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**Southern Manufacturing and Electronics**  
4th-6th  
February 2025



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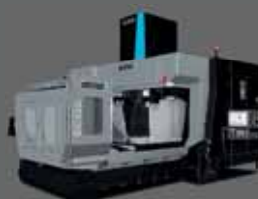
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TURNING CENTRES

5 AXIS

DOUBLE COLUMN

SUPERIOR CONTROLS



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+ Cincom Miyano Sliding-Head and Fixed-Head Machining 1 mm - 80 mm Diameter +

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# One-hit machining was centre-stage at HURCO Open House

More than 90 visitors from the UK, Ireland and Sweden representing 45 manufacturing companies attended an Open House at Hurco Europe, High Wycombe on 3rd and 4th December 2024. Managing director David Waghorn said that after tough trading conditions in 2024, the company experienced a strong upturn in business towards the end of the year. The event was therefore an excellent springboard into 2025, particularly as the order backlog is in excess of £8 million, more than double the figure at the same time last year.



Hurco offers four styles of 5-axis machining centre: cantilever, trunnion-type, B-axis spindle and large, bridge-type machines with a 2-axis spindle head. The latter two types are proving especially popular, with three 5-axis DCX bridge machines sold this year alone, all into the aerospace and defence sectors. The attraction of the SRTi B-axis range with flush rotary table is down to the user's ability, if desired, not to use it but to place a much larger component on the long-fixed table for 4-axis machining.

One-hit machining is the rationale for all these 5-axis machines, allowing parts to be produced faster and more accurately, while often avoiding the need for expensive fixtures. There is also a demand from 3-axis machine users for single-axis and compound rotary tables to add 4-axis or 5-axis functionality to achieve similar results. Hurco is likewise seeing an increased appetite in the market for more sophisticated models in its turning centre range. It has resulted in accelerating sales of the TMX series lathes with Y-axis, sub spindle, C-axes and live tooling. Again, fewer operations to the finished item, preferably one-hit production, is the goal.

Owing to a general shortage in the UK of operator skills on the shop floor, automation continues to be of interest, although sales in 2024 were flat compared to previous years. Hurco offers its own make of plug-and-play ProCobot for handling individual components and also often delivers machining centres with an Erowa pallet storage and retrieval system. Alternatively, frequently it is the user that retrofits one of the many makes of third-party robotic machine tending solutions that are available.

**Hurco Europe Ltd Tel: 01494 442222**  
**Email: [sales@hurco.co.uk](mailto:sales@hurco.co.uk) [www.hurco.co.uk](http://www.hurco.co.uk)**

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## MARCH/APRIL 2025 - Features:

- Aerospace Report
- EDM
- Workholding
- Sustainability & Waste Management
- CAD/CAM
- Laser Cutting
- Advanced Manufacturing
- Welding

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# Southern Manufacturing returns

Cutting-edge manufacturing technology from across the mechanical and electrical/electronic spectrum in approximately equal measure awaits visitors to Southern Manufacturing & Electronics 2025, which will take place from 4th to 6th February 2025 at the Farnborough International Exhibition & Conference Centre. With more than 500 stands expected to be booked for the first time, the new owner of the show, Easyfairs, says that the larger number of exhibitors will create an even more dynamic and informative environment for visitors, allowing them to explore a greater variety of products, services and technologies. Extra exhibitors also mean more potential connections with industry professionals and suppliers, potentially sparking new ideas and leading to valuable business partnerships and networking opportunities.

The largest and most comprehensive annual industrial trade fair in the UK and a major global showcase for manufacturing technology, the exhibition moved to its present location in 2008 and was the first to be held in the new, world-class exhibition centre when it was built a decade later. Since its inauguration in 1997, the event has grown continuously from a small, regional gathering of engineering firms into one of international significance. The organisers operate a policy of egalitarian access, so there will be large corporations taking similar size stands to SMEs and small vendors. It is what gives the venue a unique, vibrant atmosphere that fosters collaboration, learning and discovery.

There will be an abundance of new engineering technology at the show, making it a highly functional venue for anyone involved in design, manufacture, procurement, training or management looking to source multiple products and services efficiently, or simply to research what is available. Although the industries represented throughout the hall are multifaceted, there are no barriers between the areas, allowing cross-over between the different disciplines. Many of the 9,000+ visitors each year say it is an aspect of the show that is particularly useful, as it encourages a wide-ranging itinerary around the stands, often leading to discovery of firms specialising in related technologies that could otherwise easily be missed.

There will be all the latest in machine tools,



tooling, workholding and other production hardware, as well as subcontractors offering a comprehensive range of mechanical engineering services. Featured on the electronics side, will be PCB design, box build services, full contract electronics manufacture, cables, connectors, mechatronics assembly, and electro-mechanical components and systems. Testing, inspection and measurement serving all industry sectors will be in evidence throughout, as will production planning systems, engineering and business software, materials and consumables.

Suppliers of plastic injection and rubber mouldings will be in attendance alongside other companies specialising in a huge variety of controls, displays, HMIs, data acquisition systems, sensors, drives, encoders, fasteners, pressings, wire forms, springs and more. Additional products and services will include oil and coolant supply, workshop equipment, dust and fume extraction, humidity control, workplace storage, bespoke case and foam manufacture, plastic packaging, labelling equipment, hand tools, adhesives, industrial flooring, waste removal and recycling, freight forwarding services, and financial and business consultancy.

The ongoing growth in digitalisation of production will be reflected on stands around the hall, as will the current emphasis on reshoring of production for supply chain security and new ecological technologies such as green energy generation and power-saving machinery. To mitigate the skills shortage in Britain and across Europe, robotics and other

forms of autonomous handling will feature strongly. Additive manufacturing continues its progress towards mainstream production and there will be numerous companies offering equipment, consumables and bureau services.

Machine tool companies will be there in force, including Ajax, Colchester, Haas, Hurco, Matsuura, Mills, Ward CNC, Unison, XYZ and Yamazaki Mazak. Workholding specialist 1st MTA will launch Breuning IRCO barfeeds and machine tool automation equipment and Whitehouse will introduce the Tezmaxsan CubeBOX Pallet Pool PT-18 for machine tool tending. Machine Tool Supplies will promote its driven and static tooling and Thame will have on its stand new magnetic workpiece clamping solutions. The 3D printing sector will be represented by Additive by Matsuura, SYS Systems, CDG 3D TECH, CREAT3D and Mark3D.

Quality control of the parts such equipment produces will be the remit of metrology firms like a pair of Carfulan Group members, OGP UK and Vicivision UK, while its Zoller UK arm concentrates on cutting tool inspection and measurement. CDG 3D TECH offers industrial 3D scanning equipment, as does Central Scanning, which also provides subcontract



# ns next month to much fanfare



inspection and reverse engineering services. Hexagon Manufacturing Intelligence will show metrology solutions and software for streamlining manufacturing workflows. British Coordinate Measuring Machine (CMM) manufacturer LK Metrology will exhibit a high accuracy CMM, an improved measuring arm and laser scanners. MJ Allen Precision will promote its Verdict precision gauges, dial test indicators, lever indicators, depth gauges and bore gauges.

