ENGINEERING subcontractor JAN/FEB 2023

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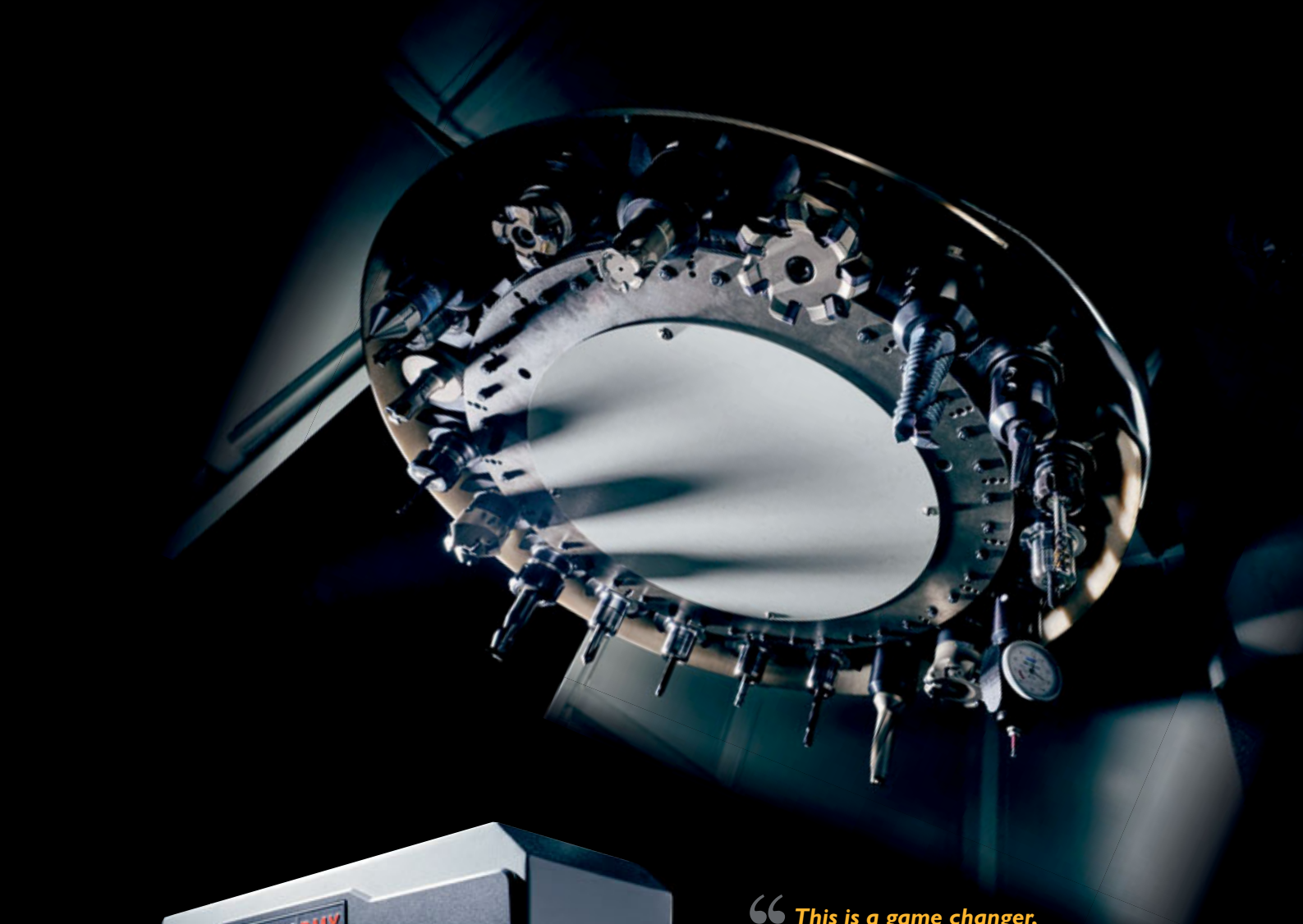

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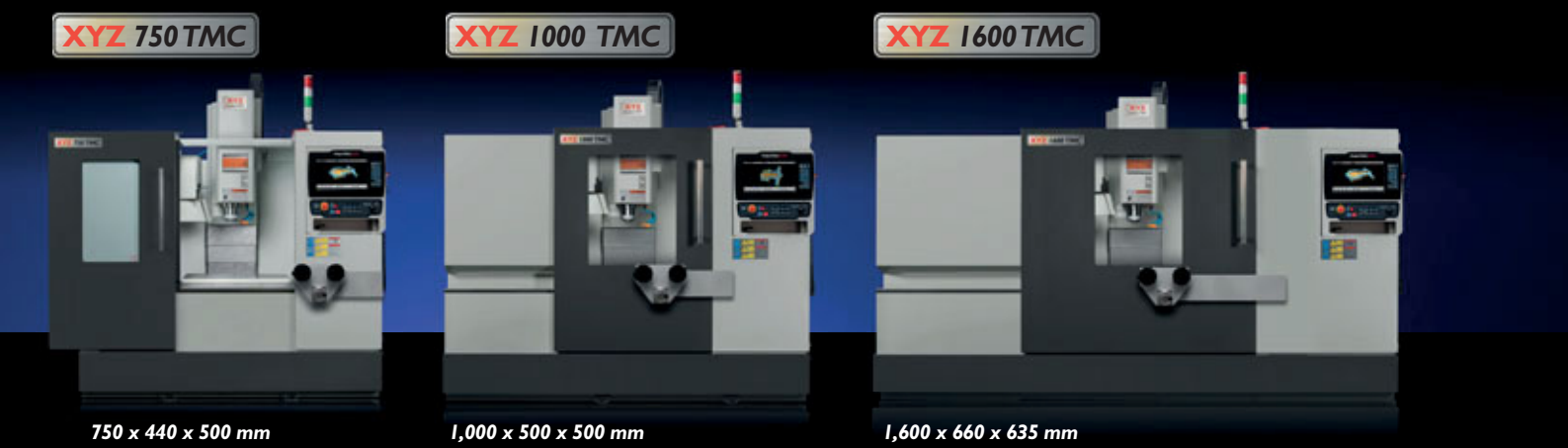

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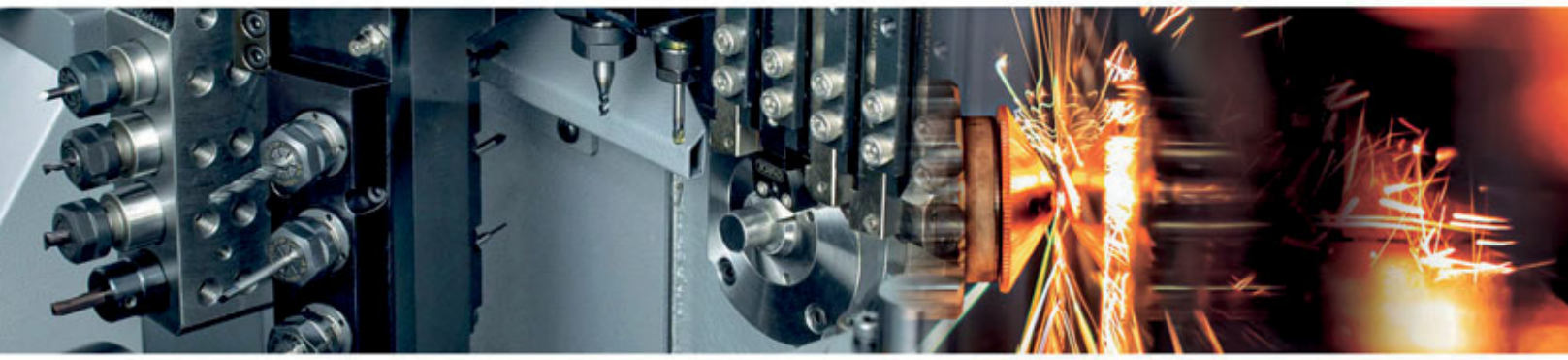

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ENGINEERING subcontractor JAN/FEB 2023

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- EDM
- Workholding
- Laser Cutting
- Welding

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Hurco seals another bumper year with successful Open House

Despite all the challenges to the economy, manufacturing has had a buoyant 2022, if Hurco's experience selling its machine tools is anything to go by. Order intake in monetary value was close to a record high, beaten only just by the exceptional figures posted in 2018. Seventy companies pre-registered to attend the company's Open House at its headquarters in High Wycombe in early December and a total of 104 people were welcomed over the two days, generating £650,000 of sales.

Attendance on the Hurco stand at MACH in April was an encouraging 25 percent up on the previous show. The event marked the launch of the company's new lathes with driven tools and 8-inch chuck model TMX8MYSi on the stand. The 10-inch chuck version was available for public inspection at the Open House for the first time.

On the prismatic metalcutting side of the business, a Plus version of the popular VM30i was exhibited. The 1,270 x 508 x 508 mm capacity machine has been enhanced with an upgrade to a twin-screen WinMax control, a 12,000 rpm/15 kW spindle, 20 bar coolant through the spindle, LCD remote jog and a swarf auger. Additionally, Hurco's range of large, dual-column, bridge-type machining centres in 5-axis configuration has now been expanded to four models. Both the DCX32 and DCX42 are now available with a high-speed, 18,000 rpm, HSK-A63 spindle or a high-torque HSK-A100 version.

Managing director David Waghorn notes: "5-axis machines in all sizes have been very popular this year, accounting for a higher proportion of our turnover than ever before.

"The VMX-SRTi series with B-axis spindle head and flush rotary C-axis table continues to be the front runner due to the option of loading large components for 3- and 4-axis machining.

"However, the trunnion-type 5-axis machines are also selling well, many of which we supply with an Erowa pallet storage and retrieval system."

As far as automated loading of components is concerned, he said that a lot of interest is being shown in the company's ProCobot collaborative robots. One was demonstrated at the Open House feeding a Hurco VM20i 3-axis machining centre.

Dave Waghorn concludes: "The outlook for 2023 is good. The vast majority of our customers are subcontractors and all seem to be very busy."

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Southern Manufacturing - Stand G200

Huge range of production equipment on show at Southern Manufacturing & Electronics

From 7th to 9th February 2023, the worlds of mechanical and electronic engineering will converge again at the Southern Manufacturing & Electronics show, which will be held as usual at the Farnborough International Exhibition and Conference Centre. Having progressed from a small regional exhibition 25 years ago, the event now attracts interest from around the whole of the UK, Ireland, continental Europe and beyond.

The two engineering disciplines are represented in approximately equal measure. Although the industries and technologies are diverse, there are no barriers between the different areas, allowing easy cross-over. Visitors appreciate this, as it encourages a wide-ranging itinerary though the exhibition halls, frequently leading to discovery of firms offering related technologies that would otherwise be missed.

The enormous diversity of products and services on show ensures that companies will almost certainly find what they are looking for, be it new business opportunities, ideas on how to bolster their order books or ways to raise their productivity and profitability. Having world-class mechanical engineering and electronics under one roof allows multiple items to be sourced efficiently and with minimum effort.

Many hundreds of firms will highlight a vast array of high technology mechanical, electrical, electronic, optoelectronic, electromechanical, hydraulic and pneumatic components and assemblies, PCBs, connectors and sensors, as well as such items as drives, rotary encoders, linear scales, fasteners, pressings, wireforms, springs, plastic and rubber mouldings, gaskets and much more. There will be suppliers of machine tools and tooling, workholding systems, metrology equipment for both tactile and non-contact inspection, finishing machines, laser cutting and marking equipment, additive manufacturing machines and consumables, industrial hardware, production and planning aids and engineering and business software. Industry 4.0 solutions will be in evidence alongside controls, displays, HMIs, data acquisition systems, augmented, mixed, and virtual reality, robot and cobot machine tending and other automation solutions.

Other diverse and no less essential products and services on offer will encompass oil and coolant supply, workshop equipment, dust and fume extraction, humidity control, workplace storage systems, bespoke case and foam manufacture, plastic packaging and injection moulding, hand tools, adhesives, industrial flooring, waste removal and recycling, training, freight services, plus financial and IP consultancy.

The event is also an important destination for sourcing subcontracting services. Leading practitioners will show examples of parts they have machined from a vast array of materials, from metal billets and castings to plastics. Traditional subtractive machining specialists will be joined by firms specialising in 3D printing and all will be available to discuss the broad range of skills they offer. Further subcontract engineering services include electronics assembly, finishing, test and inspection, while providers of business consultancy services will similarly be able to outline how they can help industrial companies to thrive.

The UK subsidiaries and agents of multinational machine tool manufacturers will, as usual, form a significant part of the mechanical engineering side of the show. Attendees already confirmed include Ajax, AMOB, Bruderer, Chester Machine Tools, Citizen Machinery, Haas, Hurco, Jinan Bodor, MACH Machine Tools, Matsuura, Mills, NCMT, XYZ, Yamazaki Mazak and YMT Technologies. Additive manufacturing equipment suppliers and service bureaux will be very much in evidence, including Advent 3D, Bowman Additive Production, Boxford, CDG 3D Printers, CREAT3D, Central Scanning

UK, Europac3D, GTX Europe, IPFL, Laser Lines, Matsuura Machinery, MHP Industries Rowan Precision and SYS Systems.

Metrology systems from ARC Metrology, Ash Technologies, Blum Novotest, Bowers, Mantech Geometrics, Mitutoyo, OGP, Optimax, Sempre, Status Metrology and Vicivision will be on show alongside CADCAM, simulation, ERP and production control software from CG Tech, Hexagon, E-MAX, MIE Solutions, Priority Software, Sapman V12, Theorem Solutions and VKS.

Workholding equipment and rotary tables will be seen on the stands of 1st Machine Tool Accessories, Lang, Thame and Roehm, while cutting fluids will be promoted by Oemeta and Kernow Oils. Heidenhain will show its CNC systems, DROs, encoders and touch probes. Industrial Tooling Corporation, Guhring, Hoffmann and Mapal will exhibit their wide range of tooling products and Zoller UK will be there with its tool presetting and measurement equipment.

Featured on the Ajax Machine Tools stand will be Atom CNC lathes with Fagor and Siemens control options as well as 3-, 4- and 5-axis Proton machining centres with Siemens controls. AMOB UK will show its specialised equipment for tube and pipe bending, ranging from simple manual machines to the eMOB range of complex, fully electric CNC systems. Additional tube bending products will be exhibited by Portuguese manufacturer VLB-Group.

Bruderer UK will promote its range of products and services including servo feeds, coil and wire handling equipment, presses and die turnover units and high tonnage mechanical presses.

Citizen Machinery, which sells Cincom sliding-head lathes and Miyano fixed-headstock CNC lathes, will demonstrate a Cincom L12-VIILFV slider with integral laser cutting capability. The advanced configuration greatly broadens the production possibilities of Swiss-type machining. The company will also stress the advantages of its LFV chip-breaking software.

Machining centre and CNC lathe supplier Hurco Europe, whose Winmax control system provides conversational programming at the machine as well as full CNC capability, will underline the compactness of all its machines, particularly the VM-series of 3-axis machining centres that combine a small footprint with a large work cube. Chinese firm Jinan Bodor CNC Machine Co, headquartered in Jinan, will be present this year to display the high-power fibre laser cutting machines built in its 30,000 m² factory, claimed to be the largest in the industry.

MACH Machine Tools and Machine Tool Sales Online (MTSO), both part of the Vigilance Group, will be on two separate stands. The former will demonstrate high-productivity, DynaPath-controlled MDS 845-8T and MDS 900-4T toolroom mills as well as a flexible, large-capacity MDL 1800 flat-bed lathe with an integrated automatic tool post. MTSO will showcase a range of high-quality, used machine tool models from its extensive pre-owned stock.

On the stand of Matsuura Machinery, there will be live demonstrations of 5-axis machining on a 10-pallet, 90-tool MX-330 PC10 machining centre and of additive manufacturing on the Desktop Metal Studio System 2 and the Desktop Metal Fibre composites 3D printer. Mills CNC, the exclusive distributor of DN Solutions and Zayer machine tools in the UK and Ireland, will be showcasing a high-speed vertical machining centre with a Doosan collaborative robot. Okuma and Makino agent NCMT will show the former principal's M460V-5AX 5-axis, vertical machining centre specifically designed to manufacture high precision parts and deliver impressive metal removal rates in a compact footprint.

XYZ Machine Tools is taking two stands this year, one dedicated to its new TMC range of toolroom machining centres that combine the advantages of a fully enclosed, up to 20-station tool changer machine with the advantages of the company's ProtoTRAK control. Yamazaki Mazak will be returning to the show with a stand centred on 5-axis, automated machining for subcontractors. Taking pride of place will be its UK-made CV5-500 machining centre, supported with a plug-and-play, small-footprint MA-20/400 part-loading automation system.

Yeovil-based YMT Technologies will be present to promote its advanced CNC machining centres, turning centres and integrated automation processes as well as its tooling website, rotary tables, mist extraction equipment and shrink technology.

Alongside the exhibition and demonstration areas, over the three days there will be an extensive technical seminar programme. It will give visitors and exhibitors alike valuable learning opportunities, with a particular focus on the technical, managerial and environmental issues facing manufacturers today. Subjects to be tackled will include the art of effective strategy deployment; lean continuous improvement featuring team assurance and ERP/MRP push & pull; additive manufacturing - prototype to end-use parts; design for test with tips on the use of test jigs; environmental simulation testing and T&V (Test and Verification); the health, wellbeing and productivity of staff; commercialisation of concepts and CE and UKCA marking for 2023 and beyond.

Southern Manufacturing & Electronics 2023 will co-locate again with AutoAero, a specialist theme within the exhibition devoted to aerospace and automotive engineering. There is a regular, free bus service between Farnborough's Main and North Camp railway stations and the show. Admission and parking are also free of charge. More information and tickets are available from ***www.industrysouth.co.uk***

European Trade & Exhibition Services
Tel: 01784 880 890

Exciting line-up from ITC

At Southern Manufacturing, Industrial Tooling Corporation (ITC) will be introducing a host of product lines from its extensive cutting tool portfolio. The UK manufacturer will demonstrate its latest innovations and will invite show visitors to buy British manufactured cutting tools

ITC has an outstanding reputation for the quality, consistency and performance of its solid carbide end mills, drills and thread milling ranges. At Farnborough, ITC engineers will be on-hand to discuss the latest product lines that can boost productivity for manufacturers. Alongside the very impressive UK manufactured ITC standard and special product lines that are available on short lead times, the company will also present the most recent technologies available from WIDIA and BIG KAISER.

One ITC product on show will be the 6054 Series of end mill developed specifically for the machining of steel and exotic material types. The geometry of the 6054 Series has a centre-cutting geometry with harmonic fluting to maximise material removal rates and swarf evacuation while minimising vibration to enhance surface finishes and tool life. This performance is further enhanced with a shallow chip gullet that guarantees exceptional core strength for high material removal rates and stability. Complementing this is the polished harmonic flutes, Cupro coating and chip breaker that evacuates swarf at an extraordinary rate.

The 6-flute series 6054 Series is available with diameter options of 6, 8, 10, 12, 16 and 20 mm with a length of cut from 18 mm on the 6 mm diameter tool through to 60 mm on the 20 mm diameter end mills. Complementing the UK manufactured ITC product lines will be products from the WIDIA range. ITC will be presenting the latest WIDIA M1600 face mill series. Suitable for roughing to semi-finishing operations in steel, stainless steel, cast iron and nodular iron materials, this series has 16-cutting edges and a smart insert design that performs exceptionally well under various machining conditions including low-power machines, unstable, non-rigid setups, long overhangs and weak fixture conditions.

The 16-edged, precision-ground insert with a positive geometry enables low cutting forces and low power consumption resulting in higher tool life and an excellent cost per edge. The M1600 has one universal insert geometry in three versatile grades: WP35CM, WK15CM and WU20PM. Alongside the M1600 will be the impressive M8065HD milling system for machining steel and cast-iron materials. Designed with eight cutting edges and extra-wide chip gashes, the new M8065HD can achieve deep depths of cuts while producing high metal removal rates during face and shoulder milling applications.

Adding to ITC's unparalleled drilling line at Southern Manufacturing will be the expanded range of indexable inserts added to the Widia TOP DRILL™ TDMX modular drilling line. The Widia TDMX Modular X drilling line is the ultimate choice for demanding drilling applications and the new MS geometry delivers stable modular drilling for general engineering and energy applications on steel and stainless steel.

From the BIG KAISER stable, ITC will showcase the expanded line-up of Smart Damper-equipped, arbour-style face mill holders that support face mills with diameters of 80 mm or 100 mm with an arbour pilot diameter of 27 mm. The Model SDF57 assembly has an outside diameter of 71.8 mm and allows users of 75 mm face mills to access up to 500 mm of reach, the longest tool assembly in the industry using standard components. Also from BIG KAISER will be the Mega Synchro Tapping Chuck. The innovative tapping chuck has a special function built-in to compensate for synchronisation errors that may occur during rigid tapping. For information on these latest products or to find out more about the UK manufactured ITC product lines, come and visit ITC at the Farnborough event.

Industrial Tooling Corporation Ltd
Tel: 01827 304500
Email: sales@itc-ltd.co.uk
www.itc-ltd.co.uk

Stand H250

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Mazak to display 'plug-and-play' 5-axis automation system at Southern Manufacturing

Yamazaki Mazak will be returning to Southern Manufacturing & Electronics in 2023 with a stand centred on accessible 5-axis automation for subcontractors. Taking pride of place on the Mazak stand will be its UK-made CV5-500 machining centre, supported with a 'plug-and-play', low-footprint MA-20/400 part-loading automation system.

The highly versatile 5-axis machine, with a 500 mm diameter table, is unique in its category due to its high-rigidity bridge construction with a fully supported trunnion table that travels in the Y-axis direction under the bridge, ultimately delivering a highly accurate and extremely compact machining solution.

With rapid traverse rates of 36 m/min in the X-, Y- and Z-axes, the machine delivers agile performance that is boosted by an optional 18,000 rpm 18.5 kW high-speed spindle, which includes core cooling through the X-, Y- and Z-axes ballscrews, all backed up by Mazak's comprehensive Thermal Shield to ensure stable machining accuracy

The CV5-500 has been designed for easy integration with automation, with access for robot loading at the side of the machine. The model on display at Southern Manufacturing will feature a MA-20/400 fully integrated part-loading solution. Raw material and finished components are exchanged to and from the machine by a 20 kg payload robot with a double gripper hand for simultaneous load and unload to minimise the non-cutting time.

The major benefit of the MA robot solution is the ability to increase production on demand through lights-out operation, without the burden of adding additional labour. Moreover, the cell also offers the potential to extend the productive hours of the machine with unmanned and lights-out running either overnight or at weekends.

Crucially, no specialist knowledge for either programming or setup is required for the MA, which results in a very short learning curve for operators. With the GUI embedded seamlessly into the SmoothX CNC, operating the robot is exceptionally intuitive with as little as five minutes required to setup and change over workpieces.

Alan Mucklow, managing director UK, Eire and national distributors at Yamazaki Mazak, comments: "Investment in machine tool technology which can be easily automated is key to UK manufacturers remaining competitive in challenging market conditions. This has been a major focus for our applications engineering team, to ensure we are bringing to market solutions that can quickly impact the output of engineering firms up and down the country.

"The CV5-500 with MA-20/400 perfectly encapsulates this ethos by providing a highly affordable and compact automated solution, ideally suited for subcontractors, start-ups and job shops wishing to automate prismatic components in medium to small batch sizes. I am confident it will be one of the standout machining solutions on display at Southern Manufacturing & Electronics and myself and the Mazak team are very much looking forward to returning to the exhibition."

For more information on the CV5-500 with MA-20/400, visit: ***www.mazakeu.co.uk***

Yamazaki Mazak Corporation was founded in 1919 in Nagoya, Japan. It now has over 8,300 employees worldwide.

Yamazaki Mazak has 10 existing manufacturing plants, with five in Japan as well as manufacturing operations in the United States, the United Kingdom, Singapore, and China. Products include multi-tasking machines, CNC turning centres, vertical and horizontal machining centres, CNC laser cutting machines, Flexible Manufacturing Systems (FMS), CADCAM products and factory management software.

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Stand F180

MIE Solutions returns to Southern Manufacturing

Production and capacity planning is a critical process for many manufacturers, possibly now more than ever with fluctuating workforce numbers and deviation on supplier lead times. MIE Trak Pro offers a number of different scheduling types with the most commonly used approach being finite, forward planning in the form of the systems Advanced Planning Scheduling (APS).

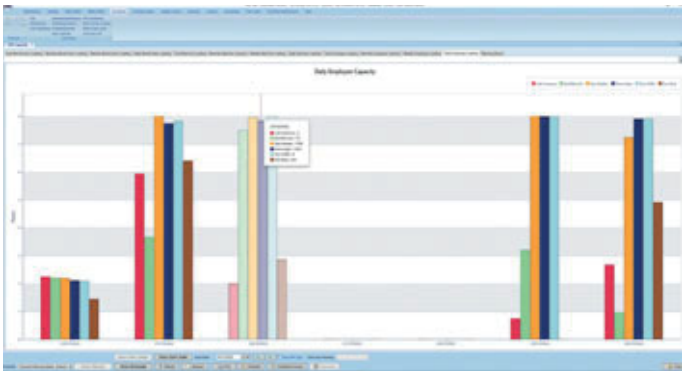
The system's APS offers users a comprehensive yet intuitive interface to plan workloads on the shopfloor for the coming days, weeks and months. The development team at MIE Solutions has always strived to improve the system in all areas, taking into account continued feedback from over 10,000 users worldwide.

