting knowledge and expertise is a prime benefit to our customers and enables them to deliver higher quality tools faster, easier and more efficiently than ever before."

Part of the Sandvik Group, Cimatron provides toolmakers with an integrated CADCAM software solution for the design and manufacture of plastic injection moulds and sheet metal stamping dies, as well as programming 2D to 5-Axis milling CNC and Wire EDM machines. Sandvik is a global, high-tech engineering group providing solutions that enhance productivity, profitability and sustainability for the manufacturing, mining and infrastructure industries.
Its offering covers the entire customer value chain and are based on extensive investments in research and development, customer insights and deep knowledge of industrial processes and digital solutions.
In 2022, the group had approximately 40,000 employees, sales in about 150 countries and revenues of about SEK 112 billion within continuing operations.

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Celebrate innovation at Advanced Engineering UK

Leading engineering exhibition expands floor plan as a result of increased interest
On November 1st and 2nd, Advanced Engineering UK will return to the NEC, Birmingham showcasing more innovation from the manufacturing and engineering industry. 2023's edition is already shaping up to be an event that should not be missed.

In fact, the show is proving so popular that the organisers have expanded the floor plan for 2023 as a result of increased interest. Advanced Engineering exists to celebrate innovation and facilitate the forming of relationships within the various vertical industrial sectors that exist in the UK. Whether that's aerospace, automotive, advanced metals, connected manufacturing or even space and satellite, it's guaranteed that attendees will meet new, useful contacts. Last year, over 8,800 people attended Advanced Engineering, including representatives from Aston Martin, BAE Systems, Boeing, McLaren, Microsoft and many more.

Advanced Engineering is also a great opportunity to keep up to date with the latest industry trends. In 2022, visitors had access to over 50 hours of free CPD-accredited learning, courtesy of the four forums present on the show floor. This included talks from leading industry figures, including representatives from Siemens, Ford, Jaguar Land Rover, Make UK, Rolls-Royce and Airbus.

"This year, we've made a big change to our floor plan by removing the different show zones that have been present in previous years and expanding it over a wider area," explains Alison Willis, director of Easyfairs, the organiser of Advanced Engineering. "We felt like this was important since cross-industry working is one of the things that attendees value the most, so we want them to feel like they aren't segregated to a particular area because of their industry sector.

"Making these changes wasn't an easy or a quick decision. We spoke to over 200 exhibitors, visitors and speakers to make sure that any changes made were future-proof and reflective of all stakeholders. We realised that many of the issues that our exhibitors and visitors are facing align, no matter what sector they're from. Take sustainability as an example; we wanted to make sure that our floor plan gave attendees the best opportunity of sharing ideas and solutions to challenges like this.

"Advanced Engineering has expanded greatly over the years, starting as a specific aerospace event 14 years ago. 2023 felt like the right time to break down the walls that separated our exhibitors to fully encourage collaboration across industries and to prepare the show for a new era of manufacturing and engineering.

"We've also made positive changes to help reduce the show's impact on the environment. We'll be encouraging our exhibitors to reduce the amount of paper they bring to the show, by giving everyone access to our smart badge system, where exhibitors can add brochures, data sheets and any other digital material that they would have previously had in print form on their stands. We also won't be offering a printed show guide this year, instead having all the information that attendees need available on our dedicated app," Alison Willis says.

Advanced Engineering is supported by a

range of industry partners, including the Institution of Engineering and Technology (IET), Composites UK, Make UK, UKRI, UK Space Agency, the Institution of Mechanical Engineers, GAMBICA, BARA and the Department for International Trade. Partnerships such as these and many more, help the show stay on top of the latest issues arising in the manufacturing and engineering industry, passing knowledge on these topics on to its visitors.

Once again, the show will be co-located with Lab Innovations, giving visitors and exhibitors more opportunities for cross-industry collaboration. The Enabling Innovation Zone will also return, supporting smaller enterprises that want to accelerate and commercialise their innovation into the advanced manufacturing and technology sectors.

Advanced Engineering 2023 launches with a fresh and future-focused rebrand

Advanced Engineering is the UK's largest annual gathering of engineering and manufacturing professionals. Now in its 14th year, this year's show comes with a fresh and future-focused rebrand, removing the previous show zones from its exhibition floor and introducing a main stage for the event's well-attended forums.

The organisers understood that this layout felt limiting for exhibitors, and that visitors in general walked the entire show floor, regardless of their specific industry. This year, the long-established composite zone will remain, but the automotive, aerospace and connected manufacturing zones will be removed. However, these sectors will still have a strong presence at the event, with the industry-specific forums remaining. There will also be a main, central stage on this year's floor plan where discussions about key challenges in the industry will be discussed.

To ensure that visitors and exhibitors can still easily find relevant contacts, Advanced Engineering exhibitors will now be categorised by the services, products and solutions offered. They will have the opportunity to highlight all of the sectors they work in, removing any limitations created by the specific show zones. As well as encouraging visitors from the show's established sectors like aerospace, space, automotive and composites to attend, Advanced Engineering hopes to attracted visitors from newer sectors, like marine, security, rail, energy, sports and leisure and medical.

It's clear to see why this year's expanded floor plan is quickly filling up. One of last year's exhibitors, George Chetwood, business development manager at Cognitiv Spark, said: "The show has been great, we've met so many new people and had great conversations. We've met clients that we've already been in talks with and have advanced those conversations. Our director has secured a spot next year, so we'll be back then."

Another, Lee Brent, sales manager for Southwest Fabrications, commented: "This is our first year exhibiting at Advanced Engineering but it will not be our last. After a friendly and helpful team helped us decide on our stand in the most appropriate location, we have seen a tremendous amount of visitors flow through our stand, with over 100 individual companies interested in the products and services we offer. We have been so pleased with our experience and look forward to exhibiting for many years to come."

In 2023, Advanced Engineering will welcome back a full speaker programme with representatives from some of the leading companies in UK manufacturing. Last year, attendees were treated to talks from leading industry figures from companies like Siemens, Ford, Jaguar Land Rover, Make UK, Rolls-Royce and Airbus. As always, attendees will be able to access all of these talks free of charge, totalling around 50 hours of free CPD accredited learning.

To secure your visitor pass, see a current exhibitor list and check out the growing list of confirmed speakers, visit the Advanced Engineering website: ***www.advancedengineeringuk.com***

The future of AM is hybrid

According to a UK Parliamentary report, the manufacturing sector accounted for 9.8 percent of total UK economic output and 8.1 percent of jobs between July and September 2022. Following Brexit and a global pandemic, more manufacturers are onshoring to reduce reliance on imports while reevaluating production processes. Here Joe Godfrey, 3D print specialist at Tri-Tech 3D, UK provider of Stratasys, One-Click Metal and XJet 3D printing solutions, explores how balancing in-house and outsourced Additive Manufacturing (AM) can enhance onshoring efforts.

Today, over 50 percent of engineers use 3D printing to produce end-use functional parts and this interest in AM has been sparked not least by the rising cost of traditional manufacturing processes. The costs of raw materials are continuing to rise. For example, British Steel began 2023 with a £75 per tonne price hike. The cost of energy is on the up, making it more expensive to power CNC machines and other equipment, while labour shortages remain an issue.

The growing availability of sophisticated AM systems, combined with the lack of waste they produce and the improved part reliability they provide, has improved the ROI of AM. Meanwhile, the 3D printing capabilities that manufacturers can bring in-house continues to grow. For example, stereolithography (SLA) AM systems create parts layer by layer using a UV laser and a vat of liquid UV-curable photopolymer resin, enabling users to expand their design capabilities and improve part finish and quality in shorter build times.

The importance of outsourcing

When investing in any AM system, the business justification is key. Building a capital expenditure justification is challenging when manufacturers are unclear on what the final costs are likely to be. Therefore, outsourcing to a bureau before purchasing a printer for the shop floor can make the most financial sense and make it easier to demonstrate value.