Sister company MJ Allen Castings and Machining offers aluminium, bronze and iron castings together with CNC machining, fabrication and quality testing. MRT Castings is a manufacturer of aluminium gravity and high pressure die castings, while Norse Precision Castings supplies aluminium sand castings throughout the UK and Europe. Tool making and injection moulding will be even more prevalent, with Broanmain, Rutland Plastics, Merriott Group, Nordell, and Wisdom Industrial Group members Sanpin Mould and Sanpin Medical there to explain the scope of their services. Additionally, at least two companies will promote rubber moulding: SRM Industries and Camberley Rubber Mouldings.



Software offerings will be in evidence around the hall. CIM Software provides Enterprise Resource Planning (ERP) solutions



Cim50 and Cim200 for manufacturers using Sage 50 and Sage 200. Cloud ERP is the specialism of E-Max Systems, which will explain its advantages to companies that are struggling with spreadsheets, legacy systems, managing MRP, or capacity planning. GHA Solutions, which partners with Epicor Kinetic ERP in the UK and Ireland, serves the SME market. WinMan ERP will be another source of this all-important software. A leading provider of work instruction software for replacing paper-based manuals and procedures, VKS, will launch I/O Connect, which allows employees to monitor and activate machines, devices and other areas of a factory directly from their work instructions. Ducosoft caters to financial services, offering cloud-based solutions for practice management and automation of business operations.

Finally, there will be many companies offering subcontract services. Rowan Precision will highlight its turned parts manufacturing capability, as will Bailey & Wade, which uses 15 sliding-head CNC lathes, two fixed-head models and many cam autos to produce turn-milled components. Derbyshire-based Mintdale machines prismatic and turned components from a range of metals and plastics and provides extra services like induction brazing, clean assembly and leak detection to medical standards. Similar machining services are offered by Sub-CNC Precision and Sterling Machining.

As far as sheet metal subcontracting is concerned, Altex Engineering is a full-service



provider with capacity for CNC laser cutting, punching, metalforming, inserting, welding, stainless steel fabrication, powder coating, finishing and assembly. Fife Fabrications will advocate its CNC press braking, fibre laser cutting and CNC punching services for sheet metalworking. Havant Sheet Metal specialises in the manufacture of components and fabrications in stainless steel, mild steel and aluminium. Pegasus Profiles offers rolling and press braking capacity, as well as flame cutting and up to 22 kW laser cutting of sheet and plate. LL Potter & Sons and Titan Manufacturing are further providers of sheet metalworking and fabrication services, showing the depth of expertise on offer at the show.

Some useful functional changes will be added to the visitor experience. People will receive a new smart badge with which they can simply touch an EasyGo reader on each stand they call on and the relevant information will be emailed to them the following morning. It saves having to carry heavy brochures around all day. Likewise, without any effort, the exhibitor will have a record of who has shown interest. New also will be a dedicated app, Southern Connect, for matchmaking with other relevant visitors.

Southern Manufacturing & Electronics co-locates with AutoAero, a specialist thread that runs through the main programme concentrating on matters important to automotive and aerospace engineering. Over the three days, visitors will be also able to take advantage of an extensive programme of free technical seminars covering a range of topics to give visitors valuable learning opportunities, with a particular focus on the technical, managerial and environmental issues facing manufacturers today.

There is free car parking at the Farnborough site, which is well served by road and public transport links. A regular, complimentary bus service runs between the two local railway stations and the showground. Admission to the exhibition is also free. Register today at: <https://register.visitcloud.com/survey/00mf6xsmh61zw?actioncode=1046>

**Easyfairs UK Ltd**  
**Tel: 020 3196 4300**  
**www.southern-manufacturing-electronics.com**

# New Mazak HQR NEO turning centre to headline Southern Manufacturing & Electronics

Yamazaki Mazak will exhibit its latest high-performance turning centre at Southern Manufacturing & Electronics 2025.

The new HQR-200/3 NEO is the latest addition to Mazak's range of high-volume turning centres that offer machine users exceptional levels of productivity, accuracy, efficiency and ultimately, profitability.

The HQR NEO represents a leap in productivity and precision, featuring a two-spindle and triple-turret construction optimised for high-efficiency turning, milling and drilling in one setup. This advanced configuration allows for simultaneous, balanced cutting on both spindles, reducing cycle times by up to 25 percent compared with a two-turret machine.

Built for efficiency, the HQR-200/3 NEO is designed to handle diverse machining needs, ideally suited for medium-to-high batch sizes from aerospace to automotive applications as well as volume subcontracting.

The new model provides powerful turning capabilities with high spindle speeds, up to 5,000 rpm and a dual 22 kW spindle that can easily manage complex part requirements. The 6,000 rpm milling spindle delivers enhanced performance, supporting everything from end milling to high-speed drilling. The HQR NEO is only 120 mm deeper than the two-turret version and offers an increased maximum workpiece size for

lower-turret chuck work from  $\varnothing 212$  mm to  $\varnothing 320$  mm.

Engineered for diverse part applications, the HQR-200/3 NEO integrates seamlessly with various automation solutions, from bar feeders to robotic machine-tending setups, enabling flexible and unattended operations. The model's advanced Y-axis long stroke enables precise, balanced machining across complex geometries, maximising productivity while ensuring exceptional accuracy. With a tandem tooling setup, users benefit from reduced tool changeovers and optimised setup time, ideal for high-volume production needs.

Southern Manufacturing & Electronics visitors are invited to see the new MAZATROL SmoothG3 CNC, which will be exhibited as part of the machine. It features three channels which intuitively help operators to optimise tool paths, reduce unnecessary tool changes, balance machining time on each turret and prevent collision.

The HQR-200/3 NEO is the latest machine to be engineered to align with Mazak's Go Green strategy, combining precision and efficiency with reduced environmental impact.

Developed with energy conservation in mind, it features inverter-driven hydraulic and

chiller units that optimise power consumption and a refined slideway lubrication system that adjusts to machine travel to reduce grease use. The optional Smooth Coolant System further enhances both energy savings and maintenance efficiency, making this model a key addition for sustainable manufacturing.

Alan Mucklow, managing director for UK, Eire and national distributors at Yamazaki Mazak, says the HQR NEO is a must-see for visitors to Southern Manufacturing & Electronics.

"The HQR NEO will be one of the highlights of the Southern Manufacturing show. It is a machine that is ideally suited to the local manufacturing base that increasingly requires best-in-class technology capable of dramatically improving productivity and profitability. The HQR NEO will be live-cutting on the stand and we look forward to welcoming visitors and demonstrating the machines capabilities."