Legacy systems would often only have the functionality to look at a single resource, whether that be based around machinery or personnel. However, the reality is that in a lot of environments, both of these need to be considered simultaneously in order to truly simulate what is possible in terms of production output on the shop floor. Furthermore, taking into account the expected delivery dates of job specific purchase orders further adds to the realism with the effect it has on when work can be started.

With employee constraints factored in, MIE Trak Pro takes into account both the availability and skill level of personnel on the shop floor. In terms of availability, employee shift patterns and annual leave are considered resulting in a true reflection of overall capacity. In many industries, certain processes can only be carried out by employees who have the required skill set/qualification level. The skill set in question may be process specific or part and process specific, resulting in a need for granular planning and accurate employee 'work-to' lists.

Sam Hawkes, sales director, explains why this level of functionality is so important: "Our aim is to develop the scheduling module to be as close to reality as possible in order to allow users to plan production workloads accurately and efficiently. Although advances in technology have removed the skill set barriers for certain machines and processes, there are still many operations, for example welding, that provide such obstacles."

The procedure of advanced planning requires a simulation to take place in order to plan and prioritise all outstanding work that still needs to be manufactured. Previously, this had to be actioned by a user, most commonly at least once a day in order to update existing work and account for new work that had since been added into the system. MIE Solutions identified this as a task that could be automated and so, as a result, it added an auto-run function which schedules the APS at set



times throughout the day without the need for any human intervention.

Technical director, Chris Mann explains how this will benefit users: "Automation and software come hand in hand and so anything that can be automated can lead to efficiency improvements throughout a business. The addition of the APS auto-run removes the burden from the user and also ensures that the production plan is up to date for the benefit of the shop floor, with the latter being beneficial for companies who work out of hours shifts where there might not be anyone in the office to carry out the task manually."

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Email: sales@mie-solutions.co.uk www.mie-solutions.co.uk

Stand B230

Full speed ahead

Mills CNC to showcase an advanced high-speed machining centre at Southern Manufacturing

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, has announced that it will be showcasing a recently-introduced DN Solutions' high-speed machining centre on its stand at the Southern Manufacturing Show in February 2023.

Committed to providing best-in-class machining solutions, designed to improve customers' productivity and process efficiencies, Mills CNC's stand is expected to be popular with manufacturers looking to maintain their competitive edge.

SVM 4100 machining centre

The SVM 4100 is a high-speed vertical machining centre that made its UK debut on Mills' stand at MACH 2022 and is designed to help manufacturers reduce part processing times, especially when machining aluminium alloys and for the light-duty machining of steel components.

With fast acceleration/deceleration rates,

0.72/0.6/0.6G on the machine's X-, Y- and Z-axes, impressive tool-to-tool change over times, 1.3 seconds and boasting 36m/min rapids on all three axes, the SVM 4100 gets down to business fast. It dramatically reduces non-cutting times and, as a result, part cycle times too.

The machine's speed and power is further enhanced by its 18.5 kW/12,000 rpm/ 95.5 Nm directly-connected BT 40 spindle which also features the Big Plus face and taper dual contact system and an integrated thermal displacement correction system to ensure and maintain high accuracies even during long machining runs. It features a generous sized 920 mm x 410 mm worktable with a 600 kg maximum table load, said to be the largest machining envelope in its class, as well as a 30-tool position ATC with a fast 1.3 second tool changeover time. The grease lubrication system eliminates the need for oil skimmers and reduces lubrication costs by up to 60 percent. It also comes with an advanced FANUC i Plus control with a 15" touchscreen iHMI. The SVM 4100 delivers speed, power, precision and reliability in a compact footprint.

Tony Dale, Mills CNC's CEO says: "The Southern Manufacturing Show is an ideal platform for us to demonstrate the productivity potential of our latest high-speed machining centre."

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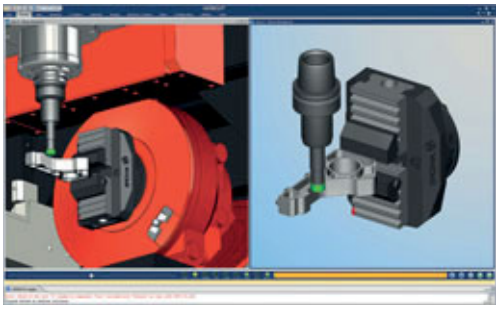
Email: sales@millscnc.co.uk
www.millscnc.co.uk

CGTech to show latest VERICUT enhancements at Southern Manufacturing 2023

At Southern Manufacturing the CGTech team will be demonstrating the latest release of its simulation software, VERICUT 9.3 VERICUT is a leader in simulating CNC machining to detect errors, potential collisions and areas for improvement. The software operates independently, but also integrates with all leading CAM systems.

Throughout the event, the CGTech team will give demonstrations of its leading solutions for verification, simulation and optimisation of NC programs, including the latest features available in VERICUT 9.3, such as the Tool Performance Database and Machining Optimisation Data in Tool Manager, and other improvements to VERICUT's core functionality. Gavin Powell, managing director of CGTech says: "VERICUT 9.3 provides smarter data for smarter manufacturing, giving our customers a 'cutting edge'."

CGTech will also demonstrate VERICUT's Force optimisation module. VERICUT + Force provides an integrated simulation-



optimisation solution that can significantly reduce machining times, improving cutting tool and machine life. New and legacy NC programs can be optimised with Force to run as efficiently and safely as possible. Force is available for milling, turning and mill-turn machines. "With enriched machining metrics, Force feedrate and tool deflection optimisation, the latest VERICUT release creates the most highly optimised, yet safe to run NC programs for any CNC machine," concludes Gavin Powell.

Southern Manufacturing and Electronics is a comprehensive annual industrial exhibition in the UK and a major pan-European showcase for new technology in manufacturing, electronic production and engineering.

CGTech's VERICUT software is a leader for CNC simulation, verification, optimisation, analysis, and additive manufacturing. CGTech also offers programming and simulation software for composites automated fibre-placement, tape-laying and drilling/fastening CNC machines. VERICUT software is used by companies of different sizes in all industries. Established in 1988 and headquartered in Irvine, California, CGTech has an extensive network of offices and resellers throughout the world.

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Stand C215

Connective metrology solutions

Bowers Group will be exhibiting a range of connective metrology solutions at Southern Manufacturing. Visitors can expect live product demonstrations to illustrate how effective data transfer between measurement equipment and applications can boost manufacturing productivity.

On display will be a range of Bluetooth enabled hand tools and height gauges working in conjunction with Sylvac's Sylcom software, showing how connectivity can improve efficiencies and reduce errors. Visitors will have the chance to see Bowers' Made in Britain registered, digital external micrometer, DigiMic, which features advanced, built-in Bluetooth connectivity. Offering quick, simple and highly accurate measurements, the DigiMic can be easily integrated into any Industry 4.0 / SPC system.

The latest addition to optical measuring systems from Sylvac, the Sylvac Scan S25T, will also be present on the Bowers Group stand. Using the latest Sylvac-Scan technology, this high resolution & high accuracy machine is ideal for rapid measurement of small cylindrical parts up to 26 mm diameter and 200 mm in length. Delivered automation ready, the Sylvac Scan S25T comes equipped with Sylvac's renowned tilt axis, for comprehensive thread measurement, capable of measuring threads with helix angles up to 30 °.

The Venture XT, Baty's highly flexible multi-sensor vision system will also be on the stand, demonstrating the latest Fusion Software release featuring lens error mapping and off-line vision/touch-probe programming from CAD. The combination of contact and non-contact measurements in the same automated inspection, combined with ease-of-use and graphical reporting, make Baty's Venture XT a cost-effective measurement solution for both production cells and QC labs alike.

Bowers Group sales manager Ryan Kingswell says: "We are delighted to be exhibiting at Southern Manufacturing again, where we'll have the opportunity to demonstrate our skills and capabilities as a full metrology solutions provider specialising in connectivity. In addition to our own manufactured products, we will also be demonstrating products developed by our partners which complement our entire service offering."

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Stand L240

Automate your inspection tasks with the latest low-cost AI systems and robot loaded metrology products

The ever-increasing pressure on the 'bottom-line' and a shortfall of workers means that the demand for automation in visual inspection is accelerating. Optimax will showcase Inspekto at Southern Manufacturing; this system is a revolutionary, low-cost, dynamic AI-guided visual inspection tool for the characterisation of good and bad parts.

If you love your existing profile projector but find overlays are expensive, results dependent on the operator and ineffective reporting, Optimax has the answer. Welcome to the HDV Series Digital Video Comparator, the next generation of profile projectors from Starrett. It includes everything you like about your old profile projector with the added advantage of CAD generated digital overlays and reporting and image capture.

At the exhibition, Optimax experts will be on hand to discuss the latest innovations from Bruker Alicona, Vision Engineering, Starrett, Hawkeye Gradient Lens and Inspekto. As well as the Inspekto and HDV Profile projector, visitors will be able to see the Alicona Infinite Focus SL, the ultimate non-contact optical 3D surface characterisation and roughness measuring tool and the Evo Cam II, a high-performance, full-HD digital microscope with outstanding image quality.

Optimax aims to ensure your organisation's inspection and measurement is accurate reliable and repeatable, on time, every time So, whatever your application, it has the solution. Visit the company on stand D109 to see how it can improve your efficiency and productivity.

Grab yourself a free ruler and join Optimax for a demonstration and the chance to be hands-on with the latest range of inspection and metrology instruments.

The company has hand-picked some of the very latest inspection technologies, from established, leading-edge manufacturers, to bring you a core of products that encompass quality, technical excellence and value for money. It enjoys seeking out the very latest innovations and designs to ensure the widest choice.

The Optimax team is made up of dedicated technical, sales and support staff, who like to work alongside customers to make a difference. It understands that optical inspection and non-contact metrology are helping to shape the future of industry.

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Stand - D190

5-axis solutions from Mazak

Yamazaki Mazak hosted a week-long experiential Open House in December which focused on overcoming the biggest production challenges facing customers. The 'Discovery Week' was focused on helping machine tool and laser processing users find solutions to a host of productivity-led challenges to improve efficiency and minimise downtime.

The event, which was hosted throughout Mazak's European Manufacturing Plant and Technology Centre in Worcester, was supported by over 25 partners with expertise in tooling, tool management, swarf management, CADCAM and finance.

There were more than 20 machines on display, including live cutting demonstrations on a range of 5-axis, horizontal, vertical, CNC turning and laser processing machines, many of which were equipped with third-party automation systems.

Alan Mucklow, managing director for the UK, Eire and national distributors at Yamazaki Mazak said: "Discovery Week honed in on the importance of collaboration to achieving innovation. Identifying and rectifying productivity-inhibiting factors is vital to boosting output. By bringing together experts from across industry, from tooling and tool management through to CADCAM and finance, visitors were able to develop real-time solutions to ramp up productivity going into 2023.

"Our customers are still telling us they are very busy and that is not just here in the UK, but across Europe and, to a certain extent, globally. It is key that subcontractors are forward thinking in their investment plans. In terms of 5-axis, we have made a real effort over the past number of years to focus on bringing 5-axis to a wider audience. The CV5-500 that we developed here in the UK, which we are very proud of, has been a real success story for us not just here in the UK, but across the wider European marketplace."

The event was supported by Mazak's extensive UK Applications Engineering team who were on hand to guide visitors through the extensive range of technologies on display

New Mazak CV5-500 arrives at SolidCAM UK Technology Centre

SolidCAM UK has announced the arrival of its new CV5-500, from machine tool partner Yamazaki Mazak UK, at its Technology Centre based in Barnsley. The high-accuracy machining centre is said to be an invaluable addition to the centre, in demonstrating the power of simultaneous 5-axis technology.

The UK and Ireland CADCAM reseller has welcomed the new CNC machine with open arms into its Technology Centre, stating that the partnership between the two companies will provide the ultimate total manufacturing solution to manufacturers. Visitors will be able to witness first-hand how the high-speed, high-accuracy CNC machining centre, combined with the right software, will increase the productivity and efficiency of any workshop.

The UK-made CV5-500 defines a new standard for 5-axis machining offering exceptional value and, paired with SolidCAM simultaneous 5-axis technology, it will provide remarkable results. This CNC machine will be used to demonstrate tested and proven special 5-axis strategies and features such as Barrel Cutting, SWARF Machining, Rotary Machining, Multi-Blade Machining, Edge Breaking, Edge Trimming, Multi-Axis Machining and Port Machining. The software user-friendly interface, collision checking and advanced control over all aspects of the toolpath will be witnessed during live cutting events, practical training sessions and live cutting webinars.

Gordon Drysdale, managing director of SolidCAM UK Ltd says: "This represents a significant investment for SolidCAM UK and a great addition to our Technology Centre. It gives our customers and potential customers the opportunity to witness, during our live cutting events, the power of SolidCAM with iMachining and Simultaneous 5-axis strategies. Mazak represents quality and performance in the marketplace and SolidCAM are proud to be associated with this superior brand name."

Alan Mucklow adds: "The CV5-500 can deliver a step-change in productivity for both seasoned 5-axis users, as well as those looking to take their first steps in the technology. From its high-rigidity bridge construction and newly designed constant overhang headstock, to its ergonomic design and easy integration with ancillary automation systems, the CV5-500 is every inch the modern machining centre. We are delighted SolidCAM UK has chosen to invest in a CV5-500 and look forward to working closely with the team and their customers."

Subcontracting start-up aims to plug 5-axis capacity shortage

A new subcontract manufacturing start-up is aiming to help plug the UK's 5-axis capacity shortage with a state-of-the-art machine manufactured by one of his former employers.

Jonathan Butler set up Butler Precision Engineering, based in Netherton near Dudley in the West Midlands, with the help of a Mazak VARIAXIS C-600 5-axis machining centre. He explains: "It's been a longstanding ambition to run my own precision machining company and there has never been a better time to make the plunge. There is a real gap in the market for 5-axis capability due to limited machining capacity in the UK, which leads to too much work chasing too few available

machining hours. My hope is that Butler Precision Engineering and the VARIAXIS can help plug the gap."

After being operational for only a few weeks, Butler Engineering secured two contracts for turbine blade work and medical equipment. "We're getting a lot of interest, particularly from customers who want to use us as a development shop or for prototype work, which is perfect for the VARIAXIS."

Jonathan Butler has thirty years' experience in engineering including time with Renault Formula 1 as a machinist and programmer, as a machine shop manager for a fabrication company and, most recently, as an engineering consultant for Quickgrind, travelling around the world offering advice on tooling and programming strategies.

During his time with Mazak, he learned all about the VARIAXIS i-600 machine, the forerunner to the C-600, as an application engineer: "It was my job to know the VARIAXIS like the back of my hand, so when I decided to take the plunge and set up my own business there was only going to be one machine that I wanted. You've got to know and trust the technology you're working with."

The VARIAXIS C-600 is designed for high accuracy machining of components. His machine is equipped with Hypermill programming, Quickgrind tooling and Renishaw Set and Inspect software.

"Other machines can do a job, but it's important for our customers that we get it right first time and that meant going for the best technology available. When you are looking to break into sectors like motorsport, aerospace, medical and die and mould work you must be able to guarantee the highest levels of accuracy."

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The M30 Millturn – a machine with a long history

The M30 Millturn is one of the most popular and successful WFL machines in the extensive Millturn range. The classic Millturn complete machining centres ushered in a completely new era in its original version more than 25 years ago. After all, this machine was the first WFL Millturn with an individual tool carrier for turning, drilling and milling with a B-axis. Many of these old M30 machines are currently still in use. When taken good care of, the oldest member of the Millturn family still delivers top performance even after many years. Ultimately, supreme quality and lasting accuracy are among the virtues of all WFL machines. This article takes a closer look at one of these proto-Millturns.

Although the details of the current design have very little in common with its original version, the basic structure with the stable 60° slant bed is still there. Particularly noteworthy features include the powerful headstock with 37 kW main drive and 2-speed gearbox as well as external C-axis. Although the design dates back to the earlier Voest-Alpine WNC slant bed machines, it is still used in the latest Millturn models of the M35, M40 and M50 series with modernised drive motors. Water-cooled direct drives are available as alternatives nowadays.

The first machines in the M30 series still had a 24-space magazine with automatic tool changer permanently mounted on the milling unit. Back then, it was a reliable and practical solution. But not long after, this magazine was replaced by an external magazine over the left-hand headstock that was much easier to operate and had an initial capacity of 48 tool stations, which was a lot back then. This made setting up the tools parallel to machining time possible for the first time. The capacity was then expanded to up to 96 tool stations. Modular systems such as HSK50, Capto C4 and KM50 were already available as tool systems. Due to the higher power and stricter stability requirements, the system size had to be increased to HSK63 or Capto C6 for the current models. Even back then, the machine was offered with an optional lower 2x24 disc turret and counter spindle.

The Siemens Sinumerik 880T was initially used as the control system for the first machines. The data memories of this control system were still in EPROM form and were therefore only writeable and erasable with a special device. The newer machines made back then were then delivered with the Sinumerik 840 C. This version already had a hard drive for data storage.

Depending on the configuration, the machine had up to nine NC machining axes and was even capable of performing 5-axis interpolations. However, due to the lack of corresponding software solutions for the programming, this was a difficult and laborious undertaking back then. Thanks to the B-axis with 7.5 kW milling drive and 4,000 rpm, complex and highly precise oblique machining was possible with high productivity.

At the time, a new feature was the use of a compressor cooling unit to stabilise the temperature of the turning-boring-milling

Up to nine machining axes including the option of 5-axis interpolation was possible at WFL even 25 years ago. The design with the bottom tool turret and counter spindle allowed for maximum productivity and flexibility

The modern M30 (above) with the legendary ancestor (below)

unit. This made it possible to perform lengthy milling operations with a high output. However, the high continuous speeds were the Achilles' heel of the turning-boring-milling unit, because the permanent grease lubrication was simply not sufficient. It was only with the newer models, which featured oil mist lubrication, that this problem was solved. However, even back then it was possible to use large milling cutters and drills even for heavy roughing cuts, since the milling unit achieved maximum performance even at lower speeds due to the gearbox design. When it came to turning, the machines were unbeatable anyway. The machines were predominantly used in the aerospace industry, in the automotive sector, for hydraulic components, in the demanding field of mechanical engineering as well as in tool manufacture and medical technology. Typical areas of application were complex precision parts made of materials that are difficult to machine.

The successor models still benefit today from the experience gained from the large number of customer requests granted over several decades. The expectations placed on WFL are accordingly high. Ultimately, the machine is the means for exploiting all technological possibilities to the maximum. Then, as now, technological innovations require a solid foundation.

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Ultra-precision machining within one-third of a micron

In the production of many optical components such as lenses and mirrors, the specified form accuracy and surface roughness are generally an order of magnitude higher than for other machining processes. That is why Son-x GmbH in Aachen, Germany, a spin-off from the famous local Fraunhofer Institute for Production Technology, uses a 5-axis machining centre built in Soltau by another German firm, Roeders. The manufacturer's machines are available in the UK and Ireland through sole agent Hurco Europe.

Son-x manufactures metal components made from various alloys, including high strength steels, as well as parts made of clear plastic. Quantities range from single pieces to several hundreds per year, while dimensions extend from a few mms up to half a metre diameter, for example in the case of metal mirrors. Sectors that use the components produced include optics, laser, sensor, astronomy and research. Additionally, moulds are machined for producing lighting systems used in the automotive industry.

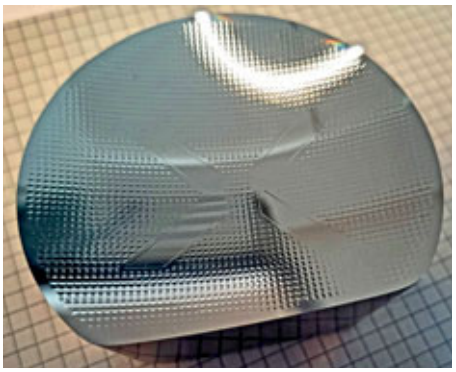
Dr Ing-Olaf Dambon, a director of Son-x states: "Our early work involved ultra-high-precision diamond turning, but parts started coming along that needed a prismatic machining platform able to achieve similar accuracies.

"We drew up a specification sheet for the machine we wanted and designed a challenging test part to ask prospective suppliers to produce. Five machining centre manufacturers were shortlisted, including three from Japan, but we chose the Roeders because its trial machining results were the best."

An order was therefore placed for a Roeders RXP 601 DSH 5-axis machining centre, which was delivered in October 2018. Dr-Ing. Benjamin Bulla, another director of Son-x comments: "In view of our high precision requirements, machine rigidity, smooth running and thermal stability were high on the list of priorities.

"The Roeders machine appears rather large at first glance for the size of work we undertake. However it was precisely this mass, as well as the measures taken by the manufacturer to ensure high precision machining, that meant it was the right choice for us."

He explains that milling complex optical arrays with hundreds of tiny cavities for lenses sometimes takes more than 50 hours. Throughout this time, the machine's reference point must remain extremely stable to ensure the exact alignment of each lens. The RXP 601 DSH achieves this, he says, due to its linear direct drives, high-precision linear guideways with frictionless weight compensation in the Z-axis and high accuracy optical scales.



A mould insert made of hardened tool steel on the Roeders RXP 601 DSH 5-axis machining centre. The high gloss finish is achieved without manual polishing

With its Racecut functionality, the Roeders control system compares the actual and target positions in all axes 32,000 times every second, compensating for even the most minimal path deviations as they occur. Exceptional thermal stability is provided by a medium, temperature controlled to ± 0.02°C, circulating through all important components of the machine. The temperature of the production environment is also kept stable by an air conditioning system.

The machine is equipped with a Levicron air bearing spindle capable of rotational speeds up to 60,000 rpm. Thanks to its smooth running and good damping characteristics, it ensures the production of top quality surfaces in all materials. As this eliminates the need for manual reworking, it also prevents the consequent, often unavoidable distortion of the surface and geometry of the component.

Dr-Ing Benjamin Bulla concludes: "We have many jobs that run for extended periods, so the long-term stability of the machine's reference point is crucial.

"In one instance we had to mill moulds for arrays of hundreds of plastic lenses whose shape had to be controlled to within 316 nanometres.

"This tolerance was reliably maintained throughout 50 hours of machining, even for the last lens in the array. We are highly satisfied with the results."

Dr-Ing Benjamin Bulla (left) with Dr-Ing Olaf Dambon

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Process-safe 5-axis universal machining up to 1,000 kg

The new DMU/DMC 85 H monoBLOCK from DMG MORI is ideal for users in the mechanical engineering, die & mould, aerospace and semiconductor sectors.

With the DMU H monoBLOCK series, DMG MORI has successfully implemented its customers' requirements for flexibility, process reliability and automation. Now the machine tool manufacturer is presenting the new DMU 85 H monoBLOCK and DMC 85 H monoBLOCK in the version with pallet changer as a consistent expansion of the series.

Thanks to the ideal chip fall, horizontal 5-axis simultaneous machining allows process-reliable production of complex workpieces. In the case of the DMU/DMC 85 H monoBLOCK, travels of 850 x 1,150 x 900 mm serve a wide range of components. The long Z-travel makes this size ideal for deep hole drilling. The swivel rotary table, which is mounted on both sides, can support a load of up to 1,000 kg, 800 kg for the version with pallet changer. It can be used for the 5-axis machining of individual parts as well as series components on clamping towers. The solid basis for precise machining is provided by the inherently rigid machine bed, the horizontal gantry concept, the thermosymmetrical design and the integrated cooling concept. Linear drives in the X and Z axes and a direct drive in the C axis also ensure maximum dynamics, while speedMASTER spindles also allow high-speed applications.

Flexible automation solutions for single-part and series production

To increase productivity, the DMU 85 H monoBLOCK and DMC H 85 monoBLOCK can be automated according to customer specifications both for individual parts and in series production. For the former, for example, the new PH Cell 2000, a retrofittable handling system for up to 21 pallets and workpiece diameters up to ø 1,100 mm, is available.

The DMC H 85 monoBLOCK has an integrated pallet changer, which already enables setup in real time. A Linear Pallet Pool (LPP) and the PH-AGV are available for linking several machines with an automation system. The WH FLEX is also available for series production with a changing parts spectrum. This makes the DMU/DMC H 85 monoBLOCK an investment for the future that enables users to produce economically from batch size 1.

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Multiple rewards from Starrag's new Heckert T55 multi-tasking machining centre

Starrag has announced the second and larger capacity member of its new Heckert range with the launch of the Heckert T55 5-axis horizontal machining centre for the multi-tasking and complete machining of workpieces weighing up to 700 kgs.

The machine can perform single setup turning, milling, drilling, gearcutting/skiving and pointing to accuracies down to three microns. This is due to the interaction between its temperature and vibration-stable mineral cast machine bed and the double symmetrically-mounted rotary drive unit.

Drive elements such as planet carriers and wheel hub drives for commercial vehicles, agricultural machinery and industrial applications are typical applications, says Starrag.

With pallets of 500 mm x 630 mm and X, Y and Z axes travels of 850 mm, 1,020 mm and 1,000 mm, respectively, the T55 is of compact, robust design and has a low-vibration rotary drive unit specially designed for turning operations. It also has a highly dynamic main 72 kW spindle rated at 15,000 revs/min and 292 Nm. Acceleration rates are up to 10 m/sec² and rapid traverse is 80 m/min. The NC rotating table is rated at 900 revs/min and the HSK-T100 toolholder also encourages high chip removal rates.