Traditionally, most AM systems were small and limited in build size. Therefore, a purely in-house arrangement was unlikely to satisfy all production needs, especially if the business only purchased the one machine. Say the manufacturer was also working on a specific application that required a good surface finish. The manufacturer may already own a thermoplastic FDM printer, but that wouldn't deliver the required finish. Instead, they would need to outsource that part to a bureau that could print it quickly and to injection moulding quality. Rather than injection moulding the part as a one off, the manufacturer can still benefit from the advantages that AM offers: flexible design, minimal waste and part strength without worrying about the limits of in-house capability.

Why the future is hybrid

According to a 2022 survey by Make UK, 22.8 percent of firms said that bringing production capacity to the UK was a priority for them. So what will this look like when using AM? Working with a 3D printing bureau can make the most financial sense, but this shouldn't come at the expense of in-house innovation. By printing the bulk of their products in-house, manufacturers can produce complex geometries flexibly and cost-effectively while rapidly prototyping new designs in parallel. Meanwhile, they can protect profit margins and safeguard Intellectual Property (IP). At our 3D print bureau, we actually talk to our customers about how they can bring some processes in-house.

In-house and outsourced 3D printing don't have to compete, they can dovetail. Printing using their own AM systems on the shop floor gives manufacturers added control and oversight, but UK-based bureaus can provide vital support by quickly producing any overspill parts. Therefore, even if internal capacity is limited, manufacturers can still receive components; sometimes in as little as 48 hours.

Following supply chain issues over the last few years, onshoring is an attractive strategy. AM can help onshoring efforts by reducing lead times, minimising waste and improving productivity, thus competitiveness. By developing an in-house production strategy while outsourcing certain parts to bureaus, manufacturers can get the best of both worlds: production flexibility, short lead times and enhanced part quality.

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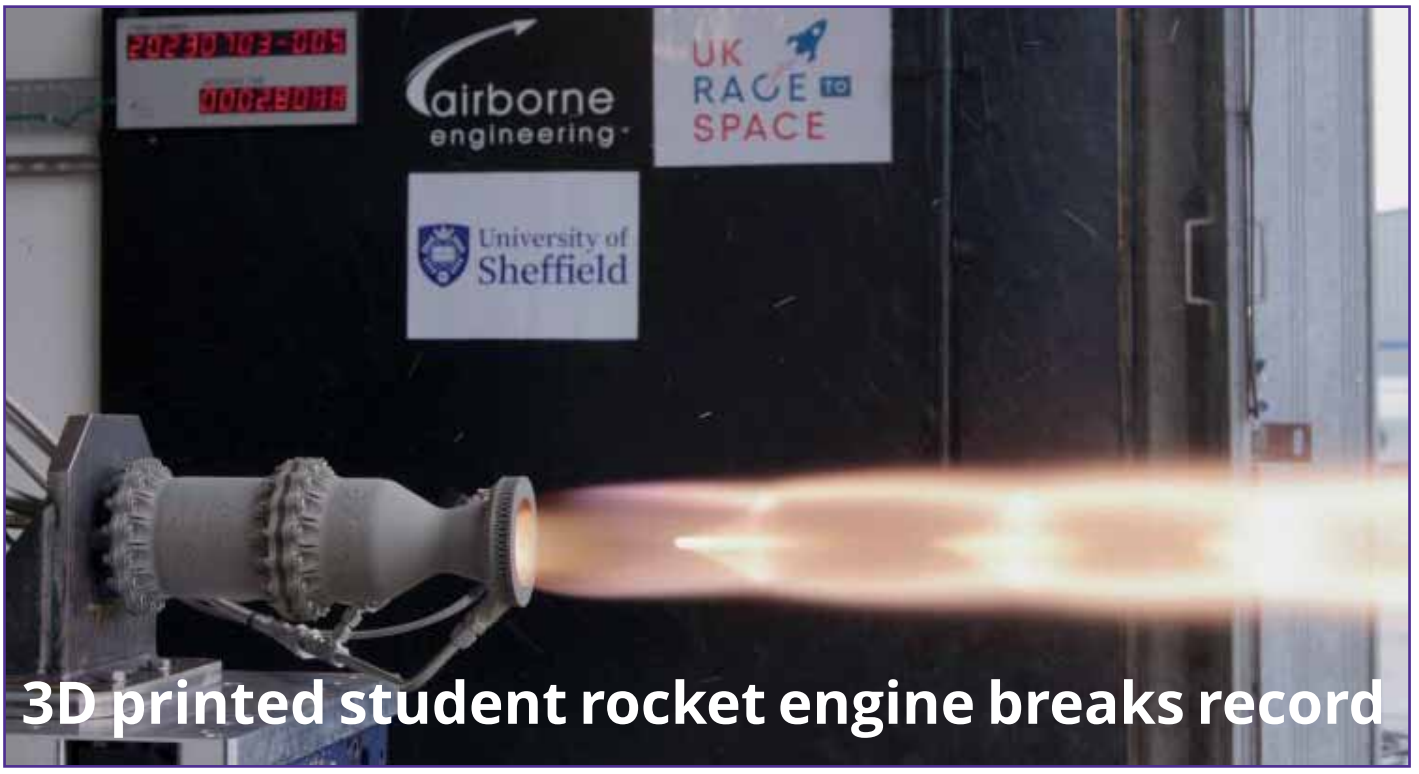

3D printed student rocket engine breaks record

A liquid rocket engine, similar to the kind used by pioneering space companies such as SpaceX, has been built using 3D printing by students at the University of Sheffield. The 'SunFire' engine, developed by a team of Sheffield engineering and science students, is the first metallic 3D printed liquid rocket engine to be built and successfully tested by students in the UK.

It's the most powerful student-built engine of its type, an engine that uses both fuel and an oxidiser rather than breathing in oxygen like a jet engine. It's also the first that is regen-cooled, an engine that uses fuel to cool the combustion chamber before it is burnt, which increases the engine's efficiency and saves weight.

The Sheffield students have successfully hot fired or tested the engine as part of a week-long competition called Race to Space, in which teams of students from universities across the UK tested rocket engines they have built over the last two academic years.

The Race to Space competition week is believed to have set an unofficial world record itself, for the number of different hybrid/liquid rocket engines hot-fired for the first time on one site in one week.

There are only a handful of liquid rocket engines made by students throughout Europe and even fewer regen engines worldwide and, until now, none in the UK made by 3D printing or as powerful as the engine built at Sheffield.

The Sheffield students built the engine over the last two years outside of their studies as part of the University of Sheffield's Space Initiative, a programme to help STEM students use their skills to tackle some of the space industry's biggest challenges and help them develop careers in the industry after graduation.

Students in the team, known as Sunride, hope to eventually use the engine to power one of their own rockets to the edge of space and become the first UK student-led team to launch beyond the Kármán line which borders Earth's atmosphere 62 miles above sea level. The team already holds the UK altitude record for an amateur rocket, which they achieved in 2019.

The University of Sheffield's Royce Discovery Centre, a research centre developing the next generation of materials to meet the needs of UK manufacturing, was instrumental in trialling the laser-powder-bed metallic 3D printing that was used to build the engine. The University's Advanced Manufacturing Research Centre (AMRC) and Faculty of Engineering machined the engine post printing.

Henry Saunders, who led the team last year and is now doing a PhD at the University of Sheffield's Royce Discovery Centre in 3D printing says: "The hot fire test of our engine was a day I'll never forget. From coming up with the idea in a coffee shop with two friends over two years ago, it was amazing when we finally got to fire our rocket engine.

"Being involved with the SunFire programme provided me with an opportunity to take the engineering science I had learned about in lectures and translate these learnings into a real-world practical application.

"This for me was where the real excitement and learning reinforcements came from, not just seeing a rocket engine on a PowerPoint slide with some equations next to it, but actually being involved in building a rocket engine from scratch. The equations only get you so far, the real learning, for me, came from trying things, failing and then eventually succeeding."