Mazak Europe is the European manufacturing, sales and support arm of the international machine tool builder, Yamazaki Mazak Corporation.

Yamazaki Mazak Corporation, founded 1919, is the world's largest producer of computer-controlled metal cutting machine tools with annual sales of over 1.5 billion Euros. The company's headquarters are near Nagoya, Japan and it has manufacturing operations in Japan, USA, Singapore and China as well as in the UK. It is privately owned by the Yamazaki family, from whose name the brand "Mazak" is derived.

Customers include manufacturers of sub-sea equipment for the oil industry, makers of moulds for contact lenses, customers supplying to the aerospace, automotive and construction industries and manufacturers of machinery of all kinds. Indeed it is said that Mazak supplies machines to make everything from jewellery to jet engines.

**Yamazaki Mazak UK Ltd**  
**Tel: 01905 755755**  
**Email: [info@mazak.co.uk](mailto:info@mazak.co.uk)**  
**[www.mazakeu.co.uk](http://www.mazakeu.co.uk)**

**Stand F180**



*Yamazaki Mazak's HQR-200/3 NEO will be making its UK exhibition debut at Southern Manufacturing & Electronics 2025.*



# SOUTHERN

## 25 Manufacturing & Electronics

4-6 February 2025 Farnborough International Exhibition Centre

9000+ attendees

500+ exhibitors

# One show, a thousand solutions



“

This has been absolutely fantastic — far beyond our expectations! The turnout has been incredible, with more visitors than we ever anticipated. We've attended other shows across Europe in recent months, and this one is by far the largest. The energy has been amazing right from day one, with a constant flow of enthusiastic visitors. We're thrilled with the outcome!

Agnieszka Radecka  
Regional sales manager, TME



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Free industry seminar programme available online. The exhibition is free to attend, free to park and easy to get to. **Doors open at 9.30am on 4th February.**

southern-manufacturing-electronics.com  
southern@easyfairs.com +44 (0)20 3196 4414

Register today using code 1046

Scan here  
to register  
for free



# Showcasing the latest in tube & wire bending and laser cutting at Southern Manufacturing

Unison Ltd, the UK-based inventor of ultra-precise all-electric tube manipulation, will be presenting the capabilities of its full range of all-electric and hybrid-electric tube bending machines at Southern Manufacturing & Electronics, along with technologies from the wider Unison family.

As a leading UK manufacturer of tube bending machines, Unison offers all-electric benders for tube diameters from 4 mm to 275 mm. Available in single-stack, multi-stack, left/right, pinball and twinhead versions, these advanced machines provide rapid, automatic setup, fast tooling changes and right-first-time repeatability all supported by exceptional power and rigid mechanical design. Unison's hybrid-electric, dual-stack machines were developed to make the company's quality and reliability accessible to even more businesses involved in tube manipulation. 50 mm and 80 mm maximum tube diameter hybrid models are available.

## Manually operated, CNC-controlled tube bending

On show and operational on Stand D215 at Southern Manufacturing & Electronics will be one of Unison's incredible EvBend 1000 manually operated, CNC-controlled tube bending machines. Designed for low volume, high-accuracy production and prototyping, Unison EvBend models are used across aerospace and MRO, Formula 1 and the oil & gas industry, where they provide 3-axis mandrel, multi-plane bending at a fraction of the cost of fully automated machines.

In addition to the EvBend 1000, which is designed for bending tube of up to 16 mm in diameter, 22 mm in copper, a larger machine, the EvBend 2000, is also available. Built to bend tube of up to 50 mm in diameter, its bending function is servo-assisted. Both EvBend machines feature a 15-inch PC-based touchscreen controlled by a CNC that is capable of processing up to 100 bends per

component, storing infinite parts and connecting to both CAD and most tube measuring systems.

## Laser cutting and wire manipulation

Visitors to Stand D215 will also be able to discover more about the machine tools available from Unison's sister companies, Nukon Lasers UK and wire-bending machinery maker, Pneufarm Machines Ltd.

Renowned for its high quality, highly accessible European-built fibre laser cutting machines and press brakes, Nukon Lasers UK has recently launched a new high-performance machine range designed to make Nukon laser cutting accessible to even more UK subcontractors and in-house manufacturers.

Unison Ltd acquired Pneufarm, a leading name in the manufacture of wire forming and small-bore tube bending machines in autumn 2023 and has been working hard to ensure the brand continues to lead the way in the wire bending machinery market. As standard, all Pneufarm machines are equipped with Yaskawa drives and Unison's user-friendly software for easy programming and operation.

## Uncompromising quality, service and support

"At Southern Manufacturing we are looking forward to showing even more UK subcontractors and manufacturers how all their tube and wire manipulation and laser-cutting needs are available from a British-based company with a reputation for providing uncompromising levels of service, support and aftersales care," says Unison Ltd's joint managing director, Alan Pickering.

"We believe our EvBend range of manually operated, CNC-controlled tube bending machines will be of particular interest to visitors from the aerospace sector. While the latest advances to our industry leading Unibend CNC, tube bending simulation software, tube scanning solutions and tube bending application app, will ensure we've a great deal to talk about with customers old and new."

## Unison Ltd

Tel: 01723 582 868

Email: [sales@unisonltd.com](mailto:sales@unisonltd.com)

[www.unisonltd.com](http://www.unisonltd.com)

## Stand D215



Unison EvBend 1000, manually operated, CNC-controlled tube bending machine.