While the T55 can machine components with a workpiece contour of 900 mm, chip-to-chip time is only 4.3 sec and pallet change time is 14.5 sec. Like its smaller stablemate the T45, the new T55 is ergonomic and easy and reliable to operate and workpiece loading is easily automated by pallet storage units or robots.

Indeed, the success of a two-T45 machine cell with robot load/unload saw a drive manufacturer double productivity, halve overall machine footprint and reduce tool and handling costs by 40 percent. This could easily be mirrored by the T55 on larger workpieces, such as planet carriers or wheel hub drives, suggests Starrag.

Starrag Group is a leader in manufacturing high-precision machine tools for milling, turning, boring and grinding workpieces of metallic, composite and ceramic materials. Its principle customers are internationally active companies in the aerospace, energy, transportation and industrial sectors.

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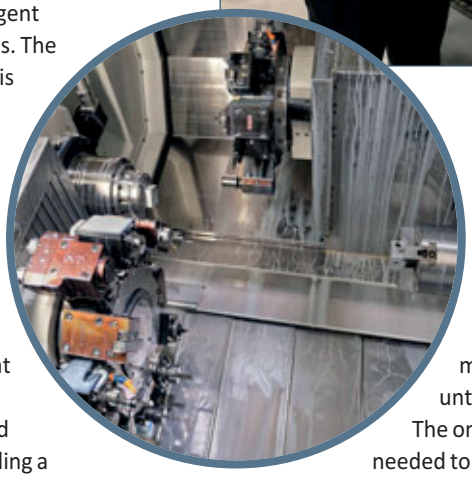
One-hit turn-milling raises productivity, reduces lead-times and saves the cost of fixtures

Subcontracting firm Mintdale Engineering, Chesterfield, is run by four members of the Toyne family, managing director Chris, his wife and company secretary Christine and two other directors, their son Jason and his wife Julie. The company specialises in CNC turning of bar, tube and billet as well as CNC milling on five vertical machining centres (VMCs). It operates twice as many machines for rotational parts production as for prismatic, although the borderline between the two is increasingly blurred these days.

Take for example an aluminium gas regulator base produced on the company's latest turning centre, an Italian-built Biglia B465 T2 Y2 twin-spindle, twin Y-axis turret model supplied in spring 2022 by UK and Ireland sales and service agent Whitehouse Machine Tools. The 1.25 inch high cuboid part is machined from 2 inch square bar fed by an LNS Quick Load Servo 80 S2 short bar magazine.



The component, which Mintdale Engineering has been producing for 22 years, was latterly machined 20 at a time on a twin-pallet-change VMC. Op 1 involved machining three sides, milling a circular pocket, drilling various holes and then tapping them, while Op 2 after pallet change completed similar features. Floor-to-floor time per base was two minutes.

On the Biglia, the part is produced in one hit and requires only a small amount of face turning and parting off, the remainder of the cycle being prismatic machining. Both live turrets are deployed at the main spindle for some of the time, followed by simultaneous machining at both spindles using the two tool carriers. Although cycle time is three minutes, i.e. 50 percent longer per part than before, the big advantage is that production is unattended, unlike on the VMC. The finish-machined components pass through the counter spindle onto a conveyor feeding a Hydrafeed Rota-Rack parts accumulator.

The lathe continues producing throughout the day shift, after which 100 parts can be added by running the machine lights-out until the bar is used up. The only special items needed to realise this application, which represents a good balance between main and counter spindle operations, were a spindle liner and a bar feed attachment for the square stock.

Another component produced more efficiently on the B465 T2 Y2, this time from 3 inch diameter round brass bar, is a conversion body for legacy gas delivery systems used in hospitals. The so-called Mark III component formerly required four operations: milling on a VMC and turning on a single-turret lathe, followed by two further separate visits to different VMCs for more prismatic operations and engraving.

The large amount of handling and clamping in bespoke fixtures meant that floor-to-floor time was long. There was a lot of work-in-progress, which extended delivery lead-times and was also costly, as the material had been purchased but invoicing was delayed.

This is in the past now that the part is turned, milled and drilled complete in the Biglia in a five-minute cycle. That is quicker than just one of the previous VMC operations. Moreover no special workholding is needed, which would add expense and cause unnecessary delay to the delivery of the first batch of parts.

A third part that has been transferred to the Italian lathe is a Mark IV version of the gas delivery conversion body, turn-milled from the same brass bar. It used to be produced in two operations on a chucking lathe on which a special jig was made for holding the irregularly shaped Op1-machined billet to enable Op 2 to be carried out.

The extended floor-to-floor time for producing batches of the components is eliminated by the Biglia's ability to machine the component in one hit from bar in a five-minute cycle. Again, the cost of making a fixture and of work-in-progress is avoided.

High metal removal rate is now achieved by balanced milling at the main spindle for some of the time using cutters in both the upper and lower turrets simultaneously. The profile of the part is also milled and a bore is drilled

before parting off and synchronous transfer to the sub-spindle. Here, the back face is milled, various holes are drilled and the bore is finished.

As part of the machine sale, Whitehouse Machine Tools wrote the programs for producing both the Mark III and Mark IV conversion bodies, the cycles only needing slight adjustment by Jason Toyne. He commented that the service Mintdale Engineering has received from the supplier is "faultless".

Indeed it has been from the very start, when the subcontractor approached three potential suppliers for a twin-spindle, twin-turret CNC turning centre and Whitehouse Machine Tools' response was noticeably the best. Originally Jason Toyne was looking for a 64 mm bar machine, so the fact that the competitively priced Biglia can handle 80 mm bar was a bonus.

Jason Toyne says: "Whitehouse showed far more interest in our enquiry than the other two machine tool companies, even though it had not sold us a machine before whereas the other two suppliers had.

"The agent was willing to write programs for us and provide comprehensive support at the outset to get us started and, unusually, they provide training free of charge for the lifetime of the machine."

The specification of the Biglia B465 T2 Y2 includes 80 mm diameter bar capacity, up to 200 mm turning diameter to a length of 350 mm, a 26 kW / 4,000 rpm main C-axis spindle, 11 kW / 5,000 rpm for the C-axis sub spindle and 12 live stations in each turret rated at 3.7 kW / 4,000 rpm, both having a 90 mm Y-axis stroke.

There are other notable features of the machine design. One is that the sub spindle moves in two axes, allowing it to be offset it from the main spindle to avoid tool interference between the two turrets. There is also a programmable automatic part unloading and bar end removal device, a programmable tool setter for both turrets, 40 bar high pressure through coolant and SBS tool load monitoring.

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Unique machining solution

GF Machining Solutions teams up with a cutting fluid supplier and toolmaker to create a unique machining solution

GF Machining Solutions, Fraisa and Blaser Swisslube have teamed up to develop the GR3 graphite machining system. Designed for wet-machining graphite operations, the system can also be used to machine other materials on the same machine even in the same setup.

The result is an efficient process that can achieve 0.005 mm tolerances while providing a healthier work environment and lower tooling costs. Wet instead of dry? It's a paradigm shift in mould making and for mould makers. The entire process, from creating electrodes right through to the finished moulds, can now be performed in a single setup.

"It's a perfect interplay between machine, metalworking fluid, filtration and tooling," says Martin Spencer, managing director at GF Machining Solutions (UK).

The Blasogrind GTC 7 from Blaser is the ideal coolant for this application as it absorbs the graphite dust, resulting in a much cleaner shop environment and healthier working conditions for machinists. It also reduces tool wear. Oil film reduces the degree of contact between the graphite and the tool surface, which further increases tool life longevity.

The technology offers outstanding advantages that includes better component quality, fewer rejects and significantly lower production costs. Costly multi-machine operation no longer is necessary for processing various electrode materials and the associated labour costs from setting up multiple processes is also eliminated.

Martin Spencer continues: "With this most recent innovation from GF Machining Solutions, we have not only solved the problem of dust build-up, but also now allow a single machine to be used for graphite, copper and steel machining."

All three of these materials can be machined in the same production system, without any manual intervention and with the same setup and tooling.

The system has been tested at Blaser Swisslube's Technology Centre in Switzerland, as well as in the metal cutting laboratories of Fraisa and GF Machining Solutions. A real-world component was simulated at all three sites during testing. In addition to the various tool coatings, numerous cutting oils were compared against one another during the rough cutting and finishing operations.

The test results reveal that this system will give mould makers longer tool life, better part finishes, optimised cycle times and substantial cost savings per machine per year.

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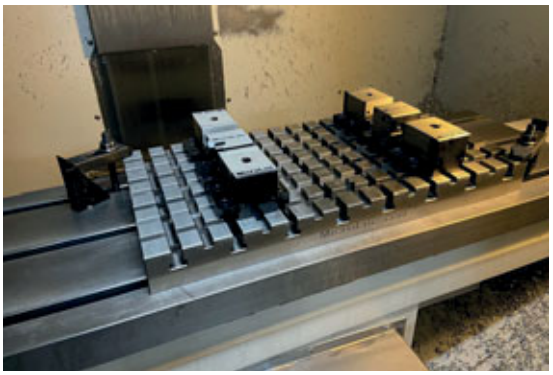
Subcontractor turns to Dugard

With the turned components at DGF Engineering Ltd increasingly needing secondary milling operations on machining centres, the Royston-based subcontractor recently acquired a SMEC SL 2000M turning centre from Dugard. Founded in 2005, the Hertfordshire manufacturer produces a diverse range of components for a variety of industry sectors. It is here the Dugard SMEC has made a difference.

Liam Fernard from DGF Engineering says: "We picked this machine, as we needed an upgrade. The machine that we had was only a 2-axis machine and we were getting more and more work that was needing additional milling work. This was tying up our CNC milling department for too long, we were looking around for a solution with live tooling. As we were happy with the service that we had received from Dugard on our previous acquisition, a Dugard 1000 3-axis VMC, we naturally looked at their lathes and this one ticked all the boxes."

The impressive SMEC SL 2000M slant bed CNC turning centre has a 570 mm swing over the bed and a 460 mm swing over the cross slide with a maximum machining diameter of 360 mm and a machining length up to 540 mm. The 8 inch chuck machine has a bore diameter of 76 mm that accommodates a maximum bar capacity of 68 mm. As with all machines in the SMEC range from Dugard, the SMEC SL 2000M is a powerhouse with a 15/18 kW spindle motor that drives the spindle at a speed up to 4,500 rpm and a 3.7/5.5 kW motor that drives the driven tooling stations in the 12 position tooling carousel. All this is packed into a machine that has a compact footprint with a total weight of 4,000 kg, demonstrating unrivalled rigidity and performance when undertaking heavy-duty machining operations.



Liam Fernard says: "We have a Hainbuch collet chuck on the main spindle with multiple collet sizes that allow us to hold up to 65 mm bar diameter. We have a bar puller on the machine instead of a barfeed, so that will pull the bar through individually. We have three radial and three axial live tooling positions and this allows us to do side milling and face milling to any capability. We also have the Siemens CNC control system and I love the Siemens control. It's just so easy to use and you can't really go wrong. It has a nice big touchscreen and soft key buttons and it's just all there. We also have a part catcher on the machine and this is a massive benefit to us. It helps on a production run as you can put a bar of material in and tell the machine to do 50 parts and then you are not scrambling around in the bottom of the machine to retrieve components or losing them in the swarf conveyor."

Liam Fernard adds: "We are a typical subcontract company, so batches are varied and volumes of up to 200 parts is a big batch for us. We will machine a bit of everything on this machine, there is no one product that we bought the machine for. It will help our production move much faster."

Concluding on the service from Dugard, Liam Fernard says: "The lorry was here one day to drop the new machine off and take the old machine away at the same time. The next day an engineer turned up to commission the new machine and we were up and running by the end of that day. Dugard has been excellent and the investment is 100 percent worth it.

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XYZ Machine Tools brings ground-breaking TMC machining centre to market

XYZ Machine Tools has a long-standing reputation of helping its customers grow and develop, with its range of machines from manual mills and lathes through to 5-axis machining centres facilitating this. Targeting the toolroom environment, the XYZ TMC (Toolroom Machining Centre) brings the added versatility of a toolchange system while maintaining the familiarity of the latest version of the popular ProtoTRAK control system.

The use of the RMX ProtoTRAK® control system will provide a high level of familiarity for existing users of XYZ Bed Mills and, for those not familiar, its touchscreen interface and many easy-to-use programming tools make the control ideal for low to medium production. Combining that with a fully enclosed machining envelope and either a 12 or 20 station automatic toolchanger ensures the XYZ TMC is the perfect machine for businesses to step up productivity in their low to medium volume activities.

The XYZ TMC range comprises four machines, all of which are based on its existing 3-axis linear rail vertical machining centre carcass. The TMC machines are available as 500, 750, 1000 and 1600 variants, with the number referencing the machine's X-axis travel. Equipped with fully enclosed guarding, 20 station toolchanger, 12 station on the XYZ 500 TMC, all models have a 15 hp, 11 kW, spindle power with 8,000 revs/min, 12,000 revs/min available as an option. The TMC series will take toolroom machining to the next level with volume batch work well within its capabilities.

The use of the ProtoTRAK control brings many advantages, which will be appreciated by existing ProtoTRAK users, such as the TRAKing® feature, which uses handwheel movement to prove the program. The faster you wind the faster it machines. Stop or reverse the handwheel and the machine does the same. Again, for those familiar with XYZ Machine Tools' ProtoTRAK bed mills the TMC series machines are fitted as standard with a remote handwheel to move all axes.

"With over 15,000 ProtoTRAK controlled mills and lathes installed in the UK extending the use of this versatile, flexible and productivity enhancing control will be a relatively straightforward step for many toolroom, low volume production environments." says Nigel Atherton, managing director of XYZ Machine Tools. "Throughout the past 1-2 years we have continued to innovate and these new developments will bring ProtoTRAK and XYZ Machine Tools to a wider audience."

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Quest for productivity leads to Nakamura

Based just outside Dundee, Quest Precision Engineering has been on a trajectory of continuous growth. The Scottish manufacturer initially acquired two Nakamura-Tome turning centres through the pandemic and it has just added another two of the turning centres to the plant list.

Now with four Nakamura-Tome WT150II turning centres from Engineering Technology Group's (ETG) Scottish distribution partner RAM Engineering & Tooling, the 20,000 sq/ft facility is filling fast with the industry's leading multitasking machine tools. Serving customers in the oil & gas, electronics, automotive and aerospace industries, ISO9001:2015 certified Quest Precision is well versed in machining everything from simple to the most complex of components. It is this requirement for one-hit machining of complex parts from challenging materials that led to the installation of the first Nakamura-Tome turning centre in December 2019, a twin-spindle twin turret WT150II. The impact of the Nakamura-Tome WT150II resulted in a second machine being installed four months later and this has now been followed by two more machines that were delivered at the end of July.

Before Quest installed its first Nakamura-Tome WT150II, it was machining autonomous valves for the oil and gas industry in five operations on four machine tools. The production of the complex 2-inch diameter Inconel 718 valves that control the flow of oil from wells was time-consuming and not cost-effective enough to compete with an existing Chinese supplier. To win more of the business from the overseas supplier, Quest needed to increase productivity and reduce costs. The answer was the Nakamura-Tome WT150II.

Discussing the situation, Quest Precision's managing director Gordon Deuchars says: "There are 25-30 different valves in the family of parts and for us to win more business, we had to increase throughput and reduce costs to be cost-competitive with China. Ross Milne from RAM Engineering & Tooling discussed the merits of a Nakamura turnkey solution for the valves and our decision was made. It has been such a success; the first two machines made a huge impact and brought us significantly more business. To support the subsequent growth and do more R&D work, we bought the next two machines."

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FANUC robots ensure labour saving, accurate and repeatable production for automotive parts manufacturer Sertec

Robotics specialist FANUC has supported robot integrator DForce Engineering with the design and installation of two complete automation cells, to produce aluminium underbody components for a prestigious automotive manufacturer.

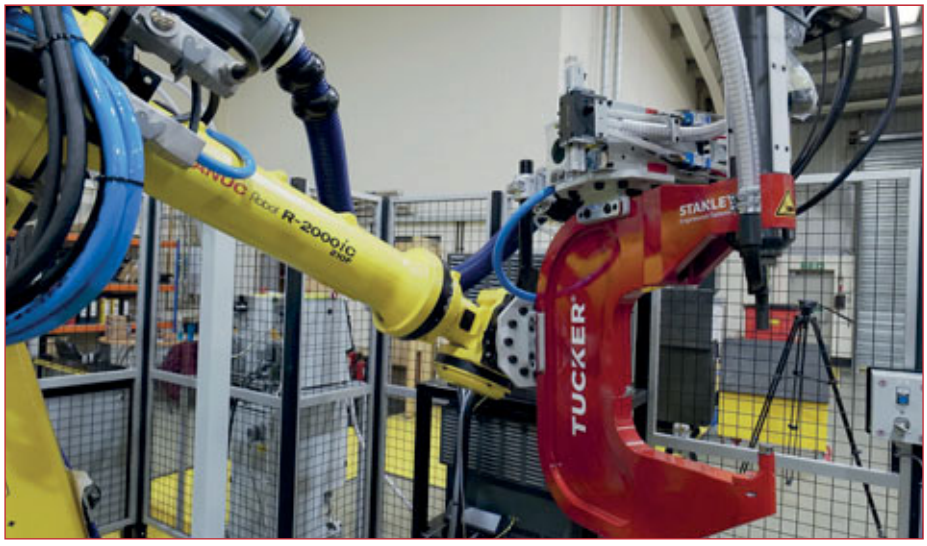
Leicester-based DForce Engineering Ltd has a portfolio of blue-chip clients in the automotive, nuclear and aerospace industries. The Sertec Group, a worldwide business in the automotive industry, is one of its key customers. The relationship has evolved from jig and fixture design to manufacturing, planning and software design, to full system supply. For its latest project, DForce sought the robotics expertise of FANUC UK.

With the arrival of a new vehicle concept, DForce's client Sertec sought two complete automation cells for the Self-Pierce Riveting (SPR) and Self-Pierce Studding (SPS) of aluminium underbody components as four complete sub-assemblies for its UK automotive production line. At the heart of each cell was a FANUC robot.

"FANUC robots are a benchmark in the automotive industry. They were a natural choice for this project," says DForce director Gary Hill.

Speedy simulation

The project was initially commissioned in December 2021 with the two completed cells entering production at Sertec in March 2022. The design of both cells took just eight weeks, with another 16 weeks required for manufacture and assembly. According to Gary Hill, FANUC's ROBOGUIDE system was essential to this rapid turnaround: "ROBOGUIDE was used to simulate both the robot's motion and its application commands, significantly reducing the creation of new motion setups. It enabled us to design, test and modify both cells entirely offline, before and during the assembly process."



ROBOGUIDE reduces the validation time for automation solutions during the concept stage. Customer part models and assemblies can be imported from a PC as CAD data and the software also features an extensive library that allows users to select and modify parts and dimensions as required.

"Simulating both the robot's motion and application commands, ROBOGUIDE significantly cuts validation time," explains Oliver Selby, FANUC UK's head of sales. "The in-built tools allow for a high degree of de-risking and ensure hassle-free installation down the line. It was the ideal choice for this project and really helped to speed up the design and modification process."

Precision and strength

As well as reducing design time, DForce wanted to make cost and space savings too, as Gary Hill explains: "We proposed using the

larger of the cells with the addition of RH & LH self-pierce studded assembly parts, running three different assemblies through one cell by using a FANUC R2000iC robot. This essentially cuts the cost, floor area and cycle times for Sertec by delivering two cells instead of three."

The first cell comprises two manual loading and unloading stations, each working seamlessly with a FANUC R2000iC robot. On one side, two assembly stations fix together both two and three components, a process requiring self-pierce rivets of two differing lengths and studs. The robot specified here, an R2000iC/210F, has a 210 kg Stanley Tucker dual-feed rivet gun attached and can accurately identify both the correct part and rivets.

"We needed the capacity of the FANUC R2000iC/210F robot, as the rivet gun is very heavy," says Gary Hill. "With this weight attached, the R2000iC/210F robot has to maintain both a positional and repeatability accuracy of +/-0.1 mm. The kinematics and precision are outstanding as the R2000iC/210F moves the rivet gun with exceptional repeatability, 24 hours a day. Once riveted, the robot moves the rivet gun to the dual rivet load docking stand to reload."

Labour saving

As the first process happens, the second manual load station in the cell is loaded with parts subsequently collected by the second FANUC robot, an R2000iC/165F. This picks up the first completed assembly using a double-sided gripper and transfers it to a TOX pressing machine inserting self-pierce studs. Once studs are inserted to join all three parts, the completed assemblies are removed from the TOX machine by the robot and transferred to the unloading conveyors.

Despite the differing payloads, the two R2000iC 6-axis robots both have an impressive reach of 2,655 mm, a compact 771 x 610 mm footprint and repeat accuracy of +/-0.05 mm, well within the requirements of this project.

Gary Hill says: "The cell has an output of over 80,000 parts per annum with a 96-second cycle time for the three assemblies, all of which require either studs or SPRs of varying lengths or both. This process used to take around eight seconds per stud adding on time for loading, unloading, re-positioning the part and waiting for the machine. With the new cell, the operator can spend 20 seconds loading the station and then move to another task while the cell processes the parts. This reduces time and labour massively."

Reliable and consistent

The second and smaller cell incorporates a manual load and unload station for two-part variants, as well as rivet bowl feeders with two different stud sizes. The FANUC M-20iA/35M robot transfers the assemblies from the manual load and TOX pressing station to the dual feed TOX pressing station while also selecting the suitable stud for the respective part.

"The FANUC M-20iA/35M robot is perfect for this cell as it's compact with a maximum payload of 35 kg. This is ideal for this assembly as the gripper is 28 kg and the assembly weighs just 2 kg," explains Gary Hill. "With space at a premium, the high inertia robot with its reach of 1,813 mm has a footprint of just 383 x 343 mm."

This smaller robot has a repeatability of +/-0.03 mm and can identify the different hole positions and rivet sizes and positions before pressing the 10 rivets through the holes for processing. "This cell requires four studs at the start position and another six throughout the process, all done automatically with precision, repeatability, consistency and speed," adds Gary Hill. "The cycle time for this cell is just 76 seconds, which once again allows the operator to load the station and do other tasks."

Guaranteed to deliver

Both cells provide quality assurance and consistency. Manual riveting is susceptible to human error, but the automated cells provide 100 percent consistent performance eliminating any potential operator error, as it monitors every step of the process.

"We're really pleased this project has run on schedule; FANUC has been outstanding," states Gary Hill. "The robots have delivered everything we have required with precision, speed and repeatability and FANUC's ROBOGUIDE compressed the timescale of the project immensely. In this instance, our customer is using a different PLC system on PROFINET and the FANUC platform is Ethernet. However, FANUC engineers supported us at every stage of the process and this further streamlined the project."

Oliver Selby concludes: "DForce were able to utilise ROBOGUIDE to afford their employees more time for value-added tasks. With recruitment and retention a concern for so many manufacturers, automation represents a cost-effective and productivity-boosting alternative. This project is a classic example of how utilisation of the correct tools can deliver real-world benefits to UK manufacturers."

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Robo-Trex boosts Oberon's performance

Established at the dawn of the millennium, Oberon Performance Ltd has gained a global reputation for the premium quality of its range of motorcycle accessories. Originally an engineering subcontractor, rather than rely on other business for work, the directors of Oberon Performance knew that the only way to gain complete control over the business' destiny was to establish a successful, in-house designed and manufactured product line.

The origin of the wished for range occurred on a fateful day in 2000. Having just bought a brand-new Suzuki 1200 Bandit motorcycle, a company director returned to the factory, only to discover that his paper tax disc was now totally unreadable due to the ingress of rain into its holder. Following a session on the company's CAD software, a superior waterproof tax disc holder was soon designed and Oberon Performance's first successful product was created.

Amongst many other high-quality motorcycle accessories, the company now manufactures, adjustable levers, billet headlights, brake and clutch lever protectors, clutch slave cylinders, mirror extenders, footpeg kits and handlebar risers. So successful have Oberon Performances products been throughout the world, the business no longer performs subcontract work, rather it concentrates solely on the design and manufacture of its popular motorcycle related products.

To ensure that the company's busy HAAS multi-axis CNC milling machine was able to reach its full productive potential and keep pace will demand for the company's products, Oberon Performance director Steve Evans recently investigated the available machine tool automation aids. Having compared the products of several leading providers, a recently installed Robo-Trex automation system was purchased from LANG Technik UK.

Steve Evans explains: "To help satisfy ever increasing demand for our products, we recently considered the purchase of another multi-axis CNC milling machine. Although, the lack of shop floor space meant that we needed to find an alternative, equally productive solution. We found the answer in a highly-efficient Robo-Trex automation system that is now feeding our existing HAAS multi-axis CNC milling machine. When compared to the new machine tool we contemplated purchasing, the recently installed LANG system occupies a much smaller footprint, it cost a fraction of the price and it has helped us to achieve the same increase in production as the new machine would have.

"Operating unattended and fed by the LANG Robo-Trex systems, our HAAS machine now runs unattended throughout each shift. Then when required, at the end of a working day, we are able to restock our Robo-Trex trollies with batches of workpiece blanks, allowing the machine to maintain unmanned production in a 'lights-out' mode throughout the night."