Dr Alistair John, deputy director of Aerospace Engineering at the University of Sheffield, who supervised the team, says: "Additive manufacturing is increasingly being used by rocket companies such as SpaceX as it allows you to build complex, lightweight custom geometries that would not be possible using traditional methods. For example, the cooling channels in our engine, which stop the engine melting despite the 2,000°C combustion temperature, can only be made using 3D printing."

The SunFire engine was test fired at Airborne Engineering at the Westcott Space Cluster and 3D printed at the Satellite Applications Catapult with the print process optimisation work done under the MAPP EPRSC future manufacturing hub.

The University of Sheffield
Tel: 0114 222 2000
www.sheffield.ac.uk

PSL Datatrack gets Luxembourg based engineers off the ground

One of the first, vital tasks for Bradda Engineering was to invest in a production control software system. PSL Datatrack was identified as meeting all of the start-up company's initial requirements.

"The control that PSL Datatrack would bring to the business was clear. We are primarily engineers and PSL Datatrack takes care of everything, so we don't have to get bogged down in manual administration work. It was exactly the platform we needed," comments owner Kenneth Oates.

Experience told Kenneth Oates that investment in production control software was essential in order to provide the highest levels of customer service. He explains: "Understanding how to make the most of stock and materials so that we could be as efficient as possible with minimum waste was a prerequisite."

PSL Datatrack manages the generation of quotations and all the engineering steps required until delivery and final invoice. When a works order is raised, a material requirement is generated and the Purchase Orders module used to place an order with the supplier. The job is traced through the shop floor and data collected on operational costs, tooling, materials and the machining processes involved for complete visibility and management review.

Bradda started trading in Luxembourg in July 2021, equipped with a new Mazak CNC milling machine and lathe. For Kenneth Oates, it meant finally fulfilling the ambition of establishing his own precision engineering company, having spent many years developing his skills and experience with organisations in the fields of motorsport and aviation including Red Bull, Toro Rosso and Rolls-Royce.

He initially researched a number of production control systems but few seemed to fit the exact needs of a small engineering company: "They did not seem flexible enough and were quite complicated to use. We also wanted the modularity that would enable us to build up a system as we grew and attracted more customers," he adds.

An internet search led him to PSL Datatrack: "PSL was offering a system designed specifically for the subcontract precision engineering sector. It featured a range of complementary modules, could be extended over a period of time and customised to our requirements." says Kenneth Oates.

Following an online meeting with PSL Datatrack, Bradda decided to go ahead. Having recognised the real potential of the system and how it could help a growing company in the future, they actually invested in more modules than originally envisaged.

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From field services to manufacturing through waterjets

Since opening its machine shop, Miller Industrial Manufacturing has not only expanded capabilities, but expanded its business

Miller Mechanical, founded by Myles Miller in 1988, began as a field services group for the pulp and paper industry. Determined to provide its customers with the highest quality possible, it has become recognised as a leader in the business. Over the past 30 years, it has diversified to provide engineering solutions, metal fabrication and machining and pulp and paper installations, as well as provide solutions to chemical, pharmaceutical, construction and power generation industries.

Cut 3D blank for a finished servo mount

Miller Mechanical's machine shop opened in 2011, when its first Flow waterjet was purchased, to manufacture parts and to cut other required materials for its pulp and paper installations. Within just a couple of years, it opened its services to outside clientele, essentially creating a side business around its waterjet. In 2023, with three Flow waterjets* in operation, it rebranded its waterjet business as Miller Industrial Manufacturing. It cut thousands of tons of material per year, consisting mostly of stainless steel and carbon, though it also cut acrylic, granite and other materials. Most of the projects are cut with its waterjet, but it also operates a plasma table, CNC mill and other various fabrication equipment.

Peter Lockart, Miller's waterjet department manager, joined the company in 2021. With experience cutting on competitor's waterjets since 2005, he was apprehensive about the Flow systems and almost pushed to convert the two they'd had at the time to a competitor's system. He says: "I realised after using the machines for a week to two weeks, they were considerably better. In just the way they operate, the way they cut. It was just night and day. Flow won me over."

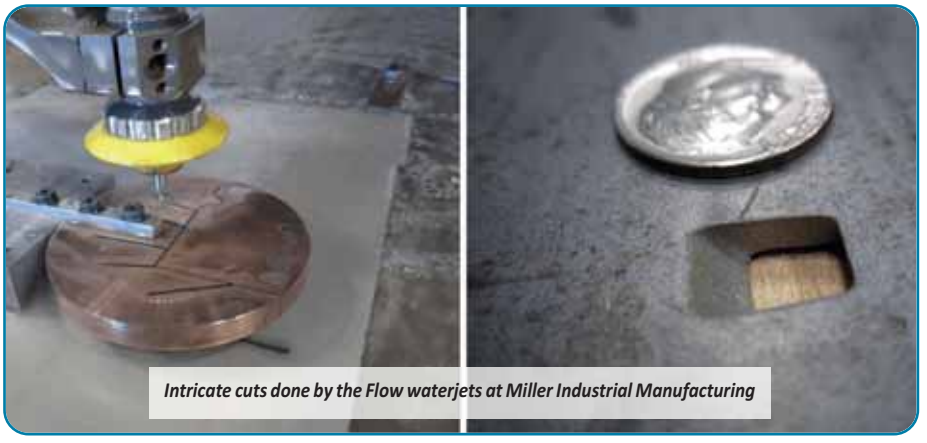
"This part (servo mount blank pictured below) would have been impossible without the Mach 500. The steep angled square sides cut perfectly with the Mach 500, then we machine the rest to print."

Challenges he'd experienced with his previous company's system included part accuracy, edge quality, taper issues and limited pressure options. "We could never get it [cut parts] right," Peter Lockart mentions. "It caused a lot more work." What features won him over? The taper compensation and the pressure are his favorites. "Flow systems are more powerful and more accurate. Cutting nice parts, the first time, is what did it for me."

What advice does he have for someone shopping for a waterjet: "Get a Flow. FlowCare makes it easier getting started. Machines are easier to service and customer service is fantastic. I'm always able to get my questions answered quickly. Flow is still innovating and it's obvious with the three different systems we have."

Notable projects for Miller Industrial Manufacturing include the sign at Park & Elm in Glens Falls, NY and the granite exterior for a major tech mogul's building in New York City. The Park & Elm sign was waterjet cut and welded in-shop before being painted offsite. The building's granite exterior, thousands of tons of it, was all waterjet cut then transported for installation.

*In 2014, it purchased a Mach 3b 4020 with Dynamic Waterjet™ XD and HyperJet pump. In 2020, the company added a Mach 500 3020 with Dynamic Waterjet XD and HyperJet pump, and in 2022, it added its third machine: a Mach 500 3020 with Dynamic Waterjet XD and HyperJet pump. In 2023, Miller Mechanical Services is now Miller Industrial Manufacturing.



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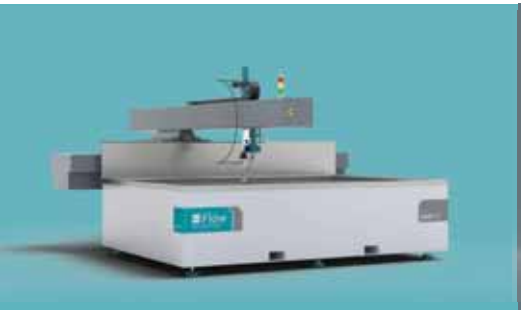

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Leading edge through EU-funded waterjet production

Powered by STM

Since 1998, Uwe Seck has been running his metal construction company based in Bad Camberg, Hesse, in Germany together with his son, his wife and two employees. His professional passion lies in “making things happen”, his focus is on custom products such as company signs, garden objects and individualised gifts for private customers as well as EN-1090-2 certified steel part series for small businesses in the region. He quickly established himself as a creative specialist for custom metal products. Most lucrative are his commercial customers, for whose orders he buys laser-cut parts from a contract manufacturer 35 km away.