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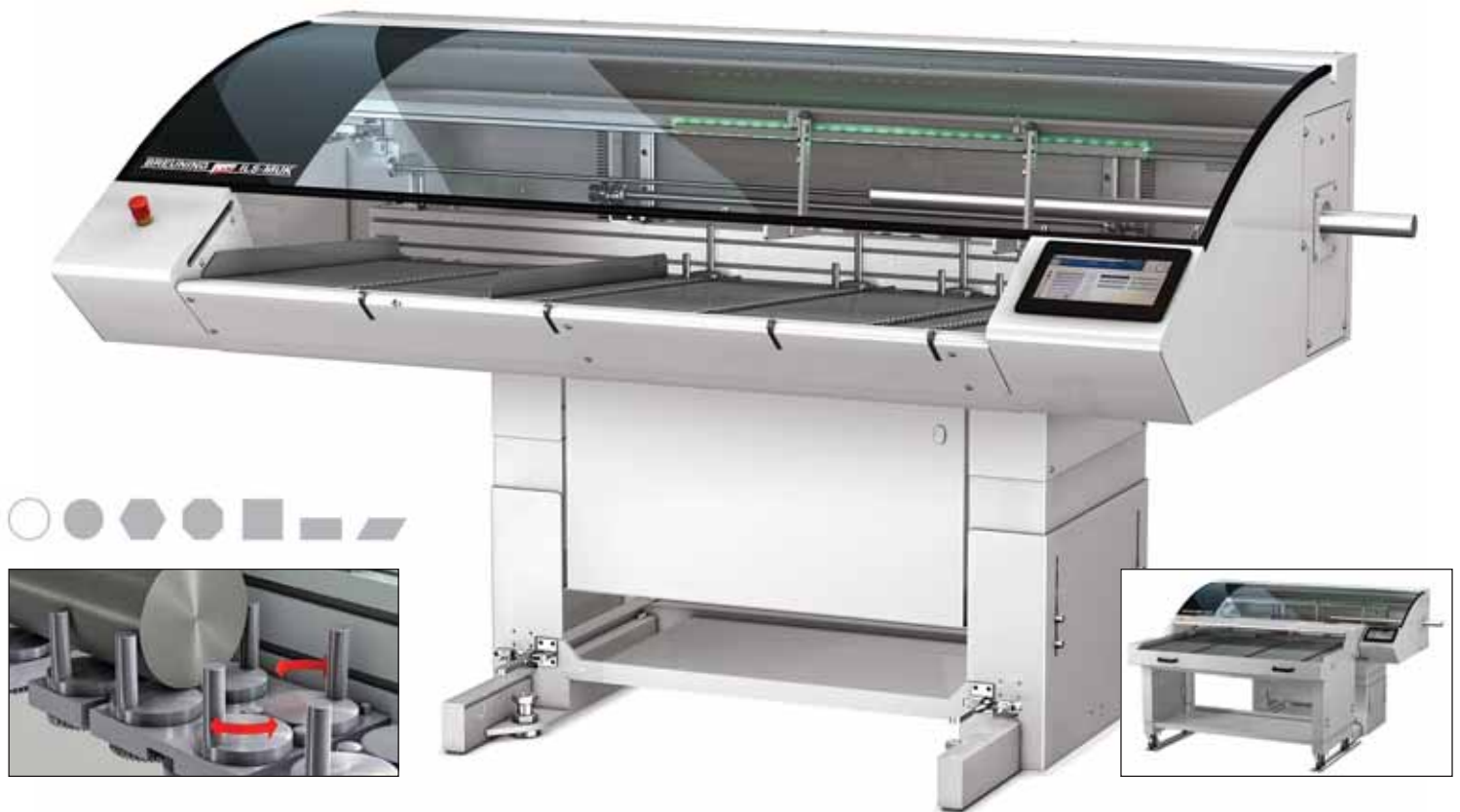
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Call today for details.

## Haas has the solution at Southern Manufacturing



Haas Automation is the largest machine tool manufacturer in the western world, producing over 18,000 machines every year. The full range of metal-cutting machine tools, including CNC machining centres, lathes and rotary tables, is designed and built in its 1.6 million sq ft factory in California.

In 1987, Haas Automation started the development of its first CNC machining centre. A team of British industry professionals recognised the potential of this new development and in 1990 agreed to become the first company to distribute Haas machines outside of the USA.

The company has since remained the only Haas distributor to specialise solely in Haas machines throughout its entire history.

The VF-1 vertical machining centre made its UK debut in 1991 amidst comment from the established competition, who doubted the product would get off the ground. The machine surpassed all expectations and to date has an installed base of well over 10,000 machines in the UK. Haas Automation has installed over 250,000 machines globally.

With its headquarters in Norwich, Haas UK employs more than 95 staff. A dedicated field-based support team of 30 Factory

Certified engineers each carry with them over £38,000 worth of spare parts, supported by the company's UK spare parts facility holding £4,800,000 of parts on the shelf.

The company has its own dedicated rotary table service department supporting these units out in the field. Most recently, Haas UK has moved into its newly created state-of-the-art head office in Norwich with the latest in computer systems backed by direct links to the factory machine database, with round the clock access to service information.

Haas UK has showrooms and training facilities in Wymondham, Norfolk. Call 01603 760539 to arrange a machine demonstration. Haas Engineering Centre in Wymondham houses its most popular machines for live cutting demonstrations and operator training.

**Haas Automation Ltd**  
**Tel: 01603 760539**  
**Email: enquiries@haas.co.uk**  
**www.haas.co.uk**

**Stand G220**

## Wallwork Group to exhibit at Southern Manufacturing



At Southern Manufacturing 2025, Wallwork Group, is highlighting the rapid growth of its hot isostatic pressing facility. With an initial investment of over £10 million, the 2,500 sq m facility opened at the end of 2023. It became fully operational just in time for last year's Southern Manufacturing.

To keep pace with demand, equipment for a further Quintus Technologies HIP is now arriving at the Wallwork HIP Centre. Following installation, testing, commissioning and certification processes, this new HIP capacity will be available in the second half of 2025. "While we knew there was great demand for more HIP capacity in the UK, companies across Europe and beyond are also finding our service

competitive and compelling," explains Wallwork HIP business manager, David Loughlin.

Suitable for metal additively manufactured, power-metallurgy and cast parts, the EN9100 approved HIP service is provided stand-alone or can be combined with the Wallwork Group's vast array of heat treatment services. All easily accessible from facilities in Cambridge, Manchester, Birmingham and Newcastle, via their own secure and dedicated commercial transport fleet.

The stand team will also be keen to discuss with visitors other services including PVD and PVECD coatings, plasma nitriding, vacuum carburising, and vacuum brazing. Wallwork maintains in-house, well-equipped, UKAS certified, mechanical testing labs. Its research and development teams work closely with manufacturers creating unique surface treatments in aerospace, automotive, motorsport, medical, oil and gas and other precision industries.

**All your favourite thermal processes from one supplier**

With Nadcap accreditations, the company

recently achieved Gold for its Manchester site and multiple aerospace prime accreditations, customers really appreciate the full end-to-end experience that Wallwork delivers. This is only possible with so many services accessible from one supplier. As a one hundred percent UK owned company, ITAR compliance is also an important consideration for some manufacturers.

Wallwork Group is the largest privately-owned company specialising in thermal processes and surface engineered coatings in the United Kingdom. With a rich history spanning over eight decades, the extensive service offering reflects our ongoing commitment to supporting the varied needs and challenges within Manufacturing. Wallwork Group took the decision to invest in Hot Isostatic Pressing (HIP) in response to requests from its existing and potential new customers.

**Wallwork Heat Treatment Ltd**  
**Tel: 0161 797 9111**  
**www.wallworkht.co.uk**

**Stand E290**

## Discover Thame Workholding's diverse workholding range at Southern

Thame Workholding, a renowned leader in precision workholding, will be showcasing its diverse product portfolio at Southern Manufacturing 2025. The event offers a unique platform for visitors to discover the latest advancements in workholding technology tailored for modern manufacturing environments.