The LANG Robo-Trex robot system uses two high-capacity trollies that act as mobile storage mediums for multiple LANG vices that hold workpiece blanks. The system's operation is logical and trouble free, a robot picks a vice from the trolly, loads it into the machine tool and when the workpiece is fully machined returns the vice holding the completed component to the trolly. The cycle is then repeated. When filled with fully machined parts the trolley is removed and a replacement loaded with ready to machine workpiece blanks is added.

Two types of Robo-Trex systems are available, each with two capacity options. The smaller version, the Robo-Trex 52 trolly holds 30 vices, max. part size 120 x 120 x 100 mm, while the larger capacity Robo-Trex 52 trolly holds 42 vices, max. part size 120 x 100 x 70 mm.

The larger version, the Robo-Trex 96 trolly, has two standard trolly options. The first has a capacity of 15 vices, max part size 205 x 205 x 90 mm, while the second has a capacity of 16 vices, max. part size 205 x 150 x 150 mm. Each Robo-Trex system has an option to accommodate four trolleys. Therefore, depending on part size, the available storage capacity increases to 60/64 vices or 120/168 vices.

A simple to operate touch panel enables the easy setup and control of the automated system.

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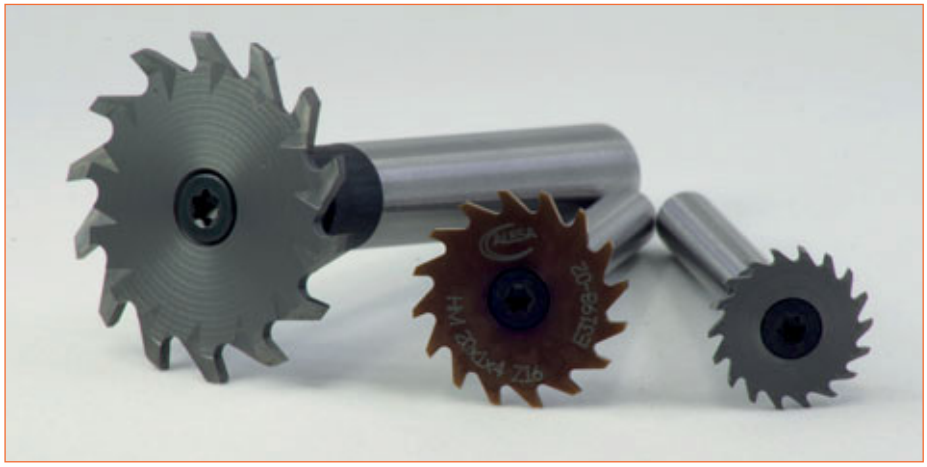

For the precision cutting of components and slots, Floyd Automatic Tooling has now introduced the new Nutex Star Mini system to complement the existing line of Nutex saws. The latest addition to the popular Nutex system now incorporates a powerful interface with small shank diameters that helps to extend the application possibilities.

Available with a complete range of saw blade diameters and widths with a comprehensive selection of toolholders, the Nutex Star Mini system is ideal for all machine shops. Precision cutting is assured with an innovative design that delivers precision, repeatability, ease-of-use and uncompromising tool life, regardless of the material being cut.

Precision cutting is derived from the saw and holder having an identically ground seven-cam interface. This makes the mounting of blades a self-centring proposition that is backlash-free. Furthermore, the saws can be hollow ground or in the known 'Plus' design with a side relief angle. The mounting process is rapidly conducted with precision credit to a central screw system that enables fast and easy fitting on the long solid carbide holders. The seven-cam design also ensures that cutting forces are transmitted evenly and tangentially. This enables significantly higher cutting forces to be transmitted through the system, especially when compared with rival systems that offer 2, 3 or 4 driving cams. The benefit for the end-user is twofold with improved precision and process reliability, especially when cutting challenging materials such as aerospace or medical-grade alloys that demand increased torque.

To enhance swarf removal and prolong tool life, Alesa has developed the Nutex Star Mini system with through coolant supply. The internal coolant supply delivers coolant directly to the saw surface via internal cooling channels in the tool shanks. The tool shanks are manufactured from steel or optionally solid carbide to enhance rigidity, performance, vibration dampening and tool life, they are also cylindrically ground to h6 with the option of a Weldon design.

The carbide saws are available uncoated or TiNox coated to cater for a complete range of material types. The TiNox coated blades are available with a 15, 20, 25 or 32 mm diameter with each diameter increment offering an effective cutting width of 0.5, 1, 1.5 and 2 mm with the larger diameter saws also having 2.5 and 3 mm increments. The arbors and saws are available in two star interface types, the type GS10 provides maximum performance and the type GS07 has been developed for maximum groove depth. Also available from 15 to 32 mm diameters, the uncoated saws provide an effective cutting width of 2, 2.1, 2.6, 2.7, 3.1 and 3.2 mm depending upon the chosen saw blade.

The toolholders are available with a steel, Type A6, or solid carbide shank, Type A5, with diameters of 6, 8, 10, and 12 mm with an overall length from 50.3 mm to 111.6mm. The benefits of this impressive new system include the radial and axial assembly with a very high repeat accuracy that is offered in an extremely large variety of cutting depths. If you would like to find out more about this exceptional new range please contact Floyd Automatic Tooling.

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Horn offers tools capable of turning and drilling

Under its joint sales cooperation with Austrian ISO tooling company Boehlerit, German cutting tool manufacturer Horn is offering customers the former's new Quattrotec tool system. Due to the special design, four machining operations can be performed with low vibration using just one tool: drilling into solid material, including off-centre, boring, facing and longitudinal turning.

The intelligent machining solution has even better performance than Boehlerit's Pentatec turning-drilling tool, which replaced up to five ISO tools and reduced machining times by up to 30 percent by reducing idle times and tool changes. Pockets in the tool magazine are also saved.

Quattrotec allows users to reduce costs across a wider range of metals. Material groups that may be machined include low and high alloy steels, stainless steels, cast irons, wrought and cast aluminium alloys as well as copper and its alloys bronze and brass. The tool programme comprises diameters of 10, 12, 16, 18, 20 and 25 mm.

Substrates are supplied in a range of hardnesses, combined with either a wear-resistant CVD (Chemical Vapour Deposition) coating or a universal PVD (Physical Vapour Deposition) coating. The Easy Safe System is a particular advantage of the tool, as a groove on the underside of the indexable insert ensures that it can be installed in the insert seat quickly and precisely without any possibility of error.

Boehlerit Quattrotec turning-drilling tools are now available from Horn

Machining of free-form surfaces

To highlight the numerous solutions it offers for milling free-form surfaces, German tooling manufacturer Horn, whose UK subsidiary is in Ringwood, points to a recent application involving the machining of a plastic injection mould for mass producing the lens for a headlamp. The large number of surfaces, shoulders and radii required the use of many different tools.

High-feed milling cutters with indexable inserts from Horn's DAH 8 system were used for roughing the mould. For finishing, different variants of solid carbide end mills from the Horn DS tool system were employed. In addition to various diameters of ball nose end mills, circle segment end mills were used. The advantage of the latter, in contrast to ball or torus milling cutters, is that fewer passes were required to achieve a given free-form surface quality, lowering the machining cycle time.

In the medical sector, a complex titanium implant was produced in a 5-axis machining centre using Horn DS titanium milling cutters. The shape of the implant comprises numerous free-form surfaces, has about 20 different radii and contains many fillets arranged at different angles. A milling cutter of 10 mm diameter, with a corner radius of 0.2 mm and another of 6 mm diameter with a 0.5 mm corner radius completed the roughing. For finishing, a 1 mm diameter end mill was employed.

The headlamp lens mould machined with various different types of Horn end mill

For the other operations on the implant, DS cutters of 10 / 6 / 4 / 2 and 0.6 mm diameter were used, as well as a 2 mm diameter ball nose end mill and a DCG solid carbide, coated thread milling cutter with three cutting edges. In a single pass, the tool mills a M 3.5 x 0.5 through-hole thread, which is 8 mm deep and inclined at 35 degrees. Milling two tapered recesses proved to be highly challenging. The 43 degree taper is about 2 mm and must end in a geometrically perfect apex, requirements that were met using a Horn micro milling cutter for the roughing and finishing passes.

The titanium implant produced using different Horn DS titanium milling cutters

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Reducing vibrations when machining aerospace components

Sandvik Coromant's CoroMill MH20 is optimised for component features with long overhangs

Engineers machining aerospace components cannot afford to make mistakes. Quality control standards for these components are incredibly high, which is amplified when using long tools to machine deep narrow pockets. Here, Sangram Dash, product application manager for Indexable Milling at Sandvik Coromant, explains how the CoroMill® MH20 high feed milling cutter can support error free production in aerospace component manufacturing.

Machining components for aerospace is challenging. Manufacturers produce components with thin floors and walls, deep pockets and tight corners. These features require a tool that is light cutting, offers high stability in operation and maintains stable control particularly when using long tools to mill deep narrow pockets.

A tool's ability to machine at long overhangs is an important requirement when milling deep narrow pockets, often the case when producing components such as supporting beams found in the sub-segment aerospace frame. These beams are often machined from forged titanium and, when paired with the requirement for long overhangs, creates a difficult machining environment with a high risk of vibration.

Machining vibrations can lead to superficial imperfections in the workpiece, which affects the quality of the final product. Other problems with vibrations include that chip thickness does not remain constant and, because of this, the cutting forces also vary. Vibrations can cause insert or tool breakage, in some cases.

Fewer corners

In response to this challenge, Sandvik Coromant has developed CoroMill® MH20, a new high-feed milling cutter designed primarily for milling cavities, or pockets, in ISO S, M and P materials.

The design of CoroMill MH20 has several innovations, including a new cutter body material that's been used for the cylindrical shank bodies to minimise wear and tear during machining. The material reduces chip rubbing and coining, which is when high stress or cutting forces create plastic deformation on the insert seat. The features of CoroMill MH20 will ensure a better tool life.

When designing the tool, Sandvik Coromant's engineers kept the stringent requirements of aerospace at the fore. For example, the tool is capable of completing several different feature operations which reduces the number of tools, changeovers and tool handling required during manufacturing. This helps reduce cycle times and improves manufacturing economics.

Furthermore, for the first time in high feed concepts, Sandvik Coromant has introduced dedicated insert geometries for different ISO areas for improved process security and productivity. In contrast to conventional four-edge insert concepts, the CoroMill MH20 has a two-edge insert. This is beneficial as it means the weakest section of the insert is far away from the main cutting zone, for greater reliability and protection against wear. It also means that machining against a corner or wall will not impact the next edge or leading corner, ensuring an equal performance per edge.

Another area of innovation is CoroMill MH20's insert cutting edge geometry. The sloped edge design delivers a gradual and light-cutting action, which requires less power consumption to enable the use of smaller machines. The optimised edge line of the main cutting edge and insert corner radius delivers further process security.

Precision machining

One longstanding Sandvik Coromant customer, an aerospace subcontractor, was experiencing issues while machining long and thin arbor components for aircraft. An arbor is a spinning component that attaches to the propeller and supports the bore that slides over the propeller shaft so the bore can turn freely and stably. The arbors, which were a new component for the customer, proved difficult to machine due to their eccentric and sometimes extreme dimensions and were impossible to turn in some cases.

As a consequence, pockets milled into the Inconel alloy workpiece were sometimes two to three mms off-centre. In addition, the customer's existing tool demonstrated very poor tool life and a lot of scraps that suggested poor machinery-to-tool connection. The arbor

components were even bending in some cases because the milling cutter was pushing on the component rather than cutting off the material.

Turn milling was identified as a solution, which involves rotating the workpiece around its centre point. This milling technique is often recommended in cases where a product's forms or shapes deviate considerably from those of conventional milling, as was the case with the arbors. However, when turn milling was initially tried the customer experienced problems with vibrations.

To resolve these issues, Sandvik Coromant recommended CoroMill MH20 for the turn milling operation. The milling cutter was chosen for its very light cutting action to prevent bending of the component, while give a more competitive price per edge. CoroMill MH20 integrated easily into the customer's setup. But, another challenge was that the customer had never used the turn milling technique before. Sandvik Coromant's specialists worked closely with them to explain the technique and provided recommendations and instructions for the CNC milling program.

CoroMill MH20 was used to machine Inconel 718 and A286, an iron-base alloy with high strength and excellent fabrication characteristics, which are each popular materials in aerospace. The tool ran at a cutting speed (vc) of 40 m/min, a feed per tooth (fz) of 0.3 mm/tooth and an axial depth of cut (ap) of 0.5 mm. Crucially, it was necessary for CoroMill MH20 to outperform the customer's existing tool within just 30 minutes of machining time, so to avoid the risk of vibrations.

In the end, CoroMill MH20 showed an improved service life. In addition, a big advantage of the tool was its very light cut, which allowed accurate machining that had been impossible with the previous tool and which could be achieved with increased cutting parameters and within the shorter 30-minutes machining time. Lastly, CoroMill MH20 achieved this with one or two fewer teeth than the competing tool.

Sandvik Coromant's cutting solution has opened up opportunities with pocketing for the aerospace subcontractor. By upgrading to CoroMill MH20, the customer has achieved a significantly improved tool life and more secure, vibration-free machining processes. With these advantages, the cutting tool has proven beneficial when precision machining tough materials, including at long overhangs, and particularly against the quality control standards for aircraft components.

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Three new and expanded product lines from ZCC Cutting Tools

ZCC Cutting Tools Europe has launched three new product lines and three expanded product lines for both milling and turning. The new EMP14 aluminium milling system, comprising roughing cutters for shoulder milling at precisely 90°, is a highly compact system that makes it possible to not only achieve a high feed rate when roughing, but also create ultra-high surface qualities when finishing. The wide assortment of nose radii that are available to choose from, 0.2–5.0 mm, means it is targeted at meeting the requirements found in the aerospace industry.

ZCC Cutting Tools' new FMR11 round insert milling cutter makes achieving maximum machining capacities a reality. Indexing on the durable milling body and the inserts ensures the optimum use of the cutting edge in a wide range of applications. The round insert delivers high feed rates and machining capacities and it is also well-suited for die and mould making.

The solid carbide milling cutters of 'high-speed full-slot milling' fame from the VPM series launched back in Spring 2022, which were specially developed for full-slot milling and applications involving large contact widths, are now also available as torus milling cutters in end and Quick-Change Head (QCH) versions. The VPM-4E milling cutters are now also available in Weldon versions. Much higher chip removal rates, coupled with the high process reliability that customers have come to know, are made possible by the VPM milling cutters' new geometry.

The established FMA12 face milling system, which is already cut above thanks to its large range of inserts and maximum efficiency, has now added another insert size to the mix: ONHU09T5. The new cutting geometries produce a smooth cut, thus reducing the amount of power that the machine needs to consume. The indexable milling cutters boast a high cost-benefit factor thanks to their 16 cutting edges.

The introduction of the zType threading inserts sees ZCC Cutting Tools change systems in high-quality thread machining. The new zType threading inserts' precision-ground cutting edges allow tool life to be increased by 20-30 percent, while the new chamfer design makes them highly compatible with commercially available systems, which provides a tremendous degree of flexibility.

Medium turning is made even easier thanks to the new XMH chip breaker. Its positive geometry makes it possible to achieve low cutting forces and high feed rates when machining steel. The XMH is a new addition to the X series, which also features the proven XF chip breakers for finishing and XM chip breakers for medium turning and is recommended for machines with low power consumption.

ZCC Cutting Tools Europe has a tradition to present a constant flow of new products and additions to existing series each spring and autumn to fill the gap between its yearly catalogues published every two years. Its sales team and distribution partners undergo special training so that they will be able to tell customers about the many advantages that the new products have to offer and give them the accompanying service and support whenever they need it.

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Tungaloy adds insert density and speed to shoulder milling series

Tungaloy has now expanded its industry-leading TungForce-Rec Series of square shoulder milling cutters to include size 12 inserts and associated tool bodies.

The TungForce-Rec range is a high-density shoulder milling cutter with a secure insert clamping system that boasts excellent process security. Incorporating all of the benefits of the existing size 06 V-bottom TungForce-Rec inserts, the new size 12 inserts offer an extended cutting edge length that is twice as long as the existing size 06 inserts. Perfect for shoulder milling, slotting, side milling, pocketing, ramping and trochoidal milling, the size 12 addition to the TungForce-Rec now enables manufacturers to extend their machining parameters and material removal rates.

The TungForce-Rec size 12 tool body retains all of the impressive characteristics of the smaller TungForce-Rec 06. This includes a particularly thick core diameter and heavily supported backing behind the insert. The thick core diameter delivers improved stability during machining, particularly when cutting at elevated speeds, feeds and depths of cut. Likewise, increased support behind the insert permits the use of longer insert clamping screws. This provides greater screw-thread engagement security that ensures tool reliability and longevity when using the TungForce-Rec at high metal removal rates. This combination also reduces vibration and improves surface finishes and insert life when machining at increased cutting parameters.

The innovative new TungForce-Rec 12 boasts a 50 percent higher tooth density than competing shoulder milling cutters of the same size. For example, this gives a 16 mm diameter cutter three insert pockets and a 50 mm diameter tool can accommodate 12 inserts. This new development allows the impressive new shoulder milling series to run at a higher feed rate than competitor products.

The TungForce-Rec 12 offers cylindrical shank tool bodies available with standard or long length shanks for additional reach into cavities and difficult to access faces. Furthermore, the series is available with modular heads with a self-centring screw coupling and also as shell mills. Tungaloy has introduced a total of 26 inserts in geometries that include the MM style for general-purpose machining with a nose radii ranging from 0.4 to 3 mm and also the AM style for aluminium alloy machining with a nose radii of 0.4 and 0.8 mm.

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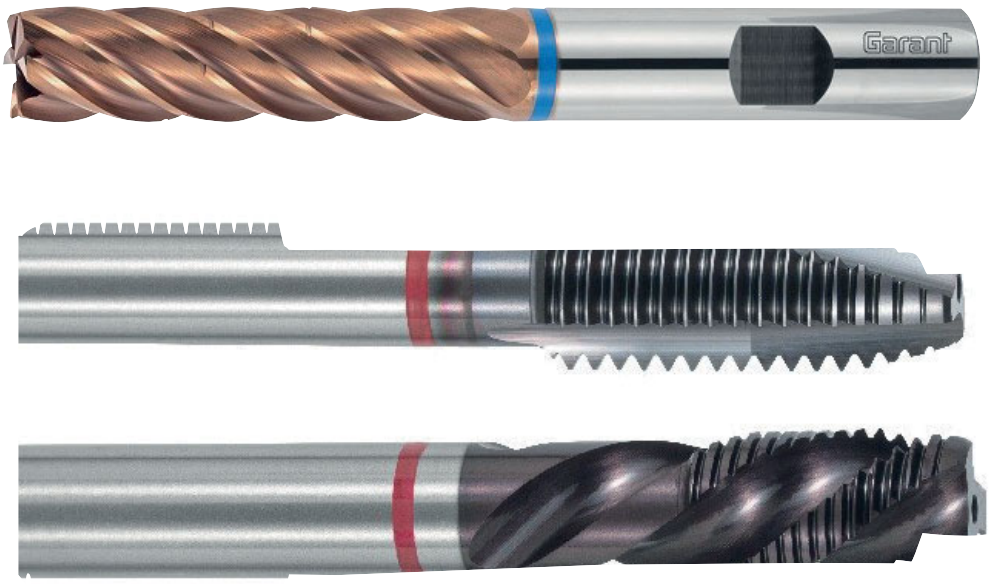
GARANT Master INOX TPC

Process reliable long-life tool with superior performance in stainless steel and duplex steels



With the GARANT Master INOX TPC solid carbide milling cutter, the Hoffmann Group has brought a new specialist tool for machining stainless steels and duplex steels to the market. The high-performance milling cutter has shown itself to be very powerful even when machining internal profiles and has demonstrated extremely high process reliability in automated environments. At the same time, it has achieved high volumes of metal removal compared to similar tools and a particularly long tool life. The milling cutter can be resharpened multiple times and thus permits particularly economical and sustainable tooling.

In the Trochoidal Milling Process (TPC), the tool advances in small elliptical circles. This allows the full cutting depth to be machined at high cutting speeds. Lower cutting forces are generated and the stresses on the tool are maintained evenly, which reduces the rate of wear. This to some extent is the reason why the tool life of TPC milling cutters exhibits up to a tenfold increase compared to conventional tools. The new GARANT Master INOX TPC combines these advantages with an optimised micrograin carbide substrate which makes it extremely resistant to flexural breakage and ensures a long tool life, even when performing high-performance cutting of duplex steels. With its optimised number and positioning of chip separators, it produces short chips and exhibits a minimum of potential wear points, while the enlarged flutes provide sufficient space to allow reliable clearance of chips. In addition, thanks to a reduced helix angle, the pull-out forces andhence the load on the tool arbor and the machine spindle are reduced, which further improves process reliability. A gain in stability at long overhangs, 4xD and 5xD versions, is achieved by an optimised core diameter profile.

The new GARANT Master INOX TPC solid carbide milling cutter requires the use of high-performance CAM software and a modern machine control system, since the milling path must be continually recalculated.

The GARANT Master product range was started by the Hoffmann Group in 2015 with the aim of providing particularly powerful and reliable tools for high-performance cutting. Since then, GARANT Master tools have opened up new performance classes, including the GARANT Master Steel HPC milling cutter, the GARANT Master Steel Feed and Speed solid carbide drills and the GARANT Master Steel Deep solid carbide deep hole drill. The product range now comprises a wide range of high-performance tools for applications such as drilling, milling and thread tapping in various materials, including steel, aluminium and stainless steel.

Producing threads in high-tensile steels

The GARANT Master Tap family has gained a new addition. The latest member of the family for high-performance machining is the GARANT Master Tap Steel HT, a tap specifically developed for steels with high tensile strength. As is the case with all members of the GARANT Master Tap family, the new addition is an extremely powerful and reliable tool that achieves a long tool life. The new tap specialist is available now through the eShop, as well as through the Hoffmann Group's 2022/2023 new products catalogue.

Machining high-tensile steels presents particular challenges, as the tool must also achieve a long tool life in addition to top process reliability and performance. When it comes to the problem of producing threads in such demanding materials, the Hoffmann Group has now developed a new tap that easily masters this task: the GARANT Master Tap Steel HT. This specialist in the thread production segment is made from a high-quality and rigid HSS-E-PM tool material and is protected against process heat by a hard and low-friction multi-layer coating. A special feature is that two different coatings are used per application in order to adapt the process even more effectively to meet various different requirements. The tap for blind hole production is therefore coated with Titanium Aluminium Nitride (TiAlN), while the one for through hole production is coated with Titanium Carbon Nitride (TiCN).

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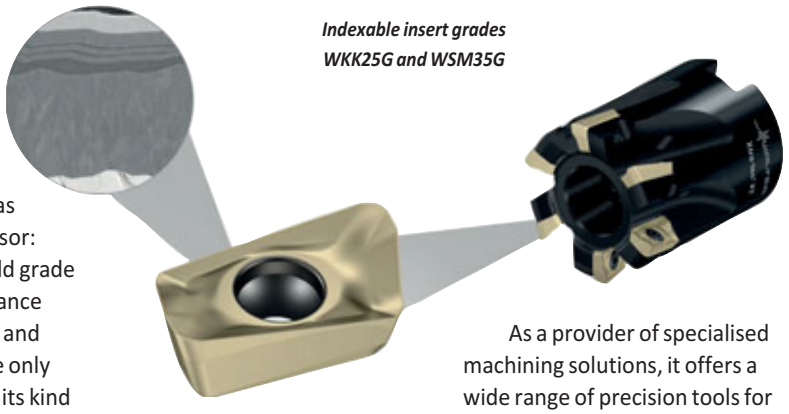
New Tiger·tec Gold milling grades

Walter is expanding its Tiger·tec Gold range with two new PVD-coated grades, WKK25G and WSM35G. This is the Tübingen-based company's response to the continuing trend towards machining steels with difficult cutting properties such as stainless steels used in the energy and aviation industries.

The WKK25G is designed to machine cast iron workpieces. It meets the most stringent requirements for process reliability that are commonplace in the automotive sector, it is suitable for highly abrasive materials and difficult operating conditions. This includes interrupted cutting or wet machining. The WSM35G can be used universally with ISO materials from groups M and S, covering austenitic stainless steel or nickel-based alloys. This grade has been designed to enable users to achieve long tool life, especially under good conditions and during wet machining.

Both new developments use the same technical platform as their successful predecessor: The Walter Tiger·tec® Gold grade WSP45G. The perfect balance between wear resistance and toughness is based on the only PVD Al2O3 technology of its kind in the world to date with a multi-layer structure. This incorporates a TiAlN layer for high wear resistance, Al2O3 for high temperature resistance and a ZrN top layer for minimised friction and improved wear detection.

This new coating generation ensures excellent cutting edge stability, tool life, as well as high process reliability, even in complex applications. Successful applications include engine housing parts made from Inconel or titanium in aircraft construction, as well as engines and turbochargers in the automotive industry. In these applications, Walter managed to increase the tool life compared to previous cutting tool materials by 30 percent or more.



Indexable insert grades WKK25G and WSM35G

Walter AG was founded in 1919 and is now one of the world's leading metalworking companies. As a provider of specialised machining solutions, it offers a wide range of precision tools for milling, turning, drilling and threading applications. Walter works together with its customers to develop custom solutions for fully machining components for use in the aviation and aerospace industries, as well as automotive, energy and general engineering.