He wanted to become self-sufficient in manufacturing and started looking for cheaper alternatives to laser cutting. “Everything from a single source” is the new goal. In the end, it is son Tim, himself a budding toolmaker, who turns his attention to waterjet technology. He becomes aware of STM at trade shows and in technical literature and acquires a 19-year-old STM MasterCut gantry system with a 3×2 metre cutting table in the fall of 2019 including a one-year warranty plus support. This not only makes Uwe Seck independent in one fell swoop, but also opens up completely new areas of business. Soon he was cutting with abrasive or pure water as required and, in addition to cutting parts made of metal, he also produced workpieces made of ceramics, wood, rubber, granite, porcelain stoneware, copper foam, plastic and various special materials.

Challenge

After 18 months and 700 hours of operation, father and son are convinced: The growth possibilities exceed the current capacities of the company. With this realisation comes the decision to realign the business and specialise in more lucrative manufacturing for commercial needs. Out of curiosity, Uwe Seck inquires with STM about a more powerful system. There, they recommend a PremiumCut system including a cutting head with angular error compensation, servo-driven high-pressure pump and OneClean cutting water treatment. An all-round energy-efficient precision system that would open up new dimensions for Uwe Seck in terms of quality, output and cost-effectiveness. The only problem: The acquisition costs of 220,000 euros make the 55-year-old doubt whether this investment will still pay off.

Solution

Confronted with these concerns, STM made him aware of EU funding for more energy-efficient manufacturing technologies. Additionally, the waterjet pioneer offered to support the entrepreneur in the application process and to take the old plant on commission. Soon after, Uwe Seck is awarded the EU grant and with it a 92,000 Euro subsidy for the purchase of the STM PremiumCut in the configuration of his choice. His old plant, which continues to run perfectly, is sold in parallel at cost price to a company in the region. Uwe Seck only had to bear the maintenance costs in the end. He handed over the private customer business to his two employees, who also manufacture the orders as subcontractors with the new system. He and his son set about expanding the B2B business, supported by wife Annette Seck,

who successfully boosts new business via Instagram.

Result

The new plant was commissioned in 2021 and was coupled with the photovoltaic system on the roof, which had already provided 10,000 KW of electricity in, covering 50 percent of the total demand. The four of them get training at the Austrian STM test centre and, after a few startup problems, are able to master the system thanks to son Tim and, later, support from STM Austria. Now the STM PremiumCut cuts workpieces up to a size of 2×3 m and a thickness of 250 mm 10 percent faster than before and more precisely too, with perfectly square edges.

New business is picking up, so that after 10 months he has used the facility for 650 hours, increasing utilisation by 80 percent. “It was a struggle at first, but now I’m thrilled,” says Uwe Seck, “The new machine cuts faster and more precisely. It stops automatically when a cutting job is finished. In addition, pumping out the cutting water with OneClean is much easier and more economical than before with air. But the best thing is that we finally have a super-competent STM employee in the form

of the STM service technician who has optimally adjusted the system for us, who is always available and has a solution for everything.”

The plant is self-financing from day one. No job is exotic enough not to accept. Even though Uwe Seck mainly works with steel, he

continues to cut custom products such as wooden floors for fire trucks out of passion. “Never has ‘there’s no such thing as can’t’ applied to me more than it does now,” he notes with satisfaction. “That is almost more important to me than great financial success”. In the end, he has tapped into a growing market niche with his cross-material just-in-time full service for companies in the region, which would not be profitable with other production methods. The optimal conditions will enable his son and successor to also fully develop professionally.

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Tel: 0043 6458 200140
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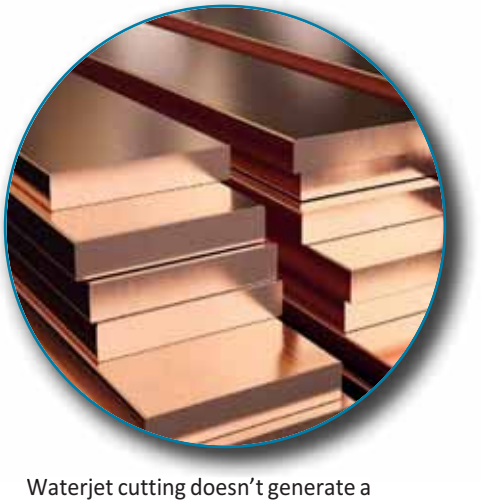
Jet Edge provides the solution for Southern Copper



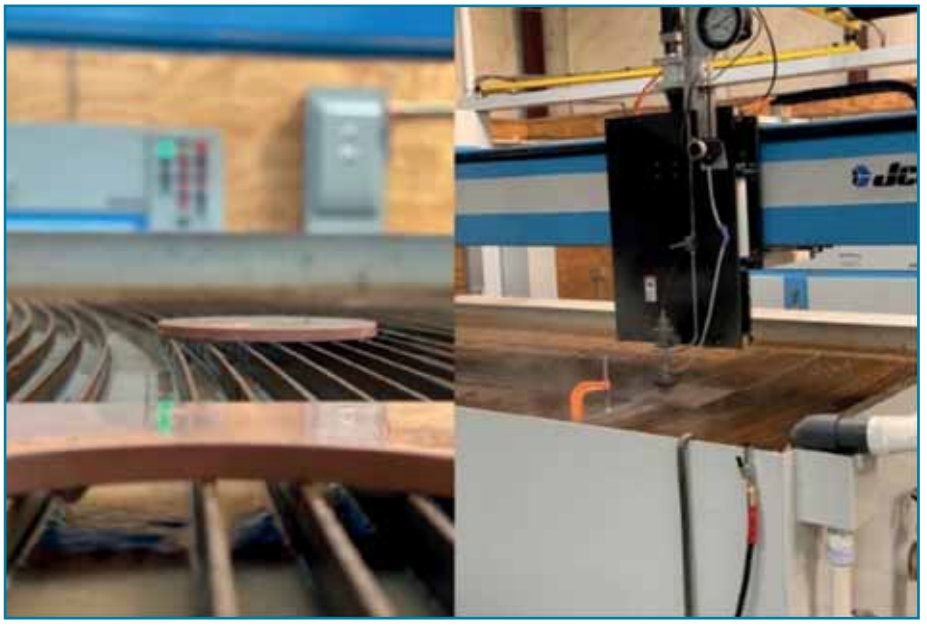
Southern Copper is a metals service centre providing copper and specialty copper alloys and resistance welding components to its customer base in the southeast. It is a family owned, premier distributor and contract machining company of non-ferrous metals, copper tungsten alloys and resistance welding products. Al & Debbie Riha, high school sweethearts, married in November 1967. With three small children Al and Debbie took a leap of faith and started their own business to provide for their growing family. Incorporated in 1987, Southern Copper, based in Alabama, USA is still family owned and operated. Hard work and the embracing of technology has transformed this business into the professional partner that its broad and loyal customer base relies upon.

Raw material is available in sheet and bar lengths as required. “Sawing and cutting technology is our bread and butter.” remarks Matt Riha, owner and president of the company.

Until two years ago, Southern Copper primarily used cold saws to cut material to customer specifications, but the company is continually looking to improve its processes through innovation to better serve customers. At the time, Southern Copper was outsourcing work to a company in Birmingham, Alabama, which it did with abrasive waterjet machines from Jet Edge. Southern Copper has long been interested in water jetting to expand its service offering, providing more custom machining as a value-added service.

The waterjet cutter that Southern Copper invested in from Jet Edge is a high rail motion system that opens up the cutting envelope for easy access. SCS utilises a single 3-axis abrasive cutting head, with 12" of Z travel. Several productivity enhancements were added including lights out cutting and IGEMS nesting software. An abrasive removal system and closed loop filtration system combine to make this a fully contained, environmentally friendly waterjet system.