Visitors to Thame Workholding's stand can expect a wide variety of advanced workholding products, all engineered for precision, versatility and maximum efficiency. Key highlights include the HWR Zero Point range, known for its fast, accurate clamping capabilities and Flaig Magnetic Workholding, celebrated for its precision and user-friendliness. Additionally, Thame will display WITTE vacuum systems, which deliver reliable, secure solutions for handling delicate or complex components.

The stand will also feature Thame's TEC Jaws, made in the UK, which provide adjustable clamping solutions to

accommodate a wide variety of components with precision and stability. Automation enthusiasts will be able to explore workholding systems from LightsOut MFG, AirVise and VersaBuilt, demonstrating how these solutions can be seamlessly integrated into automated setups to boost productivity.

"We are excited to return to Southern Manufacturing in 2025," says Marcus Hamlyn, sales director at Thame Workholding. "Our product range continues to evolve and this event provides the perfect platform to showcase the innovative solutions that our team have assembled. Whether you're working with intricate components or large-scale assemblies, our products are built to support your manufacturing needs with the highest levels of precision and reliability."

In addition to its product showcase, Thame Workholding will offer expert consultations and live product demonstrations. Its experienced product designers will be available to answer bespoke workholding



queries and visitors can book one-on-one sessions in advance for tailored advice on their specific manufacturing requirements.

Thame Workholding invites engineers, manufacturers and industry professionals to visit its stand and discover how its wide range of workholding solutions can help optimise operations, improve precision and minimise downtime.

**Thame Workholding**  
**Tel: 01844 208050**  
**Email: sales@thameworkholding.com**  
**www.thameworkholding.com**

**Stand J200**

## SAY HELLO TO HALO

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## Giving component manufacturers what they want and need

### Best-selling DN Solutions' multi-tasking mill-turn machine takes centre stage at Southern Manufacturing courtesy of Mills CNC.

Mills CNC, the exclusive distributor of DN Solutions' and Zayer machine tools in the UK and Ireland, is showcasing a high-performance, multi-tasking mill-turn machine on its stand at Southern Manufacturing.

The machine, a DN Solutions' SMX 2100SB, is a popular and proven machine that delivers high accuracies, fast processing speeds and unrivalled machining flexibility; with its 5-axis simultaneous machining capabilities it is ideal for



component manufacturers looking to process complex, high-precision parts in one hit.

The SMX 2100SB is equipped with the latest, advanced FANUC 31i-Plus control and features two, left and right, opposing 8" and 10" chuck, 4,000/5,000 rpm, spindles, a 12,000 rpm B-axis milling head, a 40-tool position, servo-driven ATC with its own touchscreen operating panel and a 12/24-position lower turret with driven tooling capabilities, 5,000 rpm.

In addition to its rigid design and build, the SMX 2100SB comes supplied with high-precision roller-type LM guideways that minimise non-cutting time and integrated thermal compensation that ensures high accuracies over long machining runs and lengthy periods of operation.

The SMX 2100SB was recently showcased at Mills' 'Pushing the

Boundaries' Open House in October 2024 and later, in the same month, at Seco's Inspiration through Innovation event where the machine's cutting capabilities were on full display machining high-precision parts from tough materials.

The machine will be under power at the show, enabling visitors to see its impressive capabilities for themselves.

Tony Dale, Mills CNC's CEO says: "The SMX 2100SB can help component manufacturers revolutionise their productivity and process efficiencies. Visit our stand and we'll show you how."

**Mills CNC Ltd**

**Tel: 01926 736736**

**Email: sales@millsncnc.co.uk**

**www.millsncnc.co.uk**

**Stand C160**

## Colchester Machine Tool Solutions to showcase its latest lineup

Colchester Machine Tool Solutions has been manufacturing machine tools for over 130 years, over which time it has gained the trust of the machining industry across the world. All products are designed and manufactured to exceed the highest international quality and safety standards, with precision, performance, and reliability at the forefront.

At Southern Manufacturing & Electronics 2025, Colchester will be showcasing two of its latest high-quality CNC machines, the Lightning permanent laser marker and the range of chucking solutions from Pratt Burnerd International Workholding. This varied range of products on display demonstrates further how Colchester can be your one-stop shop and trusted partner for all machining applications.

### High performance, high precision machining

The Storm VL-550 Vertical Machining Centre is the most compact model in the range, utilising linear guideways technology and capable of the most demanding tasks with heavy-duty and precise machining. See it in action at the exhibition to see how it could be a great fit for your workshop.



### Built to last, with outstanding machining efficiency and Y-axis capability

After recently celebrating its 30th anniversary, the Tornado SL25 MSY Sub-Spindle CNC Turning Centre is designed to deliver unparalleled productivity and versatility with its integrated sub-spindle and Y-axis capabilities. See its full capability in a live demonstration at the exhibition.

### Powerfully simple, with robust marking capabilities

The Lightning Class 1 permanent laser marking system boasts a wide set of features for use in an unlimited number of applications and is



backed up by Colchester's extensive and UK-based support offering. Come and see how quick and effortlessly Lightning can mark a whole host of different materials and grab yourself a giveaway.

Pratt Burnerd International Workholding is a leading supplier of high-precision, high-quality manual and power chucking solutions, catering to the needs of industrial subcontractors and OEMs worldwide. See how its wide range of chucking products can fit to your machine tool, both old or new.

**Colchester Machine Tool Solutions**

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**Email: sales@colchester.co.uk**

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**Stand J210**



Stand H130



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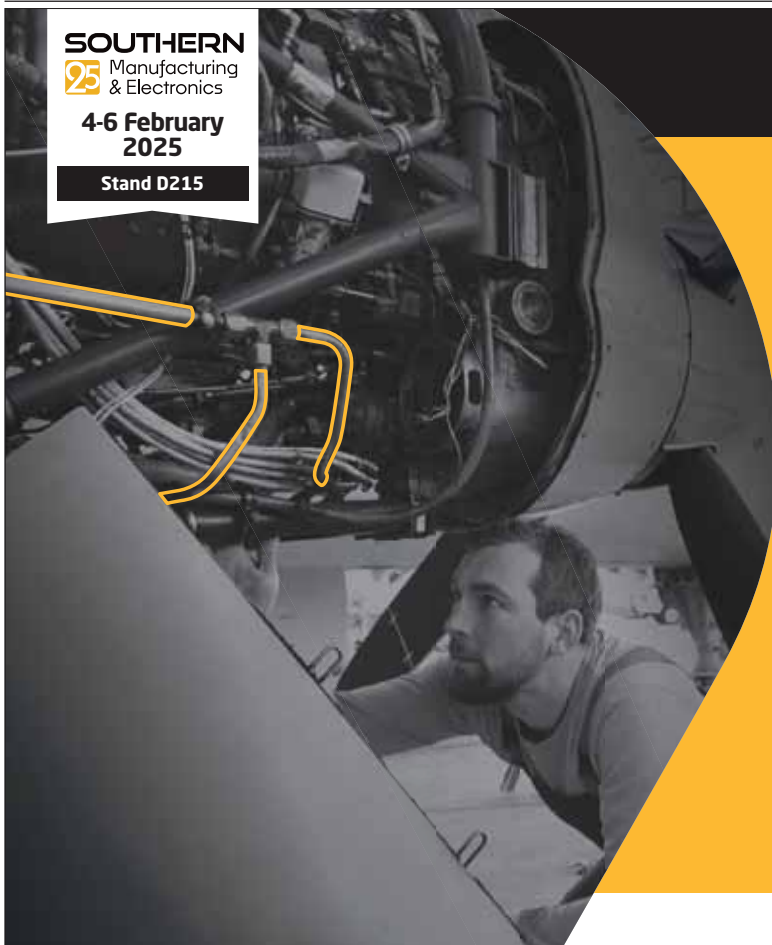