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New 5 flute chipbreaker end mills

VQ, the top of the range series of carbide end mills from Mitsubishi Materials, has recently been expanded to include a new innovative type. The latest addition, the VQ-CS range, includes medium and long cut length types named VQJCS and VQLCS that have been designed for specialised roughing applications on heat resistant super alloys. They can also perform effectively on hardened stainless steels and can even be used on more materials such as copper and copper alloys as well as carbon and alloy steels.

The main features of the new end mills are the special flutes that have notches to provide an effective chip breaking function. The 5 flutes used on each diameter also display a rigid cross sectional geometry to provide excellent chip evacuation, this makes the VQCS end mills ideal for trochoidal machining. Furthermore, the irregular pitch of the flutes and micro clearance angle of the peripheral cutting edge provides excellent vibration damping properties for stability and reliability. The extensive range of special features is concluded with a unique end cutting edge geometry that achieves high chipping resistance.

The latest coating and ZERO-µ Surface

The majority of the reliability and high performance of the VQ series can be attributed to the newly developed (Al,Cr)N group based coating which delivers substantially improved wear resistance over conventional coatings. The extreme heat and oxidation resistance and lower coefficient of friction of the new coating means this next generation of end mills can maximise performance and help prevent tool wear even under the harshest of cutting conditions such as when machining stainless steels and difficult-to-cut materials. Additionally, the surface of the coating has been given a smoothing treatment resulting in better machined surfaces, reduced cutting resistance and an increased chip discharge capacity. With conventional coatings the sharpness of the cutting edge can be affected, but with the unique ZERO-µ Surface, the cutting edge retains its sharpness while remaining protective during harsh machining conditions.

The new 5 flute types join the existing VQ family and are available in medium and long effective cut lengths.

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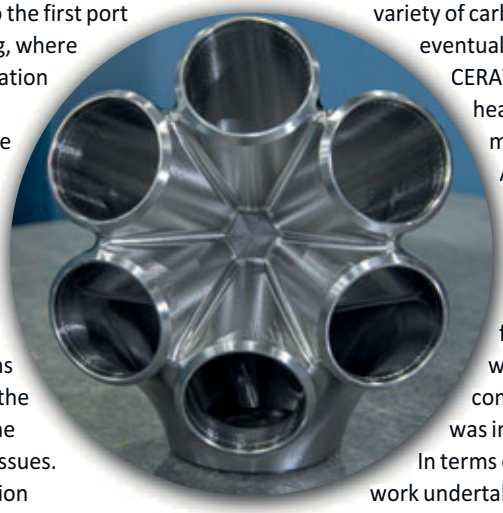
CERATIZIT technical collaboration delivers productivity gains for CNF Precision Engineering

With over 50-years' experience machining components for the aerospace, defence, medical, electronic and motor industries, utilising everything from 2-axis lathes through to multi-pallet 5-axis machining centres, Aylesbury-based CNF Precision Engineering could be expected to have all the expertise it needed. However, when it won a significant order to machine exhaust collector manifolds for a high performance motorsport customer, it found itself in need of additional support.

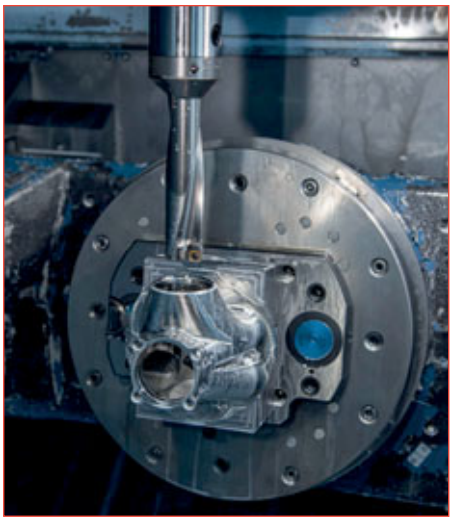
The issue faced by CNF was the complexity of the components, which came in six variants, along with the material from which they were made, 304 stainless steel: "When we were faced with stainless steel that required extra-long tool overhangs, we knew we would need additional technical input," says Mark Baron, CNF Precision Engineering's production manager. With CERATIZIT being a major supplier of workholding and tooling to CNF Precision, it was an easy decision to call in Nev Frisby their local technical sales engineer.

The manifolds had to be machined from stock billet material, so the first port of call was workholding, where CERATIZIT's MNG 3 location plates and ZSG 4 vices with bespoke jaws were used on CNF Precision's Matsuura MX520-PC4 5 -axis machining centre. Tooling posed a greater challenge due in part to the extensions that were needed and the intermittent cutting, the latter causing tool life issues. To reassure CNF Precision Engineering, CERATIZIT provided a range of tooling on trial, with no commitment until the process had been successfully completed. Key to that success were the 35 mm diameter, with 4xD flute length, KUB Pentron indexable insert drills for the main internal port machining, along with a selection of high-feed indexable insert milling cutters using button and square inserts. Finish milling was completed using CERATIZIT's Silverline solid carbide mills and Torus cutters.



The collaboration between Mark Baron, Ryan Allenby, 5-axis programmer at CNF Precision Engineering and Nev Frisby resulted in significant cycle time savings along with greatly improved tool life. For example, the indexable milling inserts are showing a 300 percent increase in tool life after testing a variety of carbide grades, eventually settling on CERATIZIT's grade for heat resistant materials, CTCS245. A 20/30 percent gain in tool life was seen when switching to Silverline cutters for finish milling, when compared to a competitor cutter that was initially being used. In terms of cycle time, the work undertaken with the CERATIZIT Torus cutters proved to be productive, with a 40-50 percent decrease in cycle time generated from the switch from a conventional ballnose cutter to a CERATIZIT Torus Monstermill cutter, tool life was also doubled.

With the project now running as CNF Precision Engineering required, all the tools used across the six variants of the exhaust collector manifolds have been loaded to the on-site TOM840 tool vending unit, ensuring that tools are available 24 hours a day if required. "The collaboration between



CERATIZIT and CNF Precision Engineering highlights the support that we can provide to customers on machining applications," says Nev Frisby. "This particular project threw up a variety of challenges, but our combined experience and the extensive range of tooling in our CERATIZIT portfolio across the four competence brands of CERATIZIT, Komet, WNT, and Klenk, ensured that the parts are being machined within the quoted cycle times with tooling costs minimised due to extended tool life."

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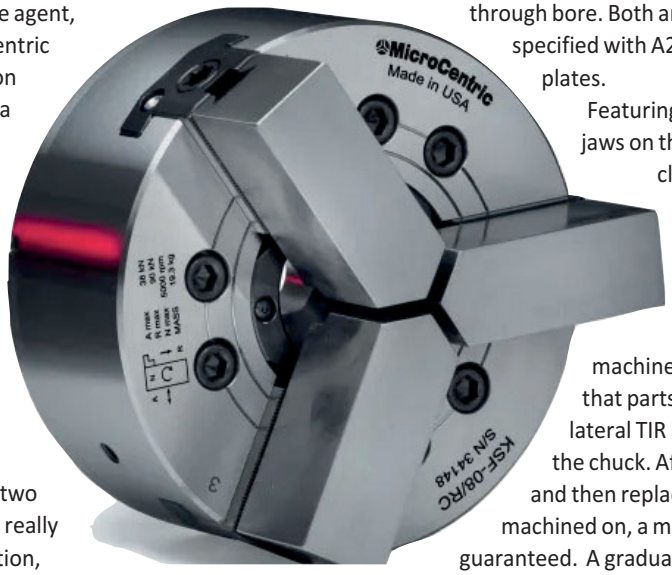
Leader offers rapid change results with MicroCentric



Available from exclusive UK and Eire agent, Leader Chuck Systems, the MicroCentric KSF RC (Rapid Change) high precision power chucks offer machine shops a number of advantages. Available in two diameters, the chucks feature MicroCentric's patented RC jaw system that can reduce changeover times on CNC lathes and turning centres to an absolute minimum.

Managing director Mark Jones says: "Quick-change chuck jaws make unarguable sense in any high variation workshop production scenario. Simply put there are only two states a machine tool can be in that really matter to any workshop: in production, making parts, or not. When a machine is making parts, it is making money. When a machine is not making parts, it is costing money. Therefore, any reasonable investment that helps a machine make parts more of the time is going to improve business performance. These MicroCentric chucks fit the 'reasonable' investment profile perfectly."

The KSF-08/RC is a 210 mm diameter chuck with a 66 mm through hole while the larger KSF-10/RC is 254 mm diameter with an 82 mm through bore. Both are rated up to 5,000 rpm and can be specified with A2-5, A2-6 or A2-8 spindle mounting plates.

Featuring a boltless design, the rapid change jaws on the KSF range offers a full jaw area for clamping. Supplied soft as standard, with hard jaws available as an option, they can be exchanged in seconds but remain precise. The KSF chucks have a repeating accuracy of 0.0025 mm, such that when top jaws are finished machined on the chuck MicroCentric guarantee that parts will run within 2.5 micron radial and lateral TIR if the top jaws are not removed from the chuck. After machined top jaws are removed and then replaced onto the same base jaw they were machined on, a maximum runout of 0.025 mm TIR is guaranteed. A graduated scale engraved into the master jaw facilitates quick precise positioning of the top jaws during changeover.

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Flexible gripper for small components ensures maximum process safety

SCHUNK has developed a versatile gripper for small components for handling of delicate and fragile workpieces. The intelligent EGK proves its strength in challenging and varied tasks in the laboratory industry or electronics manufacturing.

The new smart EGK gripper for small components stands for highest workpiece diversity with maximum process reliabitlity. It shows its strength in demanding applications such as in the life-science sector or electronics manufacturing.

Smaller, finer, more sensitive, in many industrial sectors, products need to be handled gently. For example in lab automation, where samples, vials or trays have to be handled safely and reliably or in the electronics industry when handling circuit boards. Maximum process reliability is required in all cases. For this purpose, SCHUNK has designed a sensitive gripper that is versatile in use and in terms of connectivity and, at the same time, meets the high demands of cleanroom environments.

EGK, the new electric gripper for small components, offers maximum process safety in the handling process. Its spur gear with pinion/rack principle ensures a constant gripping force over the entire finger length and allows permanent re-gripping. Since no start-up distance or force impulse is required for power generation, the gripper delivers 100 percent of its performance right from the start. The integrated gripping force maintenance avoids the loss of workpieces and holds the finger position even in the event of an emergency stop. The high-resolution, integrated absolute encoder offers additional process transparency. It permanently captures the base jaws position. Therefore, the gripping process can be continued after power failure or reboot without new referencing. Depending on gripper size, the highly flexible component range enables various workpieces to be handled with the same gripper due to its long, freely programmable jaw stroke and continuously adjustable gripping force from 20 to 300 N. For sensitive gripping of particularly fragile workpieces, SCHUNK has equipped the EGK with a special "SoftGrip" mode, in which almost no impulse forces are acting.

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Smart technology marking laser

The Graphix Series range with the new all-in-1 laser workstation, introduced to the UK market by Universal Marking Systems, has been designed to make laser marking accessible to all. The Graphix fibre laser, developed by Technomark, takes laser marking to a new level with intuitive software for both novice and experienced users making it the easiest laser marking machine to use. It delivers very fast, high quality permanent marks in as little as just three clicks.

With adaptations for Industry 4.0, notably one of the most innovative new features is the Smartview function, a revolutionary step forward. The camera integrated into the marking head allows you to directly view the workpiece directly on the screen. Simply put your component into the laser enclosure ready to mark and while creating your marking file you can dynamically position the data you wish to mark directly on the part and view on the screen. Data can be edited and repositioned on screen which will be reflected on the part making it very easy to view the exact marking position before starting to mark. This reduces the setup time and eliminates the risk of a positioning error.

The Graphix has been designed with a larger loading capacity to allow more space for larger components up to 500 x 500 x 400 mm, with an assisted door opening with two positions for ease and speed of loading components. The marking window of 100 x 100 mm as standard and 140 x 140 mm also available as an option. Its illuminated marking area makes it quick and easy to position and view components and the motorised Z-axis has a stroke of 400 mm.

A side opening is also available, either on one side or both, for the loading and marking of long parts. Other options include a retractable drawer for the keyboard and mouse as well as fume extraction. Arguably its best asset is the brand new control software developed by Technomark. The new materials database enables a novice to start marking without any specific knowledge. Quick setup times are achieved simply by selecting the material to mark, the data to mark and whether contrast, depth or speed is the most important characteristic and the software will do the rest. More advanced users can adjust the settings such as frequency, scan speed, power and fill style.

Data can either be input manually or use the new csv manager which allows data to be imported directly from an erp system ready for marking. A barcode reader for data input can also be used.

Multi level marking can be achieved with the multiplane software function, which optimises the laser path in three dimensions, allowing multilevel marking on stepped or curved components with help from the motorised column that automatically adjusts the marking height.

A wide variety of metals and plastics can be marked using the Graphix which comes in either a 20 W, 30 W or 50 W version.

The workstation is more adaptable than ever with the option to use a rotary axis to mark around the diameter of curved surfaces. UMS has the in-house capability to manufacture fixtures if required.

The Graphix has been designed with Industry 4.0 in mind and has network connection via an Ethernet port as standard as well as three USB ports. The Graphix workstation is all about making laser marking as easy as possible while maintaining versatility and access to all the features needed to meet a wide variety of applications.

Universal Marking Systems offers long term support for all of its customers from the first enquiry to full after sales support. Send in a sample and the company can video the setup and mark it so you can see how easy it is to use and the quality that can be achieved. Onsite demonstrations are available or UMS warmly invites you to visit its showroom to see the whole range of equipment it has. UMS would welcome the opportunity to support you with any current or forthcoming marking applications.

Contact Sara Sawdy via email at **info@ums.co.uk** or on 01420 565800.

Universal Marking Systems Ltd
www.ums.co.uk

Enhancing manufacturing process quality and traceability with laser marking

The concept of component part and product traceability is well established and is a vital element in ensuring safety in high compliance sectors such as medical, pharma, automotive and aerospace. The marks produced on these items are often generated using laser technology, predominately in the latter stages of manufacturing, to confirm information such as the date, time, and place of manufacture, together with any other important product specific information.

Today, however, manufacturers across many different sectors are striving to increase levels of connectivity within their production processes, by implementing smart manufacturing initiatives compatible with Industry 4.0. Lasers are now being introduced to generate 2D Matrix codes as a first step, allowing a part to be tracked as it progresses through the various different production stages. As the part is presented at each production or machining stage, the 2D code is scanned, verifying initially that this is the correct and expected part variant, and subsequently that the part has passed through this manufacturing operation successfully. In addition, any process parameters associated with the task performed at that stage can also be recorded against the part for quality control purposes.

As any given component moves through the different manufacturing stages, such as machining, grinding, finishing and inspection, a detailed history of how the part was produced is built up and retained for future interrogation if required. This fast and efficient method of marking parts with a 2D matrix code not only provides an indelible mark but streamlines the process of part traceability.

In manufacturing environments where multiple processes take place, the ability to guarantee that all of the appropriate operations have been carried out successfully on each individual component, provides the highest levels of quality assurance, reducing the potential for product recalls, and also reinforcing the fight against counterfeit products.

In many cases, individual manufactured components are then integrated within larger sub-assemblies and final assemblies as part of vehicles or aircraft. In applications where safety critical components require regular operational hour based or annual inspections, as may be the case with certain aerospace components, once again, scanning the 2D code makes it possible to verify that the part has been checked in accordance with requirements.

Also, in the unlikely event of a serious incident or accident, the 2D Martix code makes it possible to retrospectively interrogate both the production lifecycle of a part, together with its associated maintenance and repair records. These same principles and benefits apply in the case of the medical sector, where implants and surgical instruments also need to be both identifiable and traceable.

The capability of the 2D matrix to hold significantly more information than a conventional linear bar code, combined with the ability of the laser to generate the code in very small sizes and spaces, makes it possible for even the smallest of parts, such as surgical screws, to be identified and traced if required.

A further benefit of the 2D Matrix code is that even if parts of the code are damaged, it will still be readable by scanners or machine vision systems.

Green laser technology expands marking capability

The new range of 532 nm wavelength "green lasers“, manufactured by FOBA and available in the UK from the UK and Ireland distributor TLM Laser, offers marking systems with a low heat impact. These new vanadate laser sources are available with 7 or 14 W laser power, and provide outstanding speed and accuracy, especially on substrates that do not exhibit satisfactory marking results using other wavelengths. The range of materials include many white and transparent plastics, glass surfaces, highly reflective metals, or combined material parts.

In addition, red or orange plastic surfaces, which often only display poor marking contrast, due to their existing colour properties, now obtain perfectly legible codes and characters. On special plastics such as UHMWPE, HDPE or PMMA, the marking quality achieved is just as impressive. The green laser also makes laser compatible additives unnecessary in most cases.

TLM Laser is the UK and Ireland distributer for FOBA Laser, and as a business, TLM has built up a comprehensive portfolio of laser processing technologies.

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Dental instruments laser marked for reliable tracking

ES Precision has helped an Oxfordshire dental practice to keep track of dental tools without the need for label application or hard-to-read serial numbers. The laser marks are permanent, clear and withstand repeated autoclaving.

Deddington Dental is a four-surgery dental practice with around 40 fast and slow dental handpieces that are used by seven dentists and looked after by eight nurses. Each dental handpiece costs £400-700 so it is important to keep track and account for each one. Each surgery has its own allocation of handpieces and they are taken to a different decontamination room and processed several time each day.

A laser marked dental handpiece

Principal dentist, Akhil Gupta explains: "Previously, we relied on using the tiny serial numbers marked on the handpieces or using a coloured tape on each one to identify which surgery they belonged to. The method of using the serial number was very time consuming and hard to read. The tapes would regularly come off when the handpieces were autoclaved."

The handpieces are made out of titanium or stainless steel and some are coated by Physical Vapour Deposition (PVD), so Deddington Dental needed a permanent marking solution that would be compatible with each of these materials and also their regular cleaning processes.

Akhil Gupta continues: "After researching, we decided on laser marking with a local company, ES Precision. We were able to mark each handpiece with S1, 2, 3 or 4, for surgeries 1-4. These marks were clear and large enough and were cost-effective to do. Now, our nurses can easily identify each handpiece and we can account for each one at the beginning and end of the day as part of our daily checklists. The feedback from my nurses has been that the process saves a lot of time and looks a lot neater than using a coloured tape."

In October 2017, ES Precision Ltd opened its doors to offer laser processing and traditional low volume/prototype machining to industries such as medical device, Formula 1, aerospace, electronics and general engineering. Business grew rapidly and there are now six staff busy running jobs on the eight laser workstations and three CNC machining centres, in modern premises at Kingston Business Park, between Oxford and Swindon.

Modern laser technology means that marks produced are of the highest quality. ES Precision Ltd can fabricate fixtures so that repeat customers are guaranteed consistent results. The business model needs customers who have a regular permanent identification or decorative need for their products, so ensuring every customer is happy with the company's service is of the upmost importance.

It also offers the tool room and experienced operators low-volume milling and turning, aimed at prototype and small batch production, with the same care and attention to detail.

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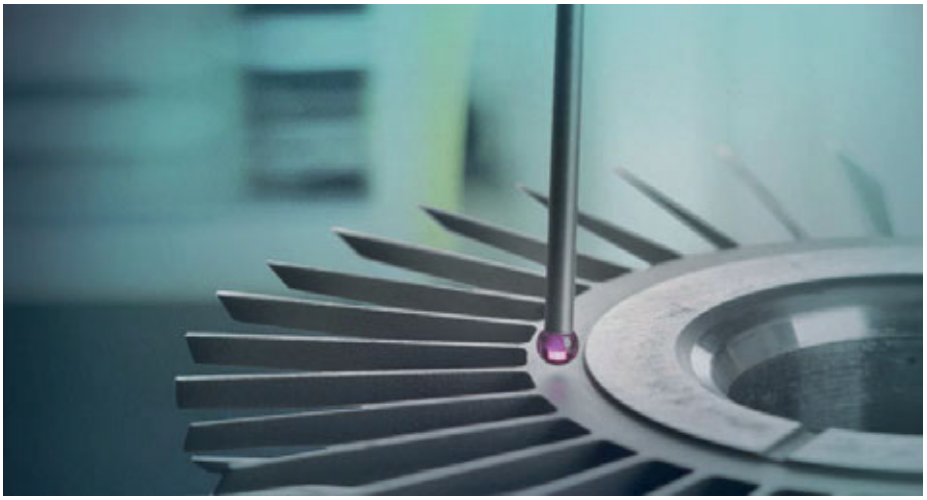
Making manufacturing processes smarter

The role of metrology within the manufacturing process has long been associated with quality assurance, a post-production inspection of the dimensional measurements of a part against specifications. Results indicated that the part was either good to go, or that it was not to standard and needed, at best, reworking or at worst to be scrapped completely. Metrology was the necessary evil; quality the barrier to productivity.



Yet quality data provides manufacturers with far greater opportunities than simple component checks. The function of the quality department shouldn't be to find fault. By analysing quality data to its full potential, the quality team can influence decision-making upstream and downstream. It can help other stakeholders within the manufacturing process to ensure that quality runs throughout the product lifecycle. It can be the architect of quality design, quality production and quality product delivery. Smart manufacturing needs metrology and the data, analytics and insights it provides.

Hexagon's metrology technologies capture quality data for measurement, positioning and inspection. They are the key bridge between the real and virtual worlds, bringing real-world data into the digital domain to power smarter manufacturing approaches. Its technology is helping manufacturers pioneer new manufacturing digitalisation strategies that use quality data more effectively, informing design and engineering processes and providing feedback to production. The measurement-assisted production technology is best-in-class and it continues to innovate towards more real-time feedback and machine learning applications that leverage digital transformation to make manufacturing smarter.

Metrology innovations

Hexagon has a proud heritage in metrology, delivering accuracy and precision from the quality room to the shop floor. Its research and development teams are committed to driving quality inspection technology trends from contact to non-contact, from offline to integrated, from manual to automated. By digitally connecting data from its metrology hardware and software solutions with data from throughout the product lifecycle, Hexagon is redefining the role of metrology inspection and helping customers reimagine quality for smarter manufacturing. As a manufacturer, Hexagon understands the challenges and pain points that customers face daily. It works consultatively with you to deploy or even co-develop metrology solutions that not only deliver on your data needs but also provide value in the broader manufacturing process. Its solutions enable you to work smarter.

Hexagon supports smart manufacturing with the broadest portfolio of metrology solutions on the market

Hexagon's metrology portfolio includes all mainstream sensor technologies and metrology hardware including hand tools, Coordinate Measuring Machines (CMMs), portable measuring arms, laser trackers and 3D optical scanners. It also develops an extensive range of 3D metrology software, CT analysis software and Statistical Process Control (SPC) solutions, enabling manufacturers to easily capture real-world data and gain insights that support better decisions.

How Hexagon helps to eliminate uncertainties from your quality department operation

A key investment for any manufacturer is their metrology hardware and software and, just as a car would need an oil change, air in the tyres, or new wiper fluid, these will eventually need maintenance. Metrology devices are purchased with an expected usage life of 10 or more years, so keeping these devices in good health is key. It can help lessen ownership costs and eliminate unnecessary downtime, ensuring the results the device provides are completely accurate.

With this in mind, Hexagon developed MyCare, a subscription-based service for US-based customers. It is designed to keep costs low and enhance productivity, while reducing unnecessary downtime. This subscription offers several different levels of coverage to fit your needs and budget, all with the benefit of keeping your metrology device in good health and always in factory spec. You can eliminate cost uncertainty for years to come with multi-year subscription. This way, no matter what comes your device is protected without any additional cost.