Southern Copper can now cut profiles in all kinds of shapes and sizes per customer specifications, expanding its product offering. The system operates on an eight-hour shift, five days a week, but that doesn’t restrict the waterjet to cutting only when an operator is present. Since the company added the lights-out cutting option to its system, it can operate the waterjet unattended. It often runs the waterjet an extra three to five hours after a shift ends and, in one extreme situation, had it run for 24 hours straight for three days in a row.



Waterjet cutting doesn’t generate a heat-affected zone in a workpiece material while cutting. When using a saw blade, whether it’s a steel, bimetal or carbide, the friction between the blade and the workpiece tends to warp copper because the metal is so thermal- and heat-conductive. This machine eliminates all of that as there is literally no heat involved in the cutting process.

Matt Riha says: “I’ve got copper that is as hard as tool steel and this waterjet cuts it just like it’s butter.”

Southern Copper’s mission is to be viewed by its family of customers and employees as a metals service centre that is: quick, affordable and uncomplicated when distributing raw metals’ and machining services. Its ISO 9001 certification also makes it a leader in precision machining and fabrication.

Southern Copper has ordered a second waterjet from Jet Edge and expects delivery shortly. The new system will have an even larger table size as the first machine and come with dual abrasive cutting heads to cut two parts simultaneously doubling productivity. The system will be driven by a larger, 150-hp, 60,000-psi ultra-high-pressure pump to generate the power for dual head abrasive cutting.

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Revolutionise your business with the WARDJET A-Series waterjet cutting system

Compact, powerful and precise

Introducing the WARDJET A-Series waterjet cutting system, the perfect solution for businesses that need a compact, industrial-grade cutting machine. The A-Series is a versatile machine that can cut through any material, from titanium to concrete. It does it all in a small, enclosed footprint, making it ideal for businesses with limited floor space. Despite its small size, it is incredibly powerful with the most power per sq ft of any machine in its class. The A-Series is also the only machine in its class to offer a standard 60k psi pump, enabling cutting of materials up to 178 mm in thickness. The WARDJET A-Series is incredibly versatile and can be used for a wide range of applications, including manufacturing, aerospace, automotive and more. It can be used to cut intricate designs, create custom parts or even create prototypes quickly and efficiently.

The A-Series is incredibly easy to use, with the most intuitive control design in the industry. The work surface is at a comfortable height and the machine comes with a MOVE touchscreen controller. The software is also extremely user-friendly with drag-and-drop part loading and part queueing technology.

The WARDJET A-Series also features an industrial-grade rack and pinion drive system that avoids drive slippage and stretching. This results in more accurate parts, making the A-Series the ideal solution for businesses that need precision cutting.

The A-Series is designed with a built-in water level control system which makes for super quiet waterjet cutting. The machine also comes with a cutting enclosure for reduced splash and noise.

With the ability to cut more parts for less, the A-Series is the perfect solution for businesses that need an industrial-grade cutting machine. Don't let the size fool you, the A-Series makes quick work of the toughest, industrial-sized jobs while still delivering on the core principles of waterjet cutting.

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New precision waterjet for medical implant production

Medical implants are a growing sector within the healthcare industry. Quality of life is improved for millions of people every year. ChM sp. z o.o. from Poland has been providing solutions for treatment of human locomotor systems for over 40 years. Now it has doubled its production capacity.

In the north-eastern part of Poland, in an ecologically clean area of the European Union, the company ChM Sp. z o.o. is located. For over 40 years the company have been designing, producing and distributing solutions for traumatology and orthopaedics in cooperation with medical professionals all over the world. More than 60 percent of production is exported, distributed to 50 countries in 5 continents and 20 percent of the annual turnover is spent on R&D. Focus on product innovation and patient safety is its key to success.

ChM has used waterjet technology to cut elements for its traumatology and orthopaedic products for many years, purchasing its first machine from Water Jet Sweden in 2010. The high precision of waterjet cutting, smooth cutting surface and absence of thermal impact on the material are of great benefit to the final quality of its implant products.

Waterjet cutting has been a bottleneck in production for some time and ChM needed to double the production capacity with an additional machine. ChM then took the opportunity to bring in new, modern cutting technology and the new machine was equipped with an extra micro cutting tool for extra high precision.

Being a leader is not only about technology, it is also about people and resources. ChM believes that close cooperation of engineers and production workers, located in one place, results in the highest quality of implants and medical instruments, therefore the investment also included improvements in efficiency and safety. The old waterjet cutting workstation was equipped with modern safety systems according to the latest EU standards, as a uniform solution for both machines and the new KMT high pressure pump and WJS Online Abrasive Feeding system serve both machines in parallel to share and optimise important resources.

Rafal Zawadzki, Water Jet Sweden's manager in Poland (left) with Andrzej Łuczaj Technical Director at ChM Sp. z o.o. (right)

With the block-and-bleed function you can load one machine while the other machine continues cutting. The workstations are served parallel but operated separately. Since the production is running three shifts, around the clock, installation downtime was planned carefully, trying to keep it at a minimum. First, the old machine was moved to another premises to keep production going. At the same time, the machine stations were prepared and the new machine was installed and tested. The old machine was then moved back and integrated into the new parallel workstation, ready for production with doubled capacity, around the clock.

Andrzej Łuczaj, technical director at ChM Sp. z o.o says: ''Professional support from Water Jet Sweden during several years of using the first machine made the choice of a second machine natural and obvious. We have developed a solution to integrate both pumps, ensuring diversification in the event of a failure of one of them and the option of a new micro head has expanded our technological capabilities. Achieving the set goal of a very short production downtime is very important and critical for a manufacturer of medical devices for traumatology.''

Still growing, ChM's vision is to become a leader in creating and providing solutions for treatment of human locomotor system and to be a respected partner for surgeons in restoring patient's health. Water Jet Sweden is happy to support that ambition.

30 years at the forefront of waterjet cutting technology

As co-founder and designer of Water Jet Sweden's reputable waterjet cutting systems Tony Ryd has been there from the start. Today, he is CTO of Water Jet Sweden and looking back at 30 years in a company, consistently pushing the frontline of waterjet technology, the results speak clearly enough.

Success by superior quality

After many years in the industry, Tony Ryd, his father Jan Ryd and brother Arne Ryd decided to start their own business in 1993 and offer their own commercial waterjet cutting services. They had been working on the waterjet cutting technology for more than a decade and had a pretty good idea of what the optimal machine concept would look like.

Together they designed and built a machine that would become the basis for the future waterjet systems from Water Jet Sweden. Little did they know then that their unique machine design would win innovation awards and achieve worldwide success for

top performance and outstanding lifetime in the years to come. Today, 30 years later, there are 900 machines installed in more than 40 countries and no machine has been taken out of production for being stale.

Two machines 30 years apart, based on the same cutting technology and by the same designer. (Upper image 1) Tony Ryd performs his Machine #1 from 1993, exhibited at HQ in Ronneby. (Upper image 2) Tony's latest creation, the FiveX Ultra from 2022 – another step into the future of advanced waterjet cutting

Setting the standard

The first machine was built in a private garage. It was designed to maximise uptime, performance and lifetime. With years of experience from waterjet cutting they knew how to minimise negative effects, machine overload and tension created by uncontrollable physical forces.

It was a pure water and abrasive waterjet machine combined. Unlike Water Jet Sweden's machines of today, it had a PC controller but was based on the same mechanical principles as today's machines.

Tony Ryd explains: " first version of our patented guide system was already on this machine. So, from the start, all Water Jet Sweden gantry machines are based on the unique design. The patent solution improves the machine's performance and extends its service life, which are some of our machines' great advantages."

For many years, the machine manufactured ice hockey visors in plexiglass at the Water Jet Service in Ronneby. Several years later, it was bought by a glass manufacturer in Sweden, Emmaboda Glasteknik. When it was time for the glass company to replace the old machine about ten years ago, Water Jet Sweden took the opportunity to purchase the historic machine and exhibit it at the head office in Ronneby.

Tony Ryd says: "The first machine is still operative, just plug it in and you can start it up. But we prefer to have it as an exhibit now, excited to have our first machine back in the house again."