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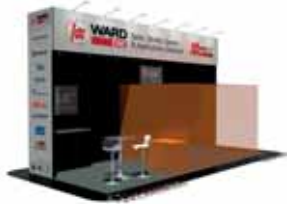


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# Ward CNC to showcase high-performance turning solutions and unveil new brand

T.W. Ward CNC Machinery Ltd (Ward CNC) invites visitors to discover cutting-edge innovations and a new product range at Southern Manufacturing.



Ward CNC is set to make a big impact at this year's event by presenting advanced turning solutions alongside the launch of a new product line to complement its extensive portfolio of CNC machinery. Here's what attendees can expect:

Visitors will witness the Takisawa TM-3000Y2 Y-Axis CNC Lathe with Twin Spindle and Twin Turrets in action. This high-performance multitasking lathe is designed for precision and efficiency.

Ideal for industries such as medical,

automotive, and aerospace, the TM-3000Y2 delivers exceptional accuracy and versatility. Ward CNC's applications team will demonstrate its full capabilities, showcasing its potential for complex, high-volume tasks including balanced turning, pinch milling and dual turret operation.

## New product launch

Building on its 140+ year legacy, Ward CNC will unveil an exciting new brand that enhances its existing lineup. The company's diverse portfolio also includes its Used Machinery Division, offering meticulously selected pre-owned machines to meet various customer needs. Its commitment to customer success is epitomised by its comprehensive after-sales and support, which includes:

- Expert machine installation
- Dedicated preventative maintenance and breakdown service
- Reliable technical assistance
- Rapid spare part delivery

• Tailored applications training, which covers leading CNC control systems such as FANUC, Siemens, HEIDENHAIN and Hartford's exclusive Hartrol control.

Visitors can engage with Ward CNC's sales and applications experts, including regional manager Paul Wallace. Commenting on the event, he says: "Southern Manufacturing is a premier platform to showcase cutting-edge technology and Ward CNC's comprehensive solutions. From compact turning centres to large-scale boring and milling machines, our diverse portfolio is designed to meet every manufacturing requirement. We look forward to meeting both existing and new customers on Stand J260."

**TW Ward CNC Machinery**

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**www.wardcnc.com**

**Stand J260**

# Bowers Group to showcase connected metrology at Southern Manufacturing & Electronics 2025

Bowers Group will be exhibiting at Southern Manufacturing & Electronics, showcasing a wide range of its precision measurement instruments. The company offers solutions that enhance accuracy and efficiency in manufacturing, from handheld workshop tools and gauges to non-contact vision inspection systems and the new range of Bowers Figura contour, roughness and roundness measurement machines.

Jordan Gould, UK & Ireland sales manager at Bowers Group, says: "We're thrilled to be returning to Southern Manufacturing & Electronics in 2025. This show is a key event for us and we're looking forward to showcasing our connected metrology solutions, as well as our brand-new Moore & Wright testing instruments, Baty Venture FV field of view inspection machine and the new Figura range of contour and roughness measurement machines. It's always a fantastic opportunity to demonstrate our expertise as a complete metrology solutions provider and alongside our own products, we'll also be featuring instruments from our trusted

partners, offering a comprehensive service to meet the varied needs of our clients."

On display will be a wide selection of Bowers well-respected range of bore gauges, micrometres and custom solutions for a variety of applications. Visitors can also explore Moore & Wright's expanding range of testing instruments and precision tools, which have been trusted for over a century. A highlight will be the Baty Venture FV, a high-performance field of view vision system designed to deliver fast, accurate non-contact measurement.

Additionally, Bowers Group is excited to introduce its new Figura range to visitors, proudly showcasing the next generation of high precision surface, form and geometry inspection machines. Visitors will have the opportunity to see the Figura CR contour and roughness measurement machine and find out more about the wider range including the Figura RD, the range's roundness measurement machine.

Southern Manufacturing and Electronics Exhibition is the UK's largest regional



manufacturing technology, electronics and subcontracting exhibition. Not only will there be thousands of engineering and electronics solutions on display, visitors will also have the opportunity to attend a full programme of free technical seminars.

Visit Bowers Group, the show to learn more about how its connected metrology solutions can support your quality control processes.

**Bowers Group**

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**www.bowersgroup.co.uk**

**Stand H130**



# 5S Technologies: The next chapter in advanced manufacturing solutions



Exciting changes are on the horizon for MIE Solutions UK Ltd. The company has officially rebranded as 5S Technologies Ltd, marking a pivotal step in its evolution. This name change isn't just cosmetic; it symbolises a strengthened partnership with MIE Solutions Inc, now part of the international Mirador Software group, a family-owned network of ERP software companies.

As the exclusive UK reseller and support provider for the industry-renowned MIETrak

Pro ERP software, 5S Technologies aims to build on its robust foundation by embracing a forward-thinking identity. The new name reflects the company's dedication to continuous improvement and advanced solutions, values synonymous with the 5S methodology emphasising efficiency and organisation.

### What does this mean for customers?

For existing customers, this change introduces enhanced benefits. Under a formal value-added reseller agreement with MIE Solutions Inc. UK clients will now enjoy the same comprehensive software maintenance services available to their US counterparts. This includes contractual access to all new software versions upon release, ensuring customers can leverage the latest features and improvements without delay.

Importantly, the company's local operations and high-quality service will remain

unchanged. The trusted team, led by Sam Hawkes and Chris Mann, will continue to deliver the same exceptional support that customers rely on. This rebrand is about enhancing the customer experience and future-proofing the MIETrak Pro product in the UK for decades to come.