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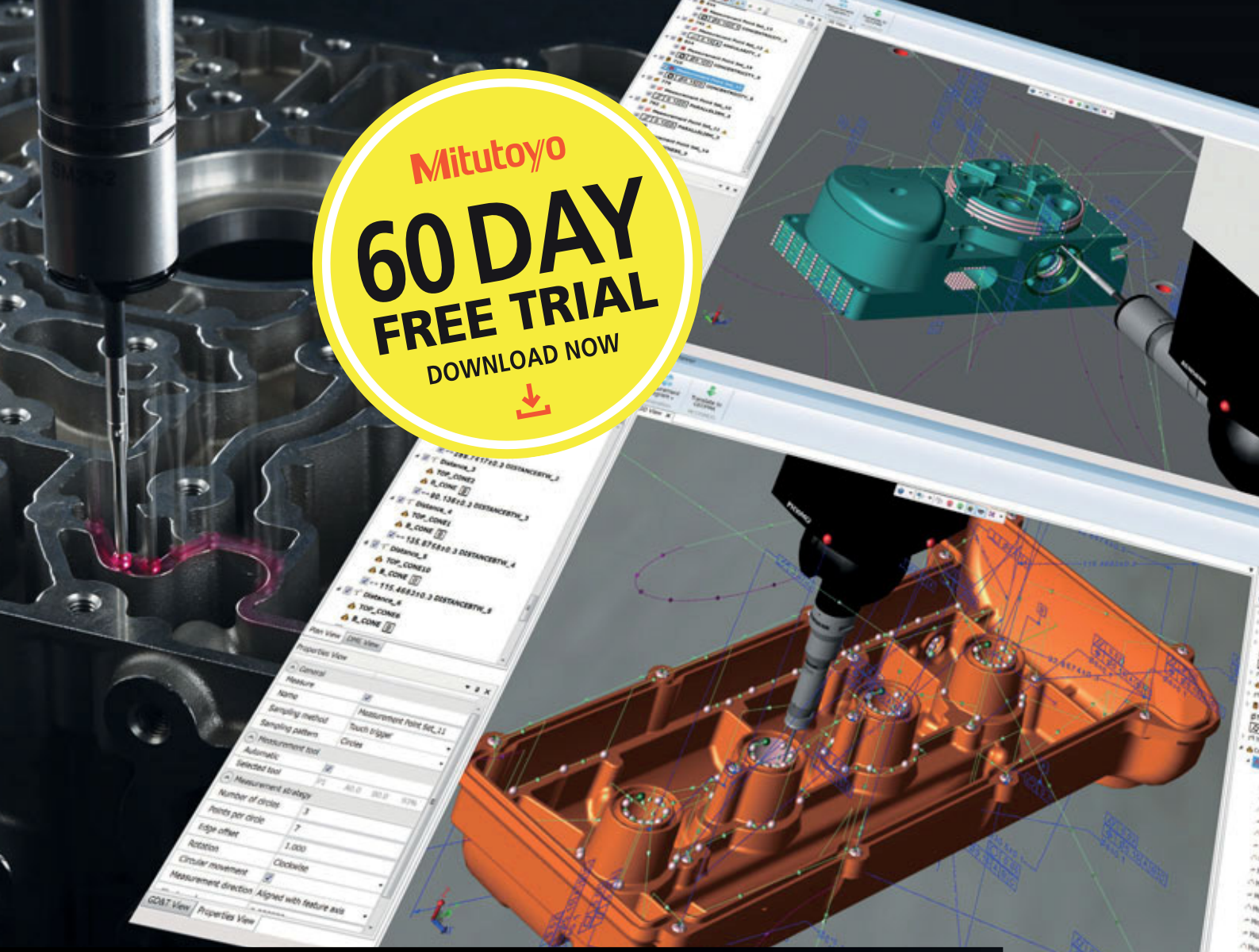
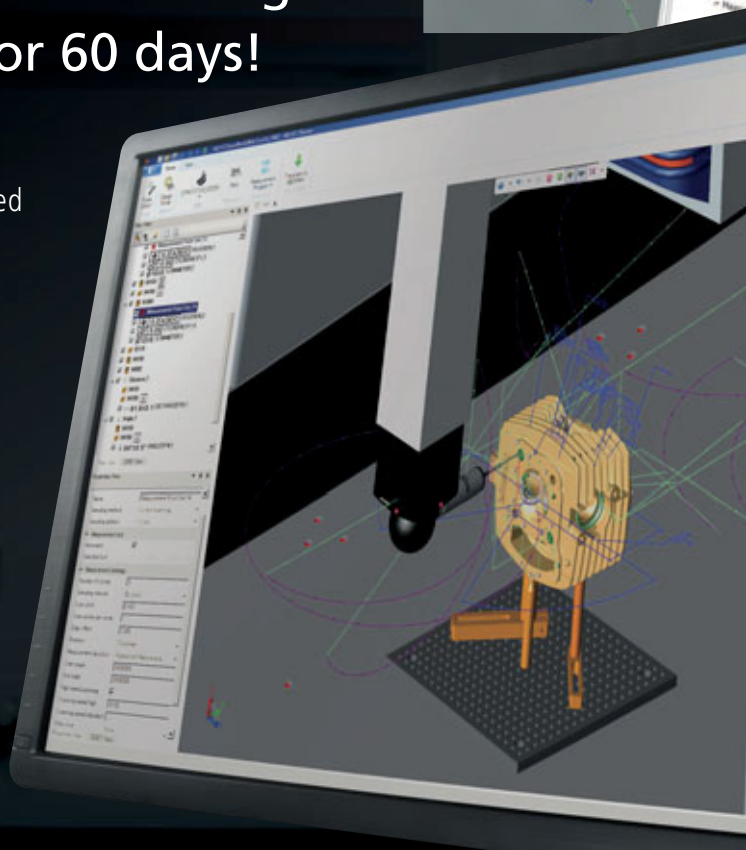


Generate part programs with ease using **MiCAT Planner** – now ***FREE*** for 60 days!

Regardless of the measuring tasks involved, Mitutoyo CMM software delivers a wealth of benefits when involved in CAD-based CMM programming.

The highly efficient software captures real world CMM configurations, including all of machine's racks and probes, enabling the selection of the best-possible configuration based on custom measuring rules.



Scan here to discover more about the **60 day trial** or visit **www.mitutoyo.co.uk/60-day-trial**

Mitutoyo

Removing measurement bottlenecks

How manufacturers can benefit from subcontract measurement

According to the 2019 Annual Product Manager Survey from Gartner Inc, 45 percent of all product launches are delayed. Material shortages, unplanned downtime and supply chain problems are just some of the potential issues that can delay the journey to the end user. The crash of the Ever Given in 2021, for example, held up nearly $60 billion of trade. While bottlenecks outside of the facility are difficult to control, manufacturers can take measures to prevent bottlenecks on the assembly line. Here Kevin Hall, applications engineer at industrial metrology specialist The Sempre Group, explores why measurement can be a common manufacturing bottleneck and how to overcome this obstacle.

In order to meet customer demand and remain competitive in their sector, manufacturers must consider how they can improve productivity and shorten delivery times, while still delivering efficiency and accuracy. However, balancing speed and quality can be difficult when manufacturers don't have all the necessary tools at their disposal.

As manufacturing equipment becomes more advanced, it often produces parts more quickly. While this enables manufacturers to improve productivity, if other areas of production are less advanced, they will create production bottlenecks.

Following assembly, manufacturers must measure parts to ensure they meet specification. However, if they only have one Coordinate Measuring Machine (CMM), or they measure parts by hand using micrometers, manufacturers will do so at a much slower rate, significantly delaying the journey to market. Measuring any component manually not only slows down production, but it also introduces the risk of human error, reducing measurement reliability.

Why measure?

While it is a common bottleneck, manufacturers cannot simply stop measuring their parts. To ensure that every part is fit for purpose, manufacturers must confirm that they all meet specifications. During a First Article Inspection (FAI) report, manufacturers must outline the dimensions and characteristics of a small batch of the initial parts. All future components should then meet the parameters set out in this report.

Manufacturers are not required to measure every dimension of every part. However, they must frequently check the Critical-To-Quality (CTQ) dimensions. The five or six dimensions that are vital to ensuring the part meets specification.

So, how can manufacturers efficiently measure parts without slowing down production?

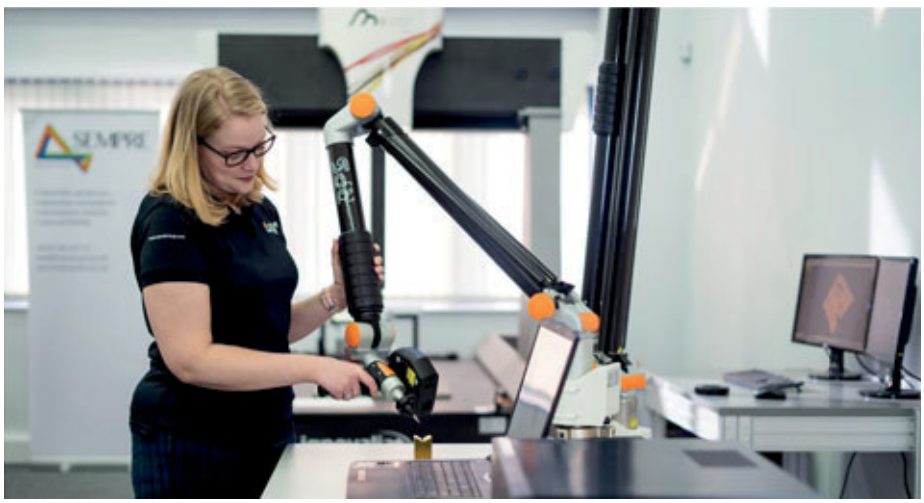
Removing the bottleneck

While investing in more measurement equipment could be a simple solution to removing the bottleneck, it might not be the most practical option. As well as the initial cost of the machine, manufacturers must invest in training to ensure that they can use the equipment correctly. Smaller manufacturers may not be able to buy equipment outright, so instead they can look to subcontract measurement services.

By working with a metrology specialist, manufacturers can have peace of mind that someone else is measuring their parts accurately. Metrology engineers can take information from drawings and CAD files to determine the method of measurements and which machines to use. To efficiently measure complex parts, subcontract measurement experts, such as The Sempre Group, can develop bespoke fixtures to hold parts steady. Once the customer agrees to the quote, engineers will measure a small batch of parts, sending reports back to the customer to verify they have met expectations. Once verified, engineers will measure the rest of the parts, deliver reports and send the parts back.

External factors are difficult to control. For example, manufacturers could not have predicted the supply chain delays caused by the grounding of the Ever Given. However, manufacturers can take action to remove unnecessary bottlenecks from within the factory. Instead of relying on one trained engineer and one in-house CMM, manufacturers can take the pressure off and speed up production by outsourcing measurement to dedicated experts.

The Sempre Group's comprehensive range of systems allows its team to measure any size, shape or quantity of components and offer independent advice. Get in touch to find out more about its subcontract measurement services.



The Sempre Group
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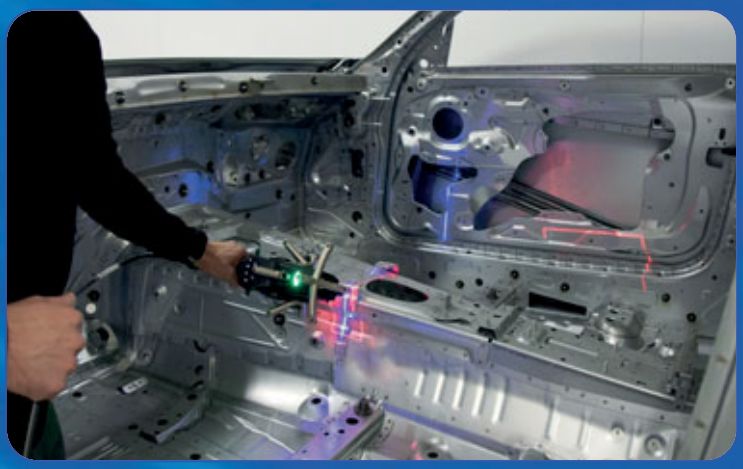
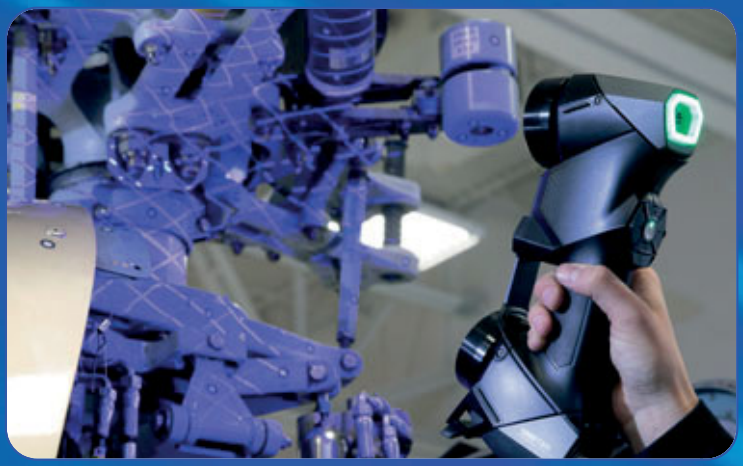
SUBCONTRACT INSPECTION SERVICES

Manchester Metrology





Manchester Metrology Ltd are pioneers and innovators of metrology offering specialist contract measurement services using the latest metrology technologies and equipment. Offering support across the UK and worldwide. Our attention to detail and helpful attitude towards our customers are among the many positive attributes which distinguish the company as a benchmark metrology company.

Hiring, purchasing and training on all portable metrology equipment

www.manchester-metrology.co.uk

Most accurate Lotus car ever, thanks to cutting edge metrology

Since the first Lotus car was built in 1948, the company has been a beacon in the automotive industry for the design and manufacture of high performance cars born out of legendary success on the racetrack. The latest sports car, the Emira, is by far the most accurate model ever built by Lotus thanks to an upgrade in quality control at the company's sports cars factory in Hethel, Norfolk. It includes investment in a 5-axis HC-90TR twin-arm Coordinate Measuring Machine (CMM) manufactured in Castle Donington by LK Metrology. The automated, multi-sensor inspection cell, part of multi-million pound investments made by Lotus since 2017, delivers absolute, 100 percent, non-contact dimensional inspection at production-line speed, enabling real-time quality control.

The CMM installed in Hethel is set one metre into the floor on a special foundation. It means that a car for inspection carried on an Automated Guided Vehicle (AGV) is able to access the area without the need for any lifting equipment. The machine has a measuring volume of nominally 6.3 x 1.6 x 2.5 m, easily large enough to contain an entire car body. Advanced, triple-laser cross scanners are deployed on both arms to measure features automatically on both sides of the Lotus Emira simultaneously. It is notable that the LK HC-90 is the world's most accurate range of horizontal-arm CMMs, able to measure to a volumetric accuracy of 10.0 µm + L/200 and with 6 µm repeatability. The machine combines the high performance of a bridge-type CMM with the flexibility of the horizontal-arm configuration widely used in car plants.

The CMM completes automated measuring cycles so quickly that it is able to keep up with the quick TAKT time that defines the speed of the Emira production line. The fast throughput enables every car to be inspected, making this Lotus model the first whose manufacture is supported by such comprehensive QC. In two visits of the car at different stages of its build to the LK HC-90TR, a total of 130 measurements are made in scanning routines taking about 12 minutes and 8 minutes respectively. The rapid inspection cycles leave plenty of time for an AGV that has delivered a chassis to the CMM to load it and subsequently return it to the line. Before metrology starts, there is also time to verify the car's alignment relative to the carline reference point system in the CMM, as well as to calibrate the laser scanners using

dedicated calibration spheres. For speed and accuracy, they are touch-probed using sensors that are exchanged automatically by the arms from a rack. The same sensor is used for probing some critical internal dimensions of the car, while the laser scanner performs high speed scanning of the freeform surface areas.

Compared to traditional QC practices underpinning the manufacture of these largely hand-built sports cars, which are made from high tech, lightweight composite panels, the benefits of rapid point cloud acquisition and digitisation in the LK cell are enormous. Formerly, a sample chassis would have undergone measurement line-side on a manual CMM having an arm equipped with a touch probe. Fewer features would have been checked in up to five hours on typically one in every couple of dozen chassis, which had to be taken out of production and reinserted afterwards. There was potential for error not only through human intervention but also due to a need to reposition the car during inspection to compensate for the limited axis travels of the old CMM. More seriously, any of the unchecked cars between the samples might be out of tolerance, leading to time-consuming, expensive rework further down the line.

The Renishaw PHS-2 2-axis CNC wrists that carry the laser scanners are able to rotate continuously and have infinite positioning, unlike conventional probe heads that only adjust in 7.5-degree steps. Each scanner can therefore be angled very precisely throughout an inspection cycle, allowing optimal positioning both inside and outside the chassis for rapid acquisition of freeform and geometrical data.

When inside the vehicle, the PHS-2 is able to rotate under program control to look outwards at the interior of the bodywork to take measurements. The DMIS programs controlling each arm are essentially mirror images of each other, with additional movements inserted separately to address the minor differences unique to each side of the car.

The Nikon XC65DX-LS cross scanner with three laser lines captures in a single orientation and scan pass three times the amount of data that can be acquired by a single-line laser scanner. It enables short inspection cycles on the LK HC-90TR to support 100 percent QC of the Emira.

AGVs deliver every Emira to the CMM from the production line, both early on from the end of the framing line, stage 1 and when the car is fully assembled, stage 2. It is deposited without manual intervention in carline and a bar code reader, known as a scripting system, verifies the vehicle's identification number, colour, whether it is right or left hand drive and if a stage 1 or stage 2 metrology program should be run. The car in its stage 1 condition is not conventional body-in-white, as the body panels are already painted and the steering column and wiring looms are in place.

After automatic calibration of the laser scanners, they take 130 measurements around the car over the two stages to assess the accuracy of the vehicle. Suspension and engine mounting points are critical areas for inspection. Control of gap-and-flush is especially important, as the spacing between panels impacts directly on the perceived quality of the car on the forecourt.

Programs are created largely automatically from CAD models of the Emira in LK CAMIO software. It ensures the laser scanners move along paths such that the surfaces being measured are always within their field of view.

Lotus Cars elected to implement this two-stage, offline, in-process metrology solution as it is most expedient for the company's needs. However, in other scenarios one HC-90TR or more could be positioned within the production flow line itself, checking dimensions before the vehicle passes to the next build operation. Other offline applications include quality audits and verification checks.

The metrology cell was installed and commissioned by LK in the Hethel plant in January 2021, ahead of the start of Emira production. The automated equipment has been instrumental in raising production efficiency and lowering the labour cost content of the cars by ensuring that dimensional inspection controls the manufacturing process, rather than merely qualifying the compliance of the measured data.

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FARO releases Focus Core laser scanner

New scanner opens the door for more applications

FARO, a global leader in 4D digital reality solutions, has released the FARO Focus Core laser scanner. The new Focus Core broadens the Focus family's potential range of applications by providing the ideal combination of price and performance on the market. Fully integrated into FARO's workflow solutions for application-specific insights, Focus Core uniquely serves the company's key markets in construction, building operations and public safety and is ideal for beginning a customer's 3D capture experience.

Focus Core provides exceptional capturing efficiency, data quality and accuracy for professional applications, with scan speeds of less than one minute per scan. Features include up to a 70-metre scanning range, smartphone-enabled remote-control capabilities, and an improved and faster Wi-Fi wireless workflow.

"This new solution offers the ideal entry point into 3D reality capture, with a best-in-class price-performance ratio," says Oliver Buerkler, director of Laser Scanning. "A wider range of professionals in construction, public safety and building operations will benefit from the Focus Core's improvements in efficiency, cost per scan and reliability."

When combined with an optional subscription to the FARO Stream mobile app, Core users will benefit from real-time, on-site pre-registration, which enables faster project completion and reduces scan rework. Focus Core is also compatible with FARO Sphere, the company's cloud-based SaaS platform, which enables global collaboration, fast delivery of as-built construction data, and the ability to make better informed decisions in less time.

"With Focus Core, Stream and Sphere, FARO provides customers with a unique solution for capturing, managing, collaborating and storing highly accurate reality data for faster and improved decision making," Oliver Buerkler adds. "The ability to acquire better 3D model data faster and to share insights across a digitally connected world, is the key differentiator of FARO's reality capture ecosystem."

All-new Vantage Max high-accuracy laser tracker series

Portable inspection tools now more precise, easier to use and improve productivity by 20 percent

FARO has released the new VantageS6 Max and VantageE6 Max laser tracker series. The new laser trackers offer comprehensive, large-volume 3D measurement up to 80 metres, significantly streamlining processes and reducing inspection cycle times while ensuring complete confidence in the results.

The new Vantage Max enables organisations to increase their throughput while maintaining high inspection accuracy with an attractive 3D metrology option that expands upon the proven track record of the FARO Vantage series. The trackers maximise 6 degrees of freedom measurement capabilities via the optional 6Probe, enabling precise measurement of hidden areas and small features.

The 6Probe is a 6DoF solution that meets the dynamic measurement, speed and accuracy requirements of the most challenging industrial applications. With kinematic self-identifying styli, users can change probing tips quickly and measure without any recalibration, plus measure hidden areas outside of the tracker's line of sight with wide acceptance angles.

Moreover, the new Vantage Max provides more accurate 6DoF probing that helps speed up inspections and reduce the number of tooling changes and device moves. Previously, users relied on a Spherically Mounted Retroreflector (SMR) to measure high accuracy points. In order to take these measurements, the user had to select an appropriate target nest and have line of sight. Typical users of the new trackers can now save up to 60 minutes each workday.

"With the higher accuracy of the Vantage Max, users can probe more points beyond the line of sight, using an SMR only for alignment points and ultra-precision measurements," says Leo Martinez, FARO product marketing manager. "This results in a significant productivity improvement of 20 percent compared to lower accuracy probes."

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Peel 3 3D scanner now available from Manchester Metrology

Manchester Metrology, an official reseller of Peel 3D scanners, is now offering the brand-new Peel 3 3D scanner as an addition to its hiring & leasing services. It is also available to purchase.

Users can minimise production time with the Peel 3 and take their 3D scanning experience to new heights. Everything about the Peel 3 3D scanners has been redesigned, rethought and revamped. For an affordable turnkey professional-grade 3D scanning solution, peel 3 packs a powerful performance punch.

The Peel 3 3D scanner has a unique multi-grip triangulated handle, designed specifically to be comfortable in most common 3D scanning positions. The multi-function and intuitive touchscreen

provides users with a brand-new way to interact with the Peel 3D scanner. It can also be used as a distance metre to easily scan without looking at your computer.

In its world premiere for handheld 3D scanners, Peel 3 features several recognisable vibration patterns to guide you as you scan narrow and hard-to-reach places without a direct line-of-sight. It provides real-time feedback at its best.

The Peel 3 comes with peel.OS, a highly simplified data acquisition software that enables users to process, clean, align, improve and export 3D scanning data. Thanks to the guided workflows, assisted merge of multiple scans and integrated help, you'll be scanning with confidence in no time flat.

Manchester Metrology Ltd is a pioneer and innovator of metrology, offering specialist contract measurement services using the latest metrology technology and equipment. An ethos of dedication to continued investment in both equipment and its team has allowed the company to build a strong reputation, working with a number of industry

leaders in the automotive and aerospace sectors.

Offering a portfolio of support services across the UK and worldwide, its attention to detail and helpful attitude towards customers are among the many positive attributes which distinguish the company as a benchmark metrology company.

For more information, contact Manchester Metrology.

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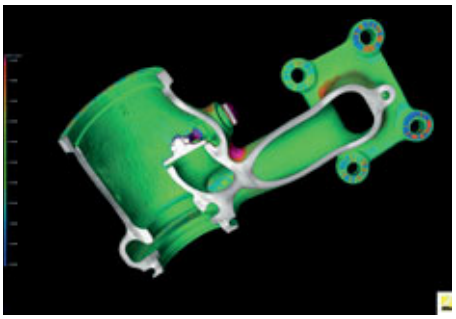
New X-ray CT system from Nikon Metrology

Improvements have been made by Nikon Metrology in its new, 225 kV, microfocus X-ray Computed Tomography (CT) system, the XT H 225 ST 2x. Two of the features are not to be found on any other industrial CT system. One is Rotating.Target 2.0, which thanks to more efficient cooling enables a 3x smaller focal spot size for clearer imaging. The other, Half.Turn CT, is a novel method for almost halving the angle through which a specimen rotates during the X-ray cycle, speeding the process without loss of image quality.

Operation has been greatly simplified and efficiency doubled, enhancing the system's suitability for a wide range of applications, from the R&D department to the factory floor. The intrinsic benefit of X-ray CT is that it allows both the exterior and interior of a sample to be inspected and measured non-destructively. The XT H 225 ST 2x, which has undergone thousands of hours of rigorous testing, is distinguished by its ability to be tuned to match the part under investigation so that optimal results are produced every time.

Rotating.Target 2.0 maximises the quality of



data collected and hence image resolution. It also doubles the running time before preventive maintenance is required, lowering costs and raising equipment availability. Spinning the target dissipates the heat generated by the small focal spot size more efficiently, enabling continuous generation of high power X-rays and a dramatic increase in scanning speed and resolution, without the need for cool-down.

There is a choice of four targets, easily interchangeable by the user onto the source tube. The reflection target is the standard option with a focal spot size down to 3 µm, providing the resolution and power for a wide range of applications. The rotating target on the other hand features a 3x smaller spot size starting from 30 W, allowing very crisp images to be maintained at high powers and reducing the time needed to scan objects. Alternatively, a transmission target gives a spot size down to 1 µm for even greater clarity. Lastly, a multi-metal target is mainly used at lower energy X-ray emission for material analysis.

Nikon Metrology UK
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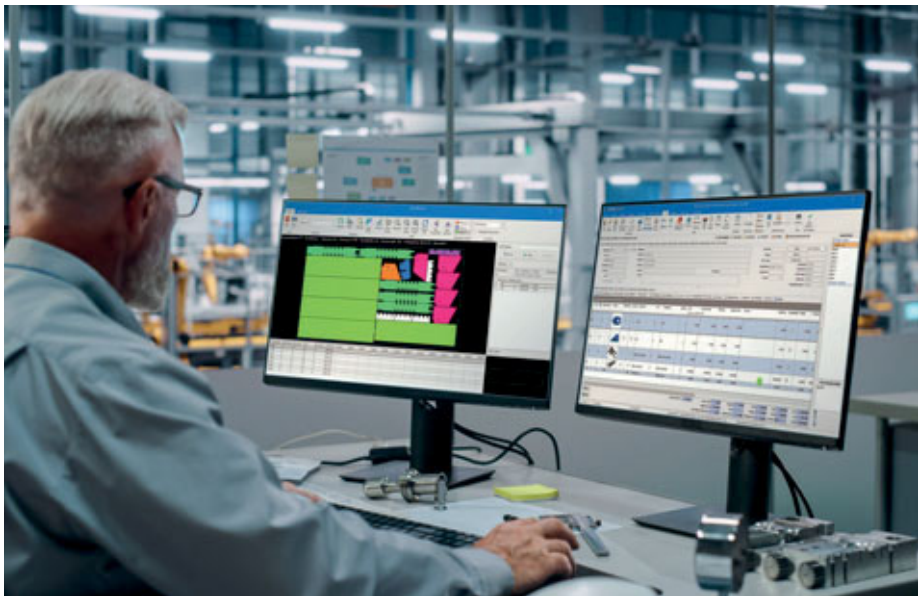
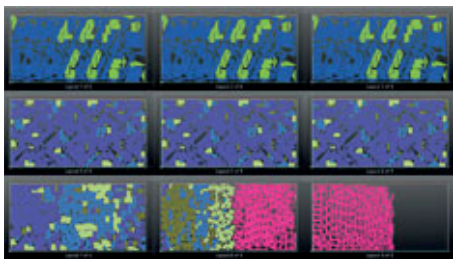
SigmaSUITE V23 redefines nesting strategies and process optimisation for connected shop fabrication



SigmaNEST, a leading innovator in CADCAM and business software for the fabrication industry, have announced version 23 of its software suite. The SigmaNEST flagship package delivers new nesting strategies for real-world manufacturing that optimise part processing and workflow efficiency beyond classic nesting for material. Workflow optimisation and expanded control are central themes to the user experience for the version 23 suite. Also, three new Connected Shop apps complement shop floor management.