FiveX Ultra breaking boundaries

The physics of waterjet technology is still the same, but the tools to control the natural cutting process has evolved tremendously. At the EuroBLECH Trade Fair in 2022, Water Jet Sweden presented its latest machine concept: FiveX Ultra. It was presented as a "step into the future of 5-axis waterjet cutting."

Tony Ryd adds: "The new FiveX Ultra does not only offer everything from standard 2D to full 3D abrasive cutting. Most importantly, you can use the Fine Abrasive Waterjet cutting process (FAWJ) with extremely narrow cuts and ultra-fine tolerances in a full 3D environment. That is a unique feature."

The new FiveX Ultra has a compact design with a new, modern movement system with carbon fibre components for lightness and stiffness. Like other FiveX machines you get ±0-120˚ cutting tool but the new Ultra cutting tool is compact and require less space to operate.

The new opportunities FiveX Ultra provides are what Water Jet Sweden always wants to achieve when launching a new product; to offer customers long-term operational and competitive advantages.

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New Zealand hydraulic systems specialist chooses British-built all-electric Unison breeze tube bender

Total Hydraulic Solutions Ltd (THS) of Rotorua, New Zealand, has purchased a brand new all-electric 'Breeze' 65 mm single-stack tube bending machine from UK-based Unison Ltd, the inventor of all-electric tube manipulation.

THS modifies new excavators from leading global brands such as John Deere, Caterpillar, Hyundai and Kobelco to accept forestry harvesting equipment and also provides a wide range of maintenance and support services for users of hydraulic equipment. Currently being shipped to New Zealand, THS's new Unison Breeze machine will be used to manufacture small batch runs of heavy gauge tubular components from either stainless steel, black schedule steel or carbon steel. It will replace an older hydraulic tube bender that has been in operation at the Rotorua site for several years.

While visiting Unison Ltd for factory acceptance testing of his company's new Unison Breeze machine, Total Hydraulic Solutions Ltd's joint owner, Andy Bedford, said: "The obvious question people will ask is why we chose to travel halfway around the world to buy a new tube bender. The fact is, after considering machines from several manufacturers and dismissing those which failed to meet our exacting requirements for quality, reliability, repeatability and support, we were directed to the Unison website by a company we know and respect in Australia.

"A conversation with Unison's sales projects manager, Steve Chambers, then followed. Steve clearly understood our need for a robust single-stack machine that offered easy setup, rapid programming and fast tooling changes; all essential as, with small production runs, we typically need to change bend tooling up to 20 times a day. In our busy manufacturing facility, the near-silent operation of an all-electric machine was also highly appealing, while Unison's intuitive Unibend CNC meant training future operators would be very straightforward. Appreciating our desire to keep costs under control, Unison also offered to adapt our existing tooling so it could be used on our new Breeze machine. Impressed with Unison, the quality of its machines, it approach and its global support network, we placed the order."

The 65 mm, maximum tube diameter, single-stack Unison Breeze all-electric tube bending machine was chosen by Total Hydraulic Solutions Ltd for its ability to quickly, quietly and precisely produce the multiple components required by the business on a daily basis. Like all Unison Breeze tube bending machines, the 65 mm Breeze offers rapid setup, fast tooling changes, exceptional power, rigid mechanical design and all-electric control for right-first-time repeat subcontract work, or immediately after producing a single trial part. These are all attributes that Unison Ltd believes make its Breeze models the ultimate tube manipulation machines for businesses specialising in small batch runs. It is also equipped with Unison's recently upgraded Unibend software, which offers cycle time speed improvements in the region of 25 percent compared to earlier versions and incorporates new teach routine and simulation features.

"It was a pleasure to assist Total Hydraulic Solutions Ltd in purchasing a new Unison Breeze all-electric tube bender that will fulfil both their current and future tube bending needs," comments Unison's Steve Chambers. "We look forward to commissioning the new Breeze machine in Rotorua in the coming weeks and training the THS team in its use. Going forward, the business will also benefit from first-class support from our regional representatives, as well as from our UK HQ."

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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Benefits of the E-Brake

The design of SafanDarley's E-Brake line of press brakes is both simple and durable

Here are three ways its E-Brake line keeps our customers up and running

1. Simple, proven design

The E-Brakes are operated by a simple but powerful pulley system and that's it. Unlike hydraulic brakes, E-Brakes have no valves, pumps, hoses, or switches to fail. By some counts, E-Brakes have one-third the number of parts as their hydraulic counterparts. This simple design yields big benefits for customers.

For starters, there are fewer parts to break and, therefore, fewer parts that need to be stocked and replaced. Beyond the overall design, E-Brakes rely on very few proprietary parts that have to be ordered from SafanDarley. Many of its parts are readily available from local suppliers, wherever your operation is located.

Unnecessary complexity is a liability in today's economy and you will not find a more simple or efficient press brake than the E-Brake.

2. Redundancy in parts

Press brake OEMs don't always do a great job of thinking through the longer-term ramifications of the parts they select for their machines. For example, some OEMs might use four different drives and motors based on the tonnage of the press brake they are producing, which then requires their customers to stock different parts for their different size machines. Safan Darley has been deliberate about making parts choices that make sense for customers, retaining the same parts for groups of press sizes to minimise the number of potential part types its customers are exposed to. Because the machine design is simple and so well-conceived, its customers need to stock fewer parts.

3. Less maintenance

If you've spent any amount of time working in a sheet metal fabrication shop, you know that everything breaks or at least needs to be maintained to avoid breaking. As the work horses of every fabrication shop, it's important that press brakes are well maintained to avoid unnecessary shutdowns.

E-Brakes are incredibly easy to maintain because there are no tanks, filters, seals, valves, pumps, oil, or fluids that need to be checked and replaced or topped off.

Typical preventative maintenance includes cleaning off the spring packs, lubricating the appropriate points, checking the air conditioner filter and cleaning it if needed, cleaning the guides and checking the file management on the machine.

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Stockholder's investment cuts lead times

Bieber + Marburg, a steel and non-ferrous metals stockholder in Germany, has purchased a new sawing centre from KASTO for close-tolerance cutting to length of its wide variety of bar, tube, profile and other products. As a result, it has reduced lead times from order to delivery and is able to respond more flexibly to customer requests.

At the end of the 19th century, Heinrich Bieber's eyesight was failing and he was forced to give up his profession as a cobbler. He founded a small business that today employs 290 staff and owns 40 lorries, delivering steel to manufacturers, plant builders and construction companies throughout central and southern Germany.

Marcel Finkernagel, director of administration and organisation at Bieber + Marburg says: "We stock 28,000 tonnes of steel in our 42,000 sq m facility. Increasingly we are being asked by customers to process the material by sawing, drilling, 3D laser cutting, flame cutting and shot blasting it."

Demand for sawing in particular has increased enormously, so the company needed to examine how best to expand in this side of the business and determine what technology to invest in. The conclusion it came to was to purchase a new sawing centre from the German company, KASTO. Its products and services are sold into the British and Irish markets by a subsidiary in Milton Keynes.

Marcel Finkernagel, director of administration and organisation at Bieber + Marburg, in front of the KASTOcenter varioplus 4 highbay warehouse with approximately 1,500 storage locations

The new KASTOvariospeed C 18 automatic circular sawing centre at Bieber + Marburg

Bieber + Marburg already had many years of experience working with the sawing machine and storage system manufacturer. During a demonstration, the impressive speed of an automatic production circular saw from the KASTOvariospeed range impressed the stockholder's management and it quickly became apparent that it would be the optimum solution to the shortfall in cutting capacity.

Adjacent to the circular saw, a KASTOsort robot is responsible for cut piece container management. The robot recognises the containers, which already contain the relevant delivery label and loads the required parts into them automatically, even unattended over the weekend.

The new KASTOcenter varioplus 4 warehouse is 50 metres long by seven metres wide and nine metres high. It contains about 1,500 shelves with space for material up to seven metres long and 330 mms in diameter. The long stock is stored and retrieved by an operating gantry crane that travels above the store at up to 60 metres per minute.