"We are thrilled to take this next step as 5S Technologies," says Chris Mann and Sam Hawkes. "Our mission remains steadfast: to provide the UK manufacturing community with the tools and support they need to thrive. With our new name, we're better positioned to showcase our forward-looking approach and commitment to innovation."

**5S Technologies**  
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**Email: sales@5-s.co.uk**  
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**Stand B230**

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# 5-axis machining centre range expanded

Following the introduction of the F 5000 and F 6000 5-axis machining centres, Heller has extended this latest generation series with the launch of a larger capacity model, the F 8000, suitable for single part manufacture through to flexible series production, 24/7.

The machine is capable of producing parts within a 1,400 x 1,200 x 1,400 mm working envelope, the X-axis stroke being 150 mm longer than that of its predecessor.

Nevertheless, the new machine occupies a 25 percent smaller, narrower footprint, thanks in part to a new design of rack-type tool storage. Four machines can be placed side by side where until now only three could be installed.

If a user purchases an optional, enhanced specification PRO version, they will benefit from having a machine with 50 percent higher linear axis acceleration at  $6 \text{ m/s}^2$ , reducing chip-to-chip time by approximately 30 percent. The PRO package also offers greater precision, with positioning tolerance in X/Y/Z of  $6 \mu\text{m}$ , representing a 25 percent improvement over the former model.

Equipped with an automatic pallet changer as standard, the new machine utilises 800 x 800 mm pallets, although it is possible to use larger 1,000 x 1,000 mm pallets. Maximum load is 2,000 kg, but from the start of 2025 an optional pallet load of 3,000 kg will be offered. In addition, extended automation with linear or rotary storage systems or robots is available.

The F 8000 uses the same modular system as the entire F series for key components such as heads, spindles, pallets and tool magazines. Machine structure is also consistent across the series, ensuring compatibility not only with previous 5-axis generations, but also with Heller's new H series of 4-axis horizontal machining centres. Standardisation of structural components such as beds and columns enables the same strokes, pallet loads and workpiece dimensions.

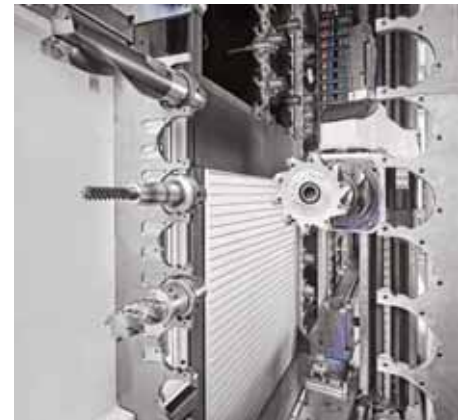
The new Heller F 8000 5-axis machining centre.



Heller's tilting spindle head option.

Among the highlights of the F 8000 and its smaller counterparts are the redesigned, high performance, swivelling heads with integrated motor spindles, developed and manufactured in-house. Equipped with an HSK-A 100 tool interface as standard, the Dynamic Cutting Universal unit achieves torques of 400 Nm and speeds of 12,000 rpm. The Speed Cutting Unit with the same interface provides 15,000 rpm, although with optional HSK-A 63 tooling, spindle speed is up to 18,000 rpm. For ultra-heavy machining, the Power Cutting Universal unit with gear-driven spindle delivers 1,146 Nm of torque and speeds up to 8,000 rpm.

In addition to the swivel heads, a tilt head variant is available to enable a particularly high degree of flexibility in 5-axis machining. It is



The Heller rack-type tool magazine.

due to the tilt kinematics allowing efficient machining of recesses and undercuts, which are often required when manufacturing aerospace components. A high-torque, direct-drive, rotary table for combined mill-turning operations is offered across the F series. It means that, in addition to prismatic machining operations, external and internal contours can be turned in a single setup, improving accuracy and reducing cycle times.

The F 8000 is equipped with the latest Siemens CNC system, SINUMERIK ONE, which will run programs run on previous machines equipped with the Siemens SINUMERIK 840D sl control.

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# Brother machining centre halves cycle times



*Ed Piotrowski, operations manager at R&A, holding an aluminium EV engine terminal block machined on the Brother 5-axis Speedio M200X3 machining centre.*

Aylesbury-based R&A Engineering won a contract in early 2023 to produce several hundred aluminium parts per month across six variants for assembly into sensors that optimise the orientation of wind turbines to maximise the power they generate. The job was tying up a pair of BT 40-taper Vertical Machining Centres (VMCs) on the shop floor and impacting the subcontractor's ability to take on other work. So the decision was taken to transfer production to a 30-taper, high-speed VMC, prompting an order to be placed for a Brother M200X3 with a 16,000 rpm spindle.

Delivered in August 2023 by the Japanese manufacturer's sole agent in the UK and Ireland, Whitehouse Machine Tools, the Speedio M200X3 5-axis VMC has on average halved the time it takes to complete post-anodising milling, drilling and tapping operations on the six components. The machine is therefore able to perform the same work as the two VMCs used previously, which are now free to carry out other work.

Ed Piotrowski, operations manager at R&A says: "We approached a couple of 30-taper VMC suppliers but Whitehouse was the obvious choice, even though we have never bought a machine from them before.

"It is a family-run firm like ours and has a

similar ethos as regards to providing a high quality service, which was obvious when we visited their showroom in Kenilworth a couple of times for demonstrations.

"The Brother performs very well. Cycle times are now between one-and-a-half and four minutes, half of what they were before and the  $\pm 0.05$  mm tolerance is held all day long without any problem. It is a really accurate machine."

Established in 1985 by Ed Piotrowski's parents, Richard and Alison and currently employing 18 staff, R&A has grown by 50 percent since 2021. It has invested £800,000 in machine tools during the past couple of years and is looking to automate production wherever possible in both the turning and milling sections. The rationale is twofold: to be able to take on extra work without compromising existing, long-running contracts; and to be more cost-competitive on the world stage to accelerate the flow of work that is already being reshored from Asia and elsewhere in increasing quantities.

Ed Piotrowski has some interesting insights into why a subcontractor should invest in a 30-taper VMC, bearing in mind that an adage in contract manufacturing is that one never knows what work will come through the door next. The wider applicability of a 40-taper machine due to its size and power would therefore seem to make more sense.

The first advantage of a nimble milling machine with the smaller diameter tool interface is high speed production, which translates into greater profitability. Not only does the elevated spindle speed combined with up to 30 m/min cutting feed rate provide generous metal removal rates, but idle times are lower due to 50 m/min rapids in X-, Y- and Z-axis and tool change in under one second.

A less well-known benefit is the vastly lower power consumption of 30-taper machines. Ed Piotrowski advises that the M200X3 draws less than 10 kVA, versus typically 50 kVA for a 40-taper VMC or perhaps even more if it is an old machine. Energy bills are therefore lower and, as is the case at the Aylesbury facility, if a factory is close to its power supply limit the lower kVA rating is a godsend.