The Connected Shop is a set of software tools that connects the people and processes in your shop with the goal to leverage the unique nature of your operation. These digital connections combine all areas of your shop into one holistic entity, transforming your ability to manage it effectively and efficiently.



New nesting strategies for workflow optimisation

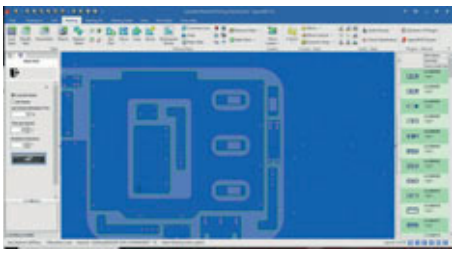
Vice president Kevin Ramirez comments: "While the goal is to optimise all available manufacturing resources, the emphasis on real world nesting based on operational processes has shown extraordinary value in compounding efficiency beyond material savings alone. We look forward to expanding a holistic view of the manufacturing workflow based on market driven data collected in our collaboration with our Sandvik peers."

Nesting for manufacturing

Bump for tooled punch parts, relaxed nesting for improved skeleton integrity, optimised nesting for process and NC mechanics beyond yield alone

Making life easier downstream has been a key focus of version 23 with several strategies for pushing the workflow for assemblies or secondary operations and uncluttering the shop floor. For example, Best Sheet with Mixed Grouping keeps parts of similar material together for those who program several days of work at once, or those who load sheets manually. Additionally, an enhanced array function allows users to dynamically drag the arrays of parts for the required quantity of kits, assemblies, or fixed part configuration.

In a step toward simplifying the way to the best nesting results, several nesting features are now built in for HD Trueshape and HD Advanced Trueshape users, who will gain full access to stack nesting, multi-torch nesting for large parts, dynamic X & Y clearance, as well as improvements to Common Line nesting. Bump nesting updates include the ability to retain a boundary and avoid nesting within destructed notch areas, tool dependent bump boundaries, part rotation based on tooling and common cut line bumping.



Relax Nest to create a strong skeleton

For the best in efficiency and quality, the brand new Relax Nest feature can spread parts out on the cropped area of a completed nest to create a stronger skeleton, reducing the risk of part tipping and part distortion from excess heat.

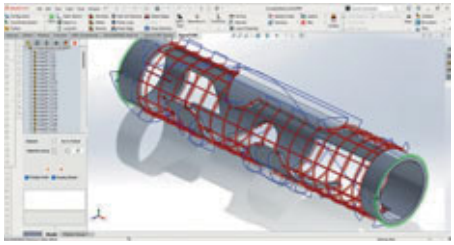
Several user experience enhancements allow users to optimise the process workflow as they profile cut rather than forcing them to start over to add the options for the nest, such as removal of pre-piercing operations, crop cut side selection, apply scrap cut preferences, or apply proven company standard defaults. Further enhancements include support for additional fly cut patterns and taper correction for 3D bevel and waterjet machines that adjust the tilt of the machine head during straight and bevel cuts.

Version 23 has some powerful tools to boost the productivity of the professional punch programmer. Interactive nesting for Punch automates bump boundaries for each tool, improving the speed and precision of part placement. Punch patterns now allow for multiple contours. Single-click loading to the turret of tools, using the new Quick Drop feature, includes entire pattern tool groups. Wheel-type tools can benefit from the new

ability to control the indexing angle of the tool independent of the direction of travel. Version 23 users will also benefit from more detailed tool reporting which includes tool used within each pattern, pattern membership for different tools and actionable alerts for incomplete tooling and floating scrap.

SigmaTUBE for SOLIDWORKS provides a better user interface with larger clearer icons and a user-friendly report system with powerful editing tools to produce reports customised to the needs of your organisation.

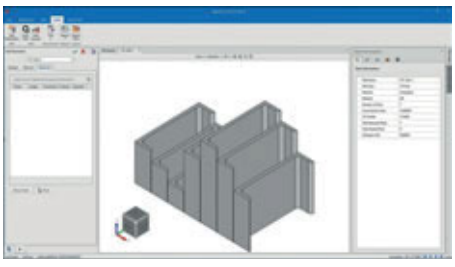
Additionally, SigmaTUBE for SOLIDWORKS expedites the programming process with the addition of automatic Auto Destruct to eliminate time-consuming manual work. The Dead Zone nesting option now supports open section profiles and single part nests, significantly increasing material yield by using previously scrapped areas of the stock. Mazak users will appreciate support for Auto Touch Probing rules which helps drive fully automated programming.



Auto Destruct for SigmaTUBE for SOLIDWORKS

Lastly, support for flat bar recognition offers new options for SOLIDWORKS users.

SigmaDEVELOP introduces a new shape to quickly produce the flat patterns for the step bend cone commonly used for utility/power transmission structures. SigmaBEND AP ensures support for the latest CAD file types and the LVD Touch-B press brake controller and automatic recognition for the film side of imported parts. SigmaBEND AP also imports XML profiles to automatically generate geometrical shapes Lastly, added support for filtering rules in batch and remote processing reduces the time required to program assemblies.



SimTrans automatic part ordering for CTL parts

SimTrans is more powerful than ever and now supports enterprise control of distributive manufacturing between separate locations. This will benefit companies with multiple SimTrans installs and/or geographical sites requiring ERP data exchange. SimTrans now supports automatic part building and automatic part ordering for CTL parts.

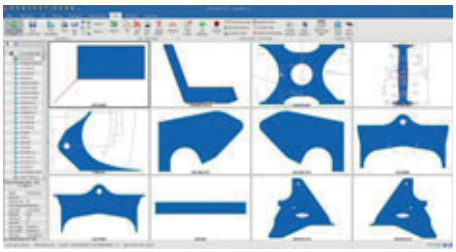
Significantly, an improved diagnostics system simplifies the implementation, setup and troubleshooting of SimTrans providing more reliable operation and lower support costs.

Delivering the ultimate user experience

Fewer clicks, commonly used functions "at your fingertips," more granular control

Numerous UX enhancements help standardise product behavior and simplify usage including a new Multiview for Part Mode to split the view into 2-12 separate windows for programming parts side by side, Auto scale for Multiview layouts and the ability to remembers zoom level and pan location when switching between tabs.

Version 23 makes work order management, report printing to dedicated devices and leadin/out control for multiple layouts easier with both universal and granular control built into the updated user interface. Both recent and new SigmaNEST workspaces are added to the Windows Taskbar menu for easy recall of recent or frequent workspaces and a new Quick Key shortcut to repeat the last command are simple but powerful additions that improve user productivity.



Up to 12 separate windows with Multiview for Part Mode

Importing remnants from CAD files is easier with the new Verify Geometry tool to identify and fix issues with the sheet geometry before nesting occurs. Also, the sheet location can now display warehouse options for clear organisation and communication throughout the shop.

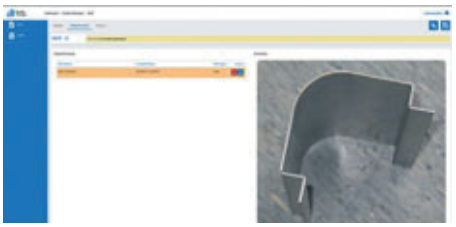
Version 23 improves the CAD experience with an easy-to-use Hatch Fill function to differentiate geometry and true type wording on the workspace. Four new dog bone reliefs are now available to notch the corners of close-fitting parts for easy assembly, vital for router users in the woodworking and furniture markets. This eliminates the need to have oversize slots or the need for hand work to clean the corners.

Expanding "The Connected Shop"

Deeper inter-product integrations

The modular "Connected Shop" platform includes quoting, scheduling, logistics and ERP/MRP connection to automate the workflow as a job progresses throughout the shop. SigmaQUOTE and SigmaMRP now provides capabilities to create and manage assemblies (B.O.M), to lock a price or add a placeholder for quotes and adds secure controls for the job and PO approval process. Version 23 of the Connected Shop boasts speed increases of up to 75 percent.

Managing an efficient workflow is simpler with enhanced SigmaSCHEDULE for nested operations and Load Manager 23 to control production and, with integrated Shop Manager, apps for remote control of incoming and outgoing resources. Color Offload users will now benefit from the ability to update multiple programs at once that can run throughout a complete shift for true lights out processing. New Shop Manager developments include three new Connected Shop products: Shop Clock for employee time and attendance tracking; Data Hub for accessing job-related documents anywhere on the shop from any web browsing device and Quality Manager (QMS) to record and manage non-conformance reports and corrective action plans to ensure manufacturing excellence and ISO 9001 compliance. With data integrity and network security in mind, the version 23 suite now supports Transport Layer Security (TLS) 1.2 protocol to authenticate and encrypt data between endpoint devices and applications.



Quality Manager for easier non-conformance reporting

SigmaTEK Europe Ltd
Tel: 024 76 982 299
www.sigmanest.com
www.cambrio.com

The next generation of intensifier pump technology

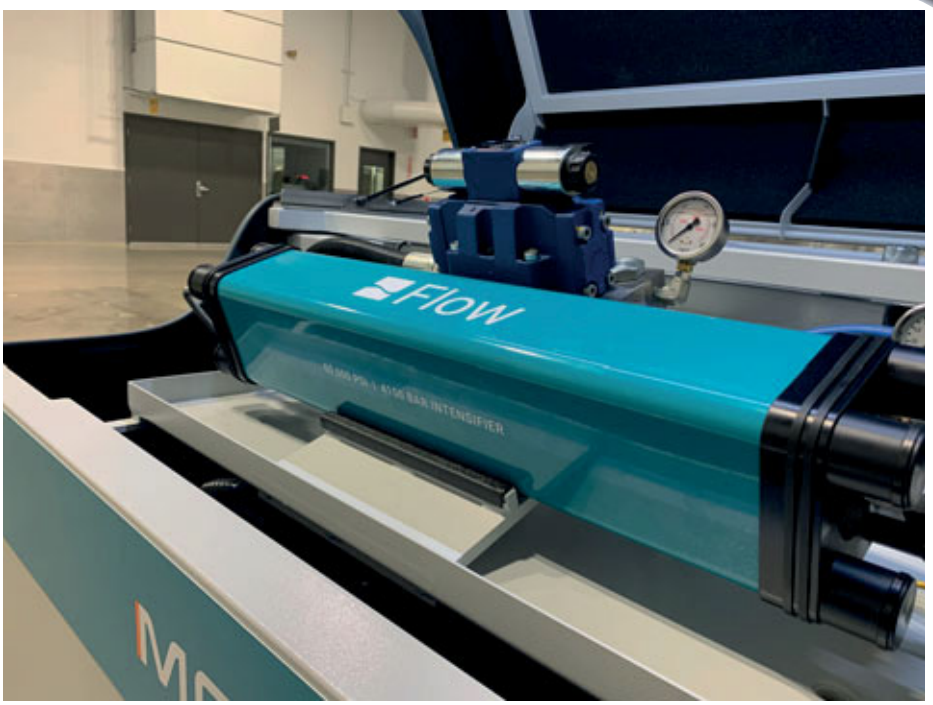
Flow International Corporation, developer and manufacturer of ultrahigh-pressure waterjet cutting systems, has introduced its next generation of intensifier pump technology, the MotoJet. It features advancements focused on maximising customer uptime and improving usability.

The MotoJet truly is a game-changer in the world of waterjet. Flow's engineering team has invested significant time designing, testing and refining intensifier pump technology to achieve a 95 percent uptime guarantee with a pump that outlasts and outperforms the rest.

It features ultra-quiet operation with a sound deadening design. The design includes easy access points with quick-remove side panels, an air-assisted lid and an automatic interior light. The MotoJet has a status light built directly into the lid handle, providing quick visibility to the operating status of the pump and comes IoT enabled and smart connection ready.

The revolutionary pump is a full-service solution. Flow's trained technical service team will conduct all maintenance at needed intervals, keeping customers up and running with minimal effort on their part and allowing them to focus their attention and resources on other areas of their business.

This white glove, comprehensive service is somewhat new to the waterjet industry, but it's not new in the world of convenience we live in. Having an expert team available to service your equipment is a benefit that makes a huge difference in customer operations and once you have access to it, you realise just what a difference it truly makes to your business.



The MotoJet operates at 4,150 bar with both 30 hp and 50 hp options and is compatible across the entire Flow Mach Series of waterjet solutions. The pump is available for test cuts, and on-site visits at Flow's Technology Centre in Douvrin, France.

Flow UK
Tel: 01455 895300
Email: info-uk@flowcorp.com
www.flowwaterjet.com

Flow
SHAPE TECHNOLOGIES GROUP®

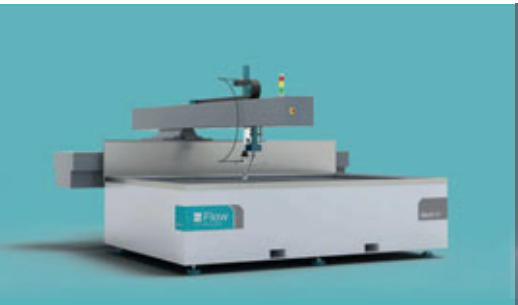
World Leader in Waterjet

Flow Mach Series

Customer driven design featuring Flow technology at every price point.

As a complete system manufacturer, every part of your Flow waterjet is designed to work together to make your cutting operations better. Your needs drive our future-proof system design.

Flow waterjets come with various options, accessories, and technologies.



Mach 100
performance made affordable.

The **Mach 100** not only outperforms the standard waterjet offerings in the industry, but wins in value as well.

Sizes from: 1.3 m x 1.3 m to 4 m x 2 m

Mach 200
elevate expectations.

The **Mach 200** is a practical and flexible waterjet solution, offering bevel cutting capabilities and immense value.

Sizes from: 1.3 m x 1.3 m to 7.3 m x 2 m

Mach 500
make more.

The **Mach 500** is the workhorse of waterjet, elevating your performance and production levels.

Sizes from: 2 m x 2 m to 4 m x 8 m

Industry leading pump technology

Flow provides state of the art Ultra-high pressure waterjet pumps:

- **Direct Drive pumps**

HYPLEX PRIME
ENERGY SAVINGS FLOW TECHNOLOGY

HyPlex Prime ®
DIRECT DRIVE
3.800 bar [55.000 PSI]

- **Intensifier pumps**

MotoJet ®
INTENSIFIER PUMP
4.150 bar [60.000 PSI]

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INTENSIFIER PUMP
6.500 bar [94.000 PSI]

Both intensifier and direct drive pumps are capable of reliably delivering ultrahigh-pressure water, and both are successfully used in industry.

Contact : FLOW UK
Unit 3 Canton House
Wheatfield Way, Hinckley, LE10 1YG UK
Office: +44 1455 895 300
info-uk@flowwaterjet.com
www.flowwaterjet.com

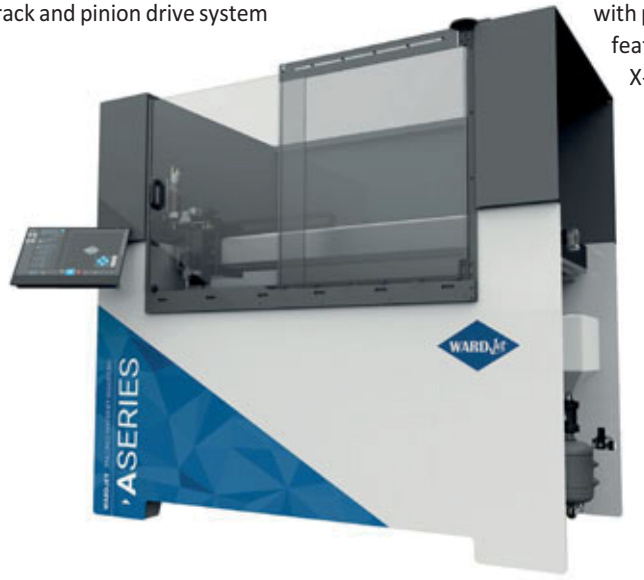
The leading edge of CNC waterjet technology

With over 30 years of experience in the CNC industries, the name WARDJet is globally known and respected for quality and reliability. Joining the AAG family in 2018, WARDJet has gone from strength to strength in the waterjet arena. The versatility of the waterjet allows it to be used in almost any industry due to the multitude of materials that can be cut with a high pressure stream of water. The unique systems supplied by WARDJet have interchangeable components allowing clients to equip waterjet machines with the latest innovations. Infinitely expandable and modular, customers can keep competitive within their markets. The WARDJet ethos is "Your application is unique. Shouldn't your waterjet be?"

WARDJet controls all aspects of its manufacturing process. This allows it to come in "on-time" and "under-budget", even with multiple concept and design reviews and prototyping stages. The versatility at the manufacturing stage means that machines can be bespoke and built to customers' precise requirements, be it the need for a greater Z-travel or custom fixturing in the table or tooling configurations WARDJet can incorporate the customer's needs.

WARDJet supplies the A, X and M series in its abrasive system range and the H, J and L series in its water only machine portfolio.

The A-Series is ideal for businesses with a limited floor space with a footprint of less than 2.9m². While small in size, this industrial machine is capable of cutting through virtually any material imaginable. Quick, compact and robust, the A-Series is a versatile cutting solution that fits into your workflow. With a rack and pinion drive system and incredible power output from its standard 30 hp pump, which can be upgraded to a 75 hp pump, the A-Series WARDJet can cut material up to 18 cm in thickness, making it the most powerful waterjet cutter in its class. Controlled by AAG's MOVE simple-to-use intuitive software, the A-Series WARDJet really is at the top of its game and will provide the user with a compact cost-effective cutting solution.



WARDJet's X-Series waterjet was engineered for speed, accuracy and durability. Bundled with intuitive control software, the versatile X-Series is paving the way for the next generation of waterjet cutting. The X-Series has a modular design that can be configured to users specific needs to ensure a perfect fit into their business. The X-Series is engineered to keep up with customers demands. Speed and output can be increased with high speed and multiple cutting heads and you can upgrade your machine with performance-enhancing features as you grow. The X-Series will open up new markets and business opportunities, as it can process metal, plastic, composite, stone, glass, wood and many more materials. Its versatility enables it to be used in many varied industries from automotive to aerospace, construction to prototyping. With its 5-axis cutting and the ability to achieve traversing speeds of up to 22.9 m a minute, the WARDJet X-Series really is in a class of its own, where quality, accuracy and reliability are paramount.

The M-Series of large-format waterjet cutting machines includes a number of design features that facilitate easier access to the material being processed, faster cutting speeds and maximum utilisation of the processing bed area to further reduce material wastage.

The M-Series is available in a choice of four different-sized models, 2540, 5040, 7540 and 10040, with respective cutting envelopes of 2.5 x 4.0, 5.0 x 4.0, 7.5 x 4.0 and 10.0 x 4.0 metres. Purpose-built for the cutting of industry-standard material sheet sizes, again the M-Series incorporates AAG's proprietary MOVE software that encompasses multiple machining functions. It also features a triple-head cutting configuration that enables radically increased productivity levels and easier switching from single- to triple-head cutting, contingent upon the size and volume of the material being processed. A new gantry design makes it easier to load and offload material while the machine is running, with the integrated helical rack and pinion drive system featuring a multi-teeth configuration enabling cutting speeds of up to 35m/min. This system also ensures more even distribution of the workload, quieter machine operation and ultimately, a longer than normal machine life.

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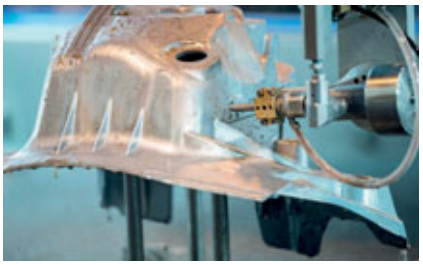
Introducing the FiveX Ultra from Water Jet Sweden

Water Jet Sweden has been working hard on product development during the pandemic, with several products modernised to meet new market requirements and the creation of a completely new machine concept: the FiveX Ultra. This ground-breaking new cutting machine was officially launched at the EuroBLECH 2022 international trade fair in Hannover, marking a step into the future of advanced waterjet cutting.

Water Jet Sweden CEO, Lennart Svensson comments: "The new machine concept was very well received. We have had a lot of positive feedback and there has been a great interest throughout the whole fair. We have seen an increased demand for advanced cutting within the waterjet market. Now we have built a machine that will meet the future needs of most mechanical workshops around the world."



Changing the scene of 5-axis waterjet cutting with the FiveX Ultra, model name NC5 Ultra, the new machine concept is a compact and standardised version of the top-of-the-line machine model FiveX (NC5). The new FiveX Ultra makes advanced waterjet cutting available to a broader market.

Anything and anyhow

FiveX Ultra is designed for all businesses with the ambition to broaden their service from 2D to complete 3D cutting. When there is a demand for complex parts or advanced processing, FiveX Ultra will do the job, on all kinds of materials.

Compact and stable

FiveX Ultra comes in standard measures 3 x 2 metres with full size walls and Fanuc dual-check-safety. With electrical cabinet attached to the frame and quick water level adjustment integrated, it has a compact and modern design. The Z-beam is lightweight and stiff due to its carbon fibre core and new X-beam design rest on the stable frame. These design features enable a faster movement with extreme accuracy.

3D features included

FiveX Ultra comes with the new, compact WJS 5AX Ultra cutting head which has a > ± 120° cutting angle and process in full 3D. Work Piece Indicator (Renishaw Probe) is included for preparing advanced 3D cutting and the new workspace LED lighting enhances visibility. The 200 litre abrasive hopper is included as a standard accessory and there is a range of high pressure pump options from BFT, Hammelman and KMT, to meet a variety of energy and power requirements.

FiveX Ultra expands the broad portfolio of quality cutting systems that Water Jet Sweden offers. From entry level 2D machines and micro processing, to big machines for large and odd sizes of material, the unique 5-year performance warranty is also included.

WJS UK Ltd Tel: 01937 845499
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Sawing and storage capability upgraded

Founded in 1887 and currently employing approximately 3,000 staff, family-run firm Haver & Boecker, headquartered in Oelde, Germany, is an internationally recognised manufacturer of machinery for the preparation, transportation, storage, mixing, filling, packaging, palletisation and loading of bulk goods and liquids. It also manufactures wire mesh products primarily for screening and filtration.

After more than 20 years, the German-built KASTO sawing centre used in the factory had become outdated. Downtime was increasing and cutting results were no longer satisfactory, so the company approached the same sawing and storage technology specialist for an extensive modernisation and expansion solution. In the UK and Ireland, such services are available through KASTO's subsidiary in Milton Keynes.

At Haver & Boecker, round and flat bar, tube, hollow section and extrusion in numerous sizes and materials are held on 1,037 shelves of a six-metre-high, automated, cantilever bar storage system, also originally supplied by KASTO.

Christian Hinse, work preparation manager explains: "As a manufacturer of special machinery, we deal with an extremely wide variety of materials, but only in very small batch sizes. Just under one-third of the parts we saw are one-offs and overall, 90 percent of batches are between one and ten.

"Parts processed are primarily steel and stainless steel, but also aluminium and other metals. This requires a high degree of flexibility and efficiency on both the organisational and technical sides."

The original circular sawing centre and storage system were installed in 1998. In many respects, the saw was no longer compatible with current technology. Among other things, the PLC installed at that time has been discontinued and supply of spare parts was becoming increasingly difficult. The machine was also heavily worn and had reached the end of its life.

Project manager Claudia Bürger recalls: "Sawn dimensions were no longer accurate and the declining quality resulted in a large amount of rework. It was evident that we needed to do something.

"Additionally, we had introduced an SAP Enterprise Resource Planning (ERP) system in the company, but the sawing centre was connected to its inventory management module via the internet, so there was a lack of transparency in the stock levels."