It serves both the KASTOvariospeed C 18 automatic circular sawing centre and a bandsawing area, where a new KASTOtec SC4 has been installed as part of the expansion. Before this latest addition, Bieber + Marburg already operated four automatic bandsaws and a KASTO UNICOMPACT honeycomb storage system dating back to 2017. These machines and the KASTOtec SC4 cut larger diameter stock that is too big for the circular saw.

Marcel Finkernagel continues: "We wanted to increase capacity further, be able to process material at short notice and offer customers a batch size of one. Faster material changeover and less manual intervention were required to achieve this.

"The KASTOcenter varioplus 4 has enabled us to reduce setup time from 15 to 20 minutes on the bandsaws to less than two minutes on the circular saw. Operation is then automatic, with consistent quality of cut, on material up to the saw's maximum capacity of 330 mm diameter."

Little training was required following the latest investment phase, as the operators were already familiar with the KASTOlogic software used on the bandsaws. As a result, they are able to work flexibly on any system.

As one of the oldest family businesses in Europe, KASTO can look back on more than 175 years of experience. Numerous in-house developments have made KASTO a technology leader and set industry standards.

As early as the 1970s, KASTO was one of

the most innovative suppliers of metal sawing and storage technology for industry and trade. The solutions of the family business from Achern in Baden-Wuertemberg are in demand, not only in the home market, but also beyond the national borders.

KASTO therefore relies on internationalisation in order to provide a high standard of service to customers and markets outside Germany. This was a pivotal step to ensure the future success of the manufacturer.

Around the globe, a close-knit network of branches and agencies ensures that the sawing and storage technology specialist company is always close to the markets and its customers and can offer fast and individual service.

KASTO Ltd is the UK company of the global parent company KASTO GmbH in Germany, a leading manufacturer of metal sawing machines, long material and sheet metal storage solutions. Since 2003, the subsidiary sells and services these products in the UK and Irish markets.

KASTO saws and storage systems can be found in all metal processing areas where availability, efficiency and long lifetime are needed: in steel and aluminum distribution, in machine and system manufacturing, in the processing industry and in the automotive sector. In addition, its customers come from different industries, i.e. steel mills, shipyards, schools and research facilities.

Five KASTO bandsaws are also in use at Bieber + Marburg for cutting bigger material, including this latest KASTOtec SC4

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Carif bandsaws from Saws UK

Carif is a well-known brand in the metal cutting industry, specialising in the production of bandsaw machines that deliver precise and efficient cutting solutions for industrial applications. The brand has established an excellent reputation for manufacturing high-quality metal cutting tools that are reliable, durable and easy-to-use.

With its rich history, commitment to quality and focus on customer satisfaction, Carif has earned its place as one of the leading bandsaw brands in the industry. Whether you're looking to upgrade the metal cutting capabilities of a small business or need reliable cutting machines for a large manufacturing plant, the solutions available from Carif come highly recommended.

Carif was founded in Italy by Cesare Canna, who started manufacturing bandsaw machines in a small mechanical workshop. Over time, the business grew and Carif became a well-known brand in the metal cutting industry, known for its high-quality products and exceptional service.

Today, Carif is headquartered in Lissone, Italy and remains a family run business. The company employs over 100 people and its products are distributed to over 70 countries worldwide. Despite its global reach, Carif remains committed to its Italian roots, with all of its products still manufactured completely in Italy.

Carif's success can be attributed to its focus on quality, reliability and innovation. The company is consistently striving to improve its products, incorporating the latest technologies and materials to ensure that its bandsaw machines are at the cutting edge of the industry. Carif's bandsaw machines are known for their precision, efficiency and durability, making them a popular choice for industrial applications around the world.

One of the brand's unique selling points is its ability to offer customised solutions to its customers. The company recognises that every business has unique metal cutting needs and, as such, it offers a range of customisation options for its bandsaw machines. This includes modifications to cutting speed, blade size and other features, ensuring that each machine can be tailored to the specific needs of the customer.

In addition to its commitment to quality and innovation, Carif is also known for its exceptional customer service. When you purchase a Carif cutting machine, you can be confident that you'll be able to access support you need should you have any queries or experience issues during the lifetime of your equipment. Today Carif is recognised as one of the leading brands in the metal cutting industry, with a reputation for excellence that is second to none.

Carif bandsaw machines are designed to cut through even the thickest and toughest materials with ease, using high-quality blades and cutting mechanisms that ensure a clean, smooth cut every time. Additionally, these machines are built to last, with a focus on durability and long-term performance that sets them apart from other brands in the industry.

Its semi-automatic bandsaw machines are designed for industrial metal cutting applications that demand precision, efficiency and ease-of-use. These machines are available in a range of sizes and cutting capacities, making them suitable for a variety of materials and cutting requirements.

One of the key features of the semi-automatic bandsaw machines is their semi-automatic operation. This means that the machines use a combination of manual and automatic controls, allowing the operator to adjust the cutting speed, blade tension and other settings as needed while the machine performs the cutting operation automatically. This results in a more efficient and accurate cutting process, reducing operator fatigue and improving overall productivity.

Carif semi-automatic bandsaw machines also feature a range of advanced technologies and features that enhance their performance and reliability. These include hydraulic blade tensioning systems, hydraulic material clamping systems, and adjustable cutting speeds, which ensure optimal performance in a variety of cutting applications.

It also supplies automatic CNC bandsaw

machines that are designed for industrial metal cutting applications that demand high precision, efficiency and automation. These machines are equipped with advanced CNC control systems that allow for greater control and customisation of the cutting process, resulting in highly precise and accurate cuts.

One of the key features of Carif automatic CNC bandsaw machines is their automatic operation. The machines use advanced CNC controls to automatically adjust the cutting speed, blade tension and other settings based on the material being cut, resulting in a more efficient and accurate cutting process. This also reduces operator fatigue and improves overall productivity.

Another key feature of Carif's bandsaw machines is their hardened band wheels, which are designed to withstand the high stresses and pressures of cutting tough materials, such as steel and aluminium. This in turn, ensures that the machine delivers a smooth and efficient cutting performance.

The use of hardened band wheels also reduces the wear and tear on the machine's blade, resulting in a longer blade life and reduced maintenance requirements. Additionally, the hardened band wheels

provide greater accuracy and consistency in the cutting process, resulting in cleaner, more precise cuts.

Another key feature of the brand's bandsaw machines is the helical gear box. This gearbox is designed to deliver superior performance and reliability, making it a popular choice for businesses that demand high-quality metal cutting solutions.

Saws UK offers a wide range of Carif bandsaw machine models, including both semi-automatic and automatic CNC options, to meet the needs of any cutting application.

Carif bandsaw machines are renowned for their exceptional performance, reliability and precision, making them a top choice for businesses that demand the best in metal cutting solutions.

Whether you're looking for a compact and versatile machine or a powerful and heavy-duty option, Saws UK has got you covered. Its experienced team is on hand to help you choose the perfect Carif bandsaw machine for your needs and it offers competitive pricing and fast shipping to ensure your business keeps running smoothly. Browse its range of Carif bandsaw machines and experience the difference for yourself.

If you have any queries or need help in choosing the best Carif machine for your needs, contact the Saws UK team for expert advice.

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Cold Saw, circular saw or chop saw? by Addison Saws

It's a question we come across a lot working in the metal cutting machinery industry and our answer is always the same. They are all technically the same machine. Over the years terminology changes, it evolves and sometimes that causes confusion.

Terminology evolution means we can call these machines a few names, cold saws, cold cutting saws, circular saws and in a great deal of cases they are referred to as chop saws and circular cut off saws. It does all basically mean the same thing; an electrically powered saw that uses a circular saw blade to cut through metal. While the general premise is the same, there are differences in terms of how they get the job done. These differences are important to consider before buying a circular style metal cutting saw.

Cold saw machines

As mentioned in the introduction, cold saws, cold cutting saws and circular cut off saws are the same machine. Different industries or regions use different terms. Popular among fabricators, cold saws are built for cutting medium / thin-walled steels and small solid profiles, including stainless steel. These machines are reliable and, in most cases, very affordable when it comes to cutting steel bars and tubes. This type of saw uses High-Speed Steel (HSS) saw blades to cut through those steel materials quickly and with ease. Industrial cold saws are available in many different forms, in manual format where the operator has control over the cutting. Or automatic versions that are controlled by a computer built into the saw. What you need depends on what you are cutting and the output needed from the saw.

Circular saws

A quick Google search of the words circular saws will mostly bring up saw blades or hobby style tabletop sawing machines. These types of machines are rarely suitable for consistent use within the professional or industrial metalworking sector. They do make good DIY or craftsmen / mobile construction machines due to their portability and relatively low cost. Industrial circular saws or cold saw machines, remember, they are the same for industrial applications, are different from tabletop style circular saws. Their functionality is of a higher spec, they can cut through a wider range of materials and are more powerful. The industrial saws generally come with a pedestal and while they are portable within a workshop or factory for repositioning, you can't grab them and put them in a van. If you're looking for an industrial circular saw, search for exactly that phrase.

Chop saws

This term is regularly used to describe both standard circular cold saws mentioned above and more increasingly now, abrasive saws. Even asking Google will return confusing

results. It's worth knowing that abrasive saws are designed to cut dense metals that a standard cold saw just can't get through. Instead of using a traditional saw blade, these saws use abrasive disks, very similar to what you find in angle grinding machines. We do not recommend abrasive saws like angle grinders for regular metal cutting where speed, finish and high output are key. These do tend to create a lot of heat when cutting.

Summary

As we have covered, there are many names for the same type of metal cutting machine and I'm sure there are more terms that we haven't covered.

We have mentioned Google a lot above as it's the leading internet search engine. Different search engines will yield different search results so if you're looking for a circular chop saw, you can start by looking at our range so you know what kind of machine will work for the materials you need to cut.

Alternatively, the quickest way to find what you need is by calling us on 01384 264 950. Our expert team can guide you through finding the right circular type saw for your application. We can then provide no-obligation quotes to your exact requirements, including any saw blades and cutting oils.

Addison Saws Ltd
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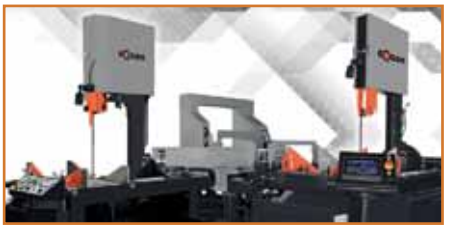
Vertical tilt-frame band saws have been delivering exceptional results for decades

Cosen Saws, a leader in industrial cutting solutions, has an impressive lineup of vertical saws which have been serving customers with exceptional cutting solutions for years. The three vertical band saw models, manual, semi-automatic and fully automatic, continue to provide unmatched precision, efficiency, and convenience for fabricators. These well-established saws have proven to be advantageous for industrial professionals, accommodating a wide range of cutting requirements, from small-scale operations to large-scale manufacturing facilities.

The V-1822 is a multifunctional vertical saw for double cutting. The saw bow can be manually rotated and locked in any angle up to 60 degrees in both directions. The saw bow has an adjustable cant up to five degrees to provide the best cut against different material shapes. Ideal for workshops and small-scale operations, this saw is easy to use and allows operators to control the entire cutting process manually. With its heavy-duty construction and compact footprint, the Cosen V-1822 delivers precise and consistent cuts, providing customers with a cost-effective and dependable cutting solution.

Cosen Saws V-2026NC & V-2230NC represent a significant step up in terms of efficiency and productivity. These versatile band saws replace manual operation with easy-to-use semi-automatic features, making them an excellent choice for medium-scale industrial applications. Operators can easily load the material, set the cutting parameters and let the saw perform the cutting process. The saws offer precision, efficiency in operation, lower cost per cut and durability in any demanding production environment.

The pinnacle of cutting performance, the Cosen AV-2026NC represents the best-in-class solution for large-scale industrial operations. Designed to handle high-volume cutting with extreme precision, this fully automated saw integrates advanced features, including material feeding, cutting angle adjustment, and length positioning.



The Cosen fully automatic vertical saw delivers exceptional performance, maximising productivity while minimising operator intervention.

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Demystifying the “weird saw” phenomenon

Tungsten carbide tipped Multi-Purpose Hole (MPH) saws are rapid, versatile and durable

In the world of holesaws, there exists a peculiar and misunderstood champion: the Tungsten carbide Tipped Multi-Purpose (MPH) Hole Saw. The jet-black coloured saw, known for its rapid cutting speeds and versatile applications, has earned a reputation that is both enigmatic and amusing. Often referred to as the “weird saw,” it seems to baffle and intrigue those who encounter it.

In this article, L.S. Starrett intends to demystify the MPH Saw, shedding light on its features and benefits.

Why is it known as the “weird saw” and why does the holesaw only have a few teeth? How can it effectively function in this configuration?

The holesaw incorporates a specialised ground tip geometry that operates like a wood plane. Unlike a regular bi-metal holesaw that generates minute swarf waste, this unique tooth set design minimises the heat produced and significantly reduces or eliminates any burning within the hole.

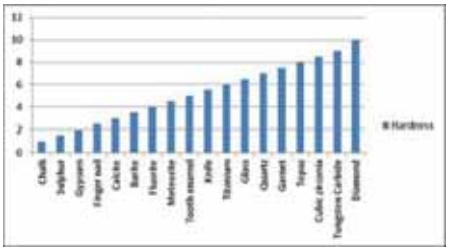
The MPH’s teeth when compared to bi-metal

Similar to wood planes, the MPH holesaw ensures clean and smooth removal of waste material. When cutting laminates, it gradually eliminates the topcoat without causing damage to the surrounding area, resulting in a pristine hole.

The specially ground carbides employed in the holesaw possess a wider “kerf”, the area of material that is removed as waste, making the removal of slugs effortless.

Carbide, with a hardness level of HRC 75 on the Rockwell C scale, provides a more durable cutting edge compared to bi-metal which has a hardness level of HRC 65. This increased toughness enables carbide to withstand the abrasive nature of various materials, granting it the unique capability to cut through a wide range of substances, including travertine and fiberboard.

Note: HRC denotes the hardness level according to the Rockwell C scale.



Tungsten carbide falls between 8.5 and 9.0 on Moh’s hardness scale, making it almost as hard as diamond

Exceptional cutting performance

The MPH saw delivers outstanding cutting performance and product durability. The carbide tips ensure efficient cutting across different materials, providing rapid and reliable stock removal with minimal effort.

Use the MPH saw when cutting wood, veneer and MDF, plastics & acrylics, building bricks, fibreglass, ceramics, formica and plaster.

Ideal for cutting through worktops and MDF

What about the cutting speeds compared to a bimetal holesaw?

Cutting speeds achieved with the MPH saws are up to five times faster, enabling users to complete cutting tasks more efficiently. This increased speed also minimises heat build-up, reducing the risk of material damage and ensuring a smoother cutting experience.

Reaching new depths

With a hole saw depth of 54 mm, 2.1/8", the MPH saws provide the depth needed for various applications. Whether you’re working on a construction project, installing fixtures, or engaging in DIY projects, these hole saws offer the flexibility to tackle different cutting needs.

The MPH saw has a depth of 54 mm, 2.1/8”

User-friendly design

The MPH hole saws are designed with user convenience in mind. They feature a deep gullet, which allows for easy removal of the core, reducing downtime and ensuring smooth operation. The hole saws are compatible with both mains and battery-powered tools, providing flexibility in tool selection. Additionally, arbors with extended-length pilot drills are available, or you can opt to fit the longer A014CE pilot drill to the standard arbors, catering to various drilling requirements.

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