Modernisation of storage more economical than new equipment

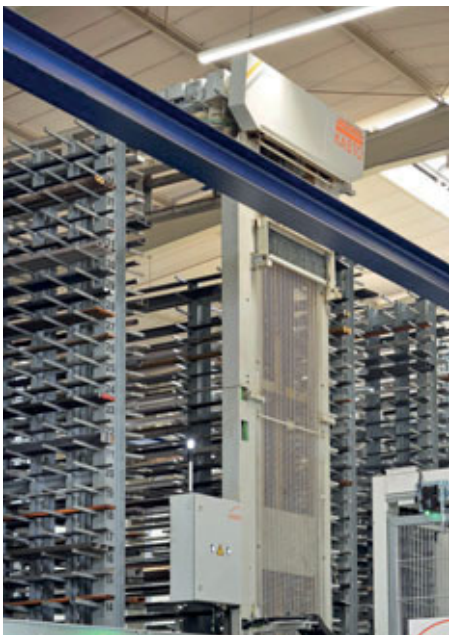
After the requirements had been defined internally in spring 2019, the decision was taken to purchase a new saw to meet current requirements. As the steel structure of the bar storage system was still in near perfect condition, replacement was unnecessary. However, during the project a second, separate storage area was removed, so KASTO expanded the cantilever storage system by 60 cassette spaces to accommodate the additional long stock.

It was also necessary to modernise the Operating Gantry Crane (OGC) that stores and retrieves the material, which is up to 6.5 m in length. KASTO replaced the outdated control cabinets, energy supply system and measuring and control technology, as well as the crane's hoisting and traversing motors. They additionally replaced the old PLC with a SIMATIC S7 controller.

Modernisation of the OGC doubled its speed from 30 to 60 m per minute. A KASTOlogic system is now used for warehouse management and is connected to the ERP system, greatly speeding and streamlining the processing of sawing orders.

Better performance despite fewer saws

The machine factory used the sawing technology conversion not only for renewal but also for optimisation. Formerly there were two manual saws, one for straight cutting and another for mitre cutting, connected to the former storage system that has now been removed, plus the old automatic circular saw connected to the bar storage system. Now there are just two sawing machines connected to the latter.



One is a KASTOflex A universal circular saw for straight and mitre cutting of materials up to 150 mm diameter. For mitring, data is fed from the 3D model of the machine to be built via the ERP system to the KASTOlogic software to optimise processing of the sawing orders.

Material is fed via a transfer station for pre-storage while the saw is operating, saving

time and making the work easier. The operator removes the bars, tubes or profiles to be cut from the transfer station of the OGC, either by hand or using the overhead crane, and places them on the saw's roller conveyor.

Adjacent to the mitre saw, a new KASTOvariospeed SC 15 fully automatic, heavy-duty circular saw has been installed to replace the old model. It is capable of cutting solid materials, profiles and tubes in all grades, including difficult-to-process metals. The saw is connected to a KASTOsort robotic handling system for handling the cut pieces.

The robot removes workpieces from the working area of the KASTOvariospeed and deposits them in one of several containers that have been manually positioned on pallets next to the robot. Using a vacuum gripper, the robot retrieves labels from a printer and places them into the containers as well. Previously, the tedious job of sorting cut pieces into the different order quantities was carried out by hand.

The upgrade took place in autumn 2020, during ongoing operation of the facility and in the middle of the COVID-19 pandemic. Christian Hinse enthuses: "I can only take my hat off to KASTO's project management team. Despite the adverse circumstances, we were able to maintain a tight work schedule without any bottlenecks in our production."

For the transitional phase, Haver & Boecker set up a temporary sawing area with provisional manual storage. Up to 15 KASTO employees were in the facility at any given time, enabling the new system to be commissioned in just three weeks. Afterwards, service technicians were on-site to instruct the customer's staff.

The two saws are operated via a touch-screen control terminal. If a malfunction should occur, KASTO engineers are able to access the system remotely to provide a solution quickly. Alternatively, with KASTO VisualAssistance it is possible to support employees on-site during repair and maintenance via smart glasses and livestream.

Claudia Bürger concludes: "So far, this service has not been needed, as the system runs smoothly and is completely reliable. We now have a better overview of our inventory, can react more flexibly to changes at short notice and experience less downtime.

"The option of automatic mitring, more precise cutting using carbide saw blades and reduced coolant consumption have all had a positive impact, helping us to achieve sustainable cost savings. Together with KASTO, we have achieved everything we set out to do and are completely satisfied with the result."

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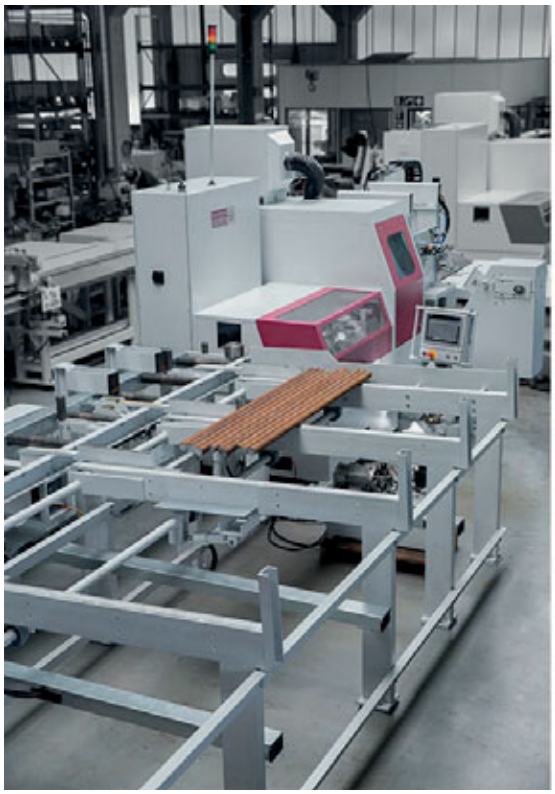
Sawing is more than just dividing



Against the background of demographic change, many manufacturing companies are forced to review previous production processes. A trend that has been emerging for several years is the development towards low-manned production facilities and automated production lines. With powerful circular saw systems and efficient material handling solutions, Behringer Eisele offers automated sawing lines from a single source.

Companies with frequently recurring orders and series production can reduce the number of skilled workers required and make their production processes more efficient with the help of automated systems and connected technologies. High-performance automatic circular saws have proven to be reliable machines for sawing bars or tubes in large batches. They are particularly suitable for series cuts and guarantee high output, low cost per cut and excellent surface quality.

The HCS 150 E is a compact high-performance carbide ciruclar saw and prepares the entry into automated production. It cuts solid materials and tubes up to 152.4 mm, 6 inches, in diameter or square material with edge dimensions of up to 130 x 130 mm. The automatic circular saw covers a wide range of industrial applications and is also an economically very cost-effective solution.

During the development of the machine concept, great importance was given to the consistent use of vibration-damping materials. The machine bed is therefore extremely robust and stable. The installed gray cast iron parts from the Behringer iron foundry also prove to be highly vibration-damping. The worm gearbox of the HCS 150 E developed by Behringer Eisele is preloaded without backlash and ensures low-vibration running of the saw blade and saw spindle. The selection of these high-quality components significantly improves the quality of the cutting surface and positively influences cutting performance and cutting costs.

Material handling as a factor of speed

Maximum output can only be achieved if both the sawing process and the material feed are capable of top performance. To meet these requirements, Behringer Eisele has developed high-performance material handling solutions. An important approach here is reloading during machining time in order to keep unproductive idle time to a minimum. While a sawing process is still running, the following material can already be placed in the buffer area and automatically fed into the saw. The customer can choose from a wide variety of loading magazines for this purpose.

Bar loading magazine for round material

A bar loading magazine is the best choice for supplying the circular saw line with round material from an initial length of 2,200 mm. Round bars and pipes are usually delivered in a bundle and placed on the magazine's robust material storage. There, the bundle is opened, and the rods are distributed as a layer on the magazine.

For feeding the material to the circular cold saw, the bars are separated by a hydraulic lifting device and transferred onto the feed roller conveyor. To cover a wide range of materials from 20 mm to 150 mm diameter, the transfer device can be adjusted to the diameter to be sawn.

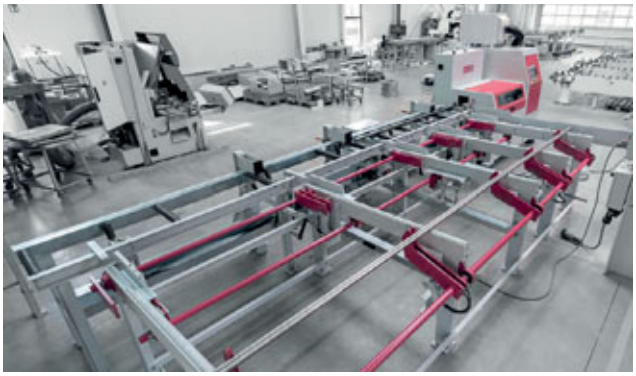
The roller conveyor itself is equipped with robust vertical guide rollers and stops with damping plates that are supported separately on the floor. When the bars are transferred from the buffer to the roller conveyor, the

guide rollers first swivel back so that the material hits the damping stops as quietly as possible. Then the vertical guide rollers move back into position and align the bars to the machine level.

The feeding gripper, driven by servo motor and ball screw, ensures precise material positioning in the high-performance circular saw. The saw offers a controlled zero edge as standard. It ensures that the material does not touch the clamping jaws during positioning. This prevents damage and achieves a higher surface quality.

Other loading magazines

While bar loading magazines are only suitable for round material, the high-performance automatic circular saws of the HCS series can be loaded with almost all profile shapes through flat loading magazines. The bundle loading magazine with large storage capacity was developed especially for separating large bundles. When the bundle is opened, upwardly directed flanges prevent the material from jumping up in an uncontrolled manner. The separation works reliably, even with thin bars. Behringer Eisele offers the described loading magazines as standardised charging solutions. The portfolio includes even more loading options and also offers individual special solutions according to customer requirements.



Disposal devices

The standard HCS 150 E is equipped with a material chute with sorting switch for removing the cut-offs. They can be sorted separately by good parts and remnants. It is possible, for example, to dispose the cut-offs in storage boxes provided. This disposal device is suitable for cut-off lengths of up to 150 mms and a maximum weight of 10 kg. For more demanding applications, numerous other solutions are available, such as disposal tongs, link belt conveyors or roller conveyors with pusher units.

Behringer Eisele has responded to the structural change and designed efficient material handling systems. With the standardised loading and disposal equipment, low-manned production environments as well as automated material flows can be implemented. The HCS 150 E high-performance automatic circular saw contains all the high-quality components and technical features expected of a Behringer Eisele circular saw. Right from the start, its reliability makes a decisive contribution to the profitability of the sawing process. The investment pays for itself quickly and you enjoy the benefits of a high-performance, top-of-the-range circular saw from the very first cut.

Behringer Ltd
Tel: 01296 668259
Email: info@behringerltd.co.uk
www.behringerltd.co.uk

Sawing solutions from KR Saws

Since 2004, KR Saws has established itself as a leading saw blade supplier in the UK metal cutting industry.

Servicing the United Kingdom from its headquarters in Coventry, KR Saws is able to offer its customers a truly comprehensive range of metal cutting circular saw blades, band saw blades and an in-house circular saw blade sharpening facility supported with expert advice and technical support.

The company is a joint venture between world-class saw blade manufacturers, Kinkelder BV of the Netherlands and Robert Roentgen GmbH & Co of Germany. Recognising the productivity challenges faced by the UK engineering industry, KR Saws was established in 2004 to provide an interface for technical support direct from the manufacturers.

By working in partnership with its customers, it can identify key variables, develop an understanding of new technologies and become the driver of cost reduction. This process is delivered through on-going individual consultation and training.

Technical partnership

KR Saws are proud to be a chosen technical partner of Prosaw Ltd, a leading saw machine supplier that operates from Kettering and serves the whole of the UK. This exclusive technical collaboration offers customers the very best in sawing solutions by focusing on increasing productivity and lowering operational costs while delivering the latest technologies in bandsaw and circular saw blades as well as sawing machinery.

Quality standards

Today at KR Saws, the company continues to benefit from the quality standards upheld by its parent companies and is able to provide a highly professional manufacturers' technical support service for circular saw blades and bandsaw blades users with metal sawing processes. Kinkelder BV has been an ISO 9001:2008 standard certified company since 1999 and Roentgen's position is achieved only by applying the highest quality standards and the philosophy and procedures of DIN EN ISO 9001: 2008 to ISO9001 : 2015.

The company is a joint venture between world-class saw blade manufacturers, Kinkelder BV of the Netherlands and Robert Roentgen GmbH & Co of Germany.

The local UK team, responsible for delivering this expertise, has a wealth of experience in the metal cutting saw blade industry and has supported many successful projects in major high volume production.

KR Saws can provide advice on the most cost effective metal and steel cutting solutions for your specific requirements and applications and provide full technical support and training.

KR Saws
Tel: 024 76 610 907
Email: sales@krsaws.co.uk
www.krsaws.co.uk

Get ahead with Imet guarded bandsaws

As Europe starts to focus more and more on operator safety in manufacturing, enclosed and fully guarded saws are likely to become the norm in the not-so-distant future. Addison Saws has several options if you're looking to get ahead and add a pre-built enclosed bandsaw to your factory. These industrial machines are designed and built by globally recognised manufacturers.

Imet CUBO BOX bandsaw range

The CUBO BOX range is the basic level of guarding offered by Imet. It features what is recognised as more traditional bandsaw guarding. While they are not completely enclosed, these automatic saws have four integrated barrier panels. This ensures operators safety during the cutting process and allows access for maintenance and manual machine cleaning. The CUBO BOX range is available in three one-way mitre NC models with cutting capacities of 255 to 310 mm.

Imet XSMART enclosed bandsaws are Industry 4.0 ready

This is the mid-range guarded bandsaw collection featuring a fully enclosed design and straight cut capabilities. XSMART band saws boast cutting capacities of 310 mm up to 260 mm, 7" touchscreens and 500 mm integrated feeders all contained within the guard enclosure.

Imet XT enclosed bandsaws are also Industry 4.0 ready

The newest range from Imet, the XT range, is its most technologically advanced and feature packed enclosed guarded bandsaw to date. With CNC automatic cutting via 10" touchscreen panel and loaded with a settings and material library, not only is this an out-of-the-box PUWER II compliant saw, it's also incredibly simple to use with easy access panels to allow users inside the machine as long as it's not running.

Addison Saws join MiM community

Addison Saws has joined the Made in the Midlands community to connect with likeminded manufacturing businesses and take advantage of their Made microsite.

Founded in 1956, Addison Saws supplies a range of sawing and metal working machines to various industries. Based in Stourbridge, the company supplies the UK's largest selection from simple band saws and circular saws through to fully automated production lines. Proud to supply affordable machinery at low running costs, Addison Saws also offers a part exchange service for companies looking to replace older machinery. This allows it to refurbish and resell used machinery, making them accessible to SMEs and smaller businesses.

Dynashape, sister company to Addison Saws, has been part of the group since 2013. The company are also experts in saw blade servicing and manufacturing and it offers a unique service to provide continuous improvement cycle to reduce supply chain costs while maximising efficiency. The company's work together to combine knowledge and offer a one stop shop for all things sawing machinery.

Having known about the Made in Group for quite some time, the Addison Saws Group decided to join because of the latest developments on the Made platform. Made in Group is a community of manufacturers, including Made in Yorkshire and Made in the Midlands, supporting and championing British industry by sharing best practices across the group.

Josie Haddy, marketing manager at Addison Saws and Dynashape, says: "We think the virtual events from Made in Group are innovative and allow networking to be accessible for more manufacturing professionals. We also believe there is value in being part of a community, especially one that supports Midland's manufacturing." The deciding factor for the company came from the opportunity to connect with like-minded manufacturers and the chance to utilise the online exposure having a company microsite offers. A microsite is a mini website connected to the Made in the Midlands domain, number one on Google for Midland's manufacturing.

Addison Saws and Dynashape are looking forward to meeting an array of businesses from various sectors within the manufacturing industry. The company is also looking forward to learning and sharing best practice with its fellow Made members.

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Simec bandsaws from Saws UK

Bandsaws and cutting machines have been a mainstay of manufacturing industries for more than a century. They have progressed from being strictly manually operated machinery to sophisticated CNC machines.

Saws UK stocks many of the world's leading bandsaw brands and has a great admiration for Simec. This Italian company is currently one of the world's most innovative cutting machine manufacturers and has long been at the forefront of highly reliable circular saw development.

Simec has a reputation of being one of the industry's most forward-thinking companies and it is already incorporating futuristic Industry 4.0 technology into its bandsaw products. The company operates from a 3,000 sq m, purpose-built factory in Schio's industrial district. Automation is a key feature in the production line, resulting in a workforce that is relatively modest in size. However, the output of Simec has been remarkably prolific for more than thirty years. As a progressive limited company, it has an impressive financial standing.

It has consolidated its early success in circular saw manufacture and is now perhaps one of the most exciting bandsaw manufacturers around. Simec has an outstanding reputation as a designer and manufacturer of precision engineered cutting machines. In recent years, Simec circular saws have been developed to include the latest technology, providing the highest degree of accuracy and performance.

The cutting precision over large batches is outstandingly uniform, with neatly finished edges. Optional machine adaptations can include deburring machines to further streamline the finishing process. A Simec circular saw helps manufacturing businesses achieve a high level of speed, accuracy and a perfect finish. It can help maintain an efficient workflow and meet delivery deadlines on time.

Simec cutting machines enjoy an impeccable reputation on a global scale. They are much sought after for a wide range of industries including construction, engineering and manufacturing.

Choosing a Simec bandsaw from Saws UK provides businesses and organisations with the opportunity to reach beyond their limitations. Through Industry 4.0 technology, a Simec cutting machine creates a fully automated production line that requires minimal supervision. Simec machines are precision engineered, highly durable and packed with essential features that make the cutting process accurate, fast and efficient.

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Join the fastener and fixing industry's international gathering, as Fastener Fair Global is back for 2023 in Stuttgart

Fastener Fair Global 2023, the 9th International Exhibition for the Fastener and Fixing Industry, takes place from 21 – 23 March 2023 in Halls 1, 3, 5 and 7 at Messe Stuttgart Exhibition Centre in Germany. The event is a meeting place for leading international organisations in the fastener and fixing sector and an opportunity for exchanging competencies and views on current technological developments.

Exhibitors at Fastener Fair Global present products and services from the following sectors:

- Fastener manufacturing technology
- Industrial fasteners and fixings
- Construction fixings
- Assembly and installation systems
- Storage, distribution, factory equipment
- Information, communication and services

Fastener Fair Global provides an excellent platform to establish new contacts and build successful business relationships between suppliers, manufacturers, distributors, engineers and other industry professionals from various production and manufacturing sectors looking for fastening technologies.

International firms representing the market

Some 835 companies have confirmed their participation at Fastener Fair Global 2023, covering 22,000 sq m² of the exhibition ground. International firms from 42 countries are participating in the show, representing SMEs and large multinational enterprises mainly from Germany, Italy, China, Taiwan, India, Turkey, Netherlands, the UK, Spain and France. From fastener manufacturing technology providers to speciality fasteners and fixings suppliers, exhibitors include: Albert Pasvahl (GmbH & Co.), Alexander P A A L GmbH, Ambrovit S.p.A., Böllhoff GmbH, CHAVESBAO (CHAVES BILBAO S.L.), Eurobolt BV, F. REYHER Nchfg. GmbH & Co. KG, Fastbolt Schraubengroßhandels GmbH, INOXMARE SRL, Lederer GmbH, Norm Fasteners, Obel Civata San. ve Tic. A.S, SACMA LIMBIATE SPA, Tecfi Spa, WASI GmbH, Würth Industrie Service GmbH & Co. KG an many more.

Ahead of the event, Liljana Goszdziewski, portfolio director for the European Fastener

Fairs, comments: "After four years since the last edition, it is rewarding and exciting to be able to welcome the international fastener and fixing industry at Fastener Fair Global 2023. The high turnout of exhibiting companies confirmed at the event reflects how keen the sector is to get together face-to-face and participate in the show to allow plenty of business networking activities and enable new sales and learning opportunities in a fast-growing market."

Serving a wide variety of industries

Exhibitors will be aiming their products and services at many industries, including:

- Construction
- Automotive
- Aerospace
- Marine
- Electronic and Electrical Goods
- General Engineering - light/heavy
- HVAC / Air Conditioning / Services
- Energy and Power Generation
- Communication Technology
- Metal Products
- Furniture Manufacturing
- Sanitary Ware and Plumbing
- Installation

A high satisfaction level recorded by attendees

Over 12,000 senior managers, engineers and buyers visited the last edition of Fastener Fair Global. The mix of visitors to the show represented the diversity of markets served by the fastener and fixing industry. Most visitors were producers, wholesalers or distributors, playing a vital role in the supply chain to resellers and the manufacturing sector.

The vast majority of visitors at Fastener Fair Global achieved their business goals by attending the event, with 91 percent of visitors claiming to be highly satisfied with the show. As a result, three in five visitors would recommend Fastener Fair Global to their colleagues and business partners.

Key Visitor Information

Visitor registration is available here ***https://www.fastenerfairglobal.com/***

Venue:

Halls 1, 3, 5 and 7 at Messe Stuttgart | Messepiazza 1, 70629 Stuttgart, Germany

Opening Hours:

Tuesday, 21 March	09.00 – 18.00
Wednesday, 22 March	09.00 – 18.00
Thursday, 23 March	09.00 – 16.00

Visa Applications:

International travel to Germany might require a visa. The German Federal Foreign Office provides an up-to-date list of countries that require a visa for Germany. Please visit ***https://www.auswaertiges-amt.de/en*** for further information about visa procedures, requirements, visa fees and application forms.

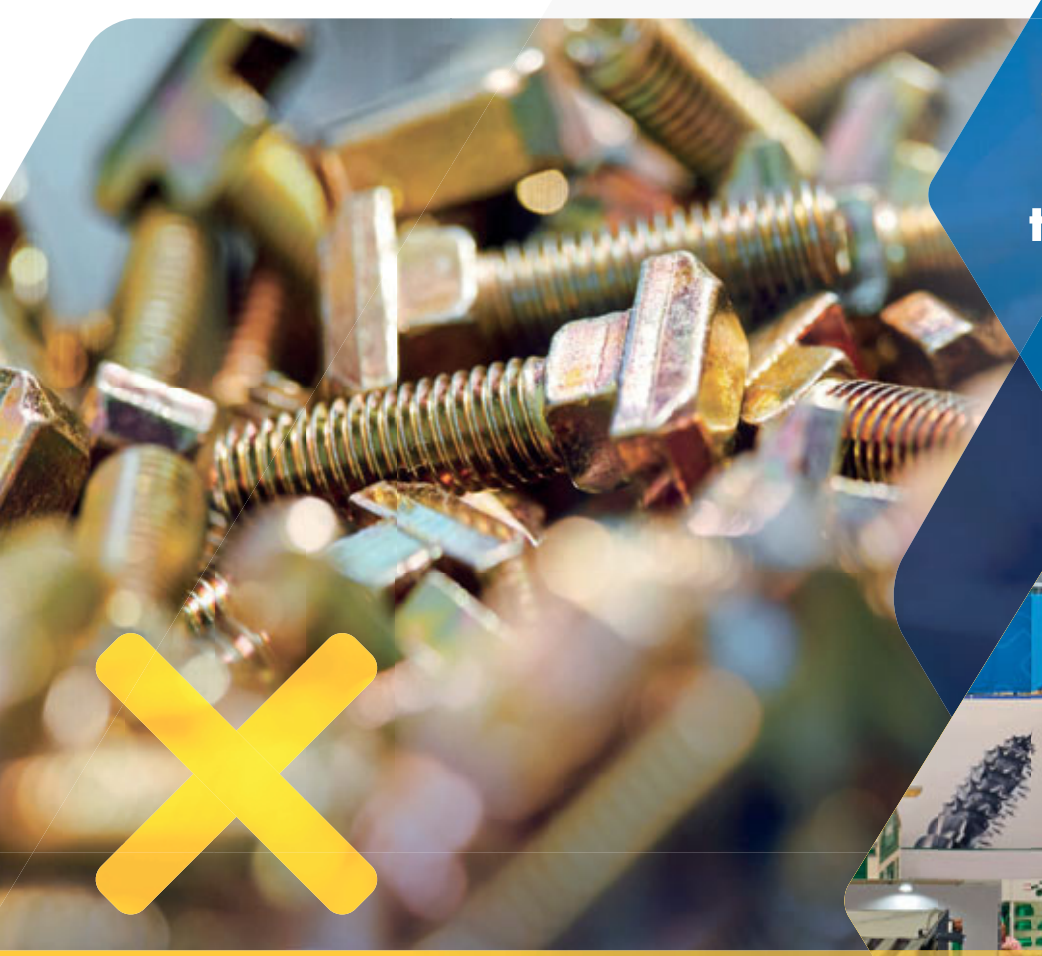
If required, invitation letters for visa applications will be available to download after completing the ticket purchase registration form.

Fastener Fairs – connecting fastener professionals worldwide

Fastener Fair Global is organised by Mack-Brooks Exhibitions Ltd, part of RX. It belongs to the highly successful worldwide series of Fastener Fair exhibitions for the fastener and fixings industry. These include the portfolio flagship event, Fastener Fair Global, as well as Fastener Fair Italy, Fastener Fair India, Fastener Fair Mexico and Fastener Fair USA.

For more information on Fastener Fair Global 2023, visit ***https://www.fastenerfairglobal.com/***

FASTENER FAIR GLOBAL



9th International Exhibition for the Fastener and Fixing Industry

21 – 23 MARCH 2023

MESSE STUTTGART, GERMANY

Join the fastener and fixing industry's global gathering

- Industrial Fasteners and Fixings
- Construction Fixings
- Assembly and Installation Systems
- Fastener Manufacturing Technology
- Storage, Distribution, Factory Equipment
- Information, Communication and Services

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