Reviewing the characteristics of the respective BT spindle machines, he observes that while power and rigidity are higher in a



*The M200X3 is one of 10 VMCs on the shop floor at R&A, working alongside eight CNC turning centres.*



40-taper VMC, modern, smaller-taper counterparts such as the Brother have a reasonably well specified spindle motor with good torque, even in the medium- to high-speed range. The drive motors are also consistent with robust machining and face-and-taper-contact tool retention assists further, as in R&A's case.

He adds: "Although machining of light alloys is really the province of this type of machine, using modern CAM software to create intelligent cycles involving light depths of cut and high-speed contouring means that tough and difficult-to-machine metals can also be tackled."

The M200X3 has a further advantage for OEMs and subcontractors alike. It is equipped with a torque motor to drive the rotary table, allowing a component not only to be indexed, but also to be rotated at up to 2,000 rpm so it can be machined with a static turning tool in the spindle. Completing this second operation in-cycle without the need to re-fixture the part in a lathe simultaneously raises accuracy and productivity.

The mill-turn capacity in an impressively small footprint holds a lot of potential on the shop floor at R&A. Take, for example, the wind turbine sensor job for which the machine was purchased.

Currently all six parts undergo turn-milling on a lathe before being sent out for anodising. The Brother is only required to remove the insulative anodic layer in certain areas to provide electrical conductivity. With the latter machine's turning capability, all of the parts could be completely machined. Richard and Ed are actively considering this possibility, which would require automated component handling to be retrofitted.

In addition to seizing opportunities in the renewable energy sector, R&A is also taking advantage of growth in vehicle electrification. Two aluminium parts have already been



produced on the Brother VMC for the latter sector. One is an Electric Vehicle (EV) engine terminal block, which is milled, drilled and tapped in a 20-minute cycle. Another engine part has been transferred to the M200X3 from a 40-taper machine, with the result that it is now machined in eight minutes rather than 12, again leading to more competitiveness, shorter lead times that impress customers and more overall capacity on the shop floor.

Ed Piotrowski is already planning the next job for the Brother. Water purification work

accounts for about one-third of the subcontractor's turnover and one of the parts machined from Ertacetal, an electrically conductive plastic, is currently turned and milled in four setups on three other machine tools. On the Brother it will come off complete after two setups.

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From one-off components to high-volume production, IML UK Ltd is a subcontract machining company that specialises in giving its customers exactly what they want, when they want it. With more than 25 CNC machine tools running 24/7 and 365 days a year, the Weymouth-based company has invested in the very latest 5-axis machine tools, pallet automation technology and, of course, a CAD/CAM suite from OPEN MIND Technologies.

Established as a partnership that started with just two machines back in 1995, IML has invested more than £3m since 2017. Working with prestigious customers in the automotive, aerospace, medical, defence and marine sectors, the Jurassic Coast company has most recently invested in a DMG MORI Monoblock 85 with automation to service its growing customer base that demands larger components. This takes its 5-axis machine tool capacity to six machines, all with automated pallet systems.

Discussing this, IML UK Ltd director David Zollo says: "The work on the machining side of the business is predominantly aluminium with our turning department being mainly stainless steel machining. We've now been doing this for 30 years, so when we began there wasn't any CAD. We entered the market of CAD and CAM systems back in the early days and we've now had that CAM system for probably around 25 years. However, things have evolved and designers have changed the way they design things and jobs are getting more complicated.

The parts are getting more complex and the software systems have changed too."

"Now, we use two CAM systems. We introduced hyperMILL more recently and we are finding that hyperMILL is better on the complex parts we make, but we are now also applying it to our simple parts. For parts where there are loads of lines of code, it's all about the re-generation. If you are designing a complex part there can be a lot of time spent re-generating the program. If you have a part that you want to design, one software package can spend a long time regenerating that program, especially if you have to make a tiny change at the end of the program; it will regenerate the program from the top all the way down. Sometimes that can be very time-consuming."

"When you do a regeneration of a complex part that is 'millions of lines long', we are used to the regeneration taking forever but with hyperMILL, it will just regenerate the bit you need. This saves us a lot of time on our more complex parts. So, hyperMILL is better for programming our complex work as it is much quicker, especially when you just want to make a small change."

Alluding to tool paths, David Zollo adds: "We just find that with CAM software cycles, the tool is always moved up and over and back and forth with a lot of 'thin air cutting'. It's hard to see that 'thin air cutting' when you are programming, as there are so many lines of code on the screen, so it's almost impossible to

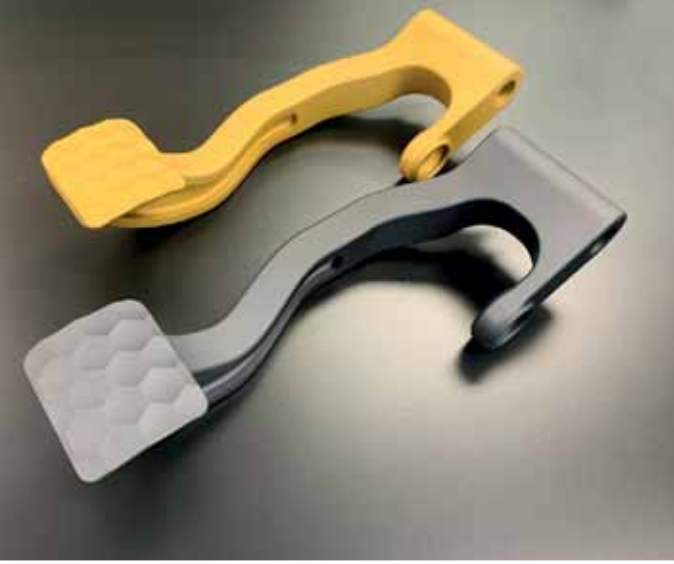
see the tool paths. When it's on the machine, you see the machine cutting thin air when the tool is travelling up and over the part. These are the parts where you need to go back to the software and change the toolpaths.

"When you do that and you have to regenerate the whole programme, it takes forever. If you can just regenerate that one part of the program, as you can with hyperMILL, it makes it much faster to get the part back on the machine and cutting.

"As a company that has two software systems, we do know what we're talking about. So, we can give an honest opinion of where we are with the two systems. With hyperMILL, the training, service and sales teams were fantastic and we found the transition from one system to another very easy. They are two completely different systems, but some similarities made the transition easier. We are now leaning more and more towards hyperMILL when it comes to our complex parts.

"The service and applications team have been fantastic. With the evolution of things





select what you think may be the best strategy, but you then change to another strategy and save yourself an additional 10 minutes on cycle times. There is a definite advantage to having more cycles and more options available.”

Looking at the machine tools on-site, David Zollo adds: “We have 3-axis and 5-axis machines on-site as well as large and small

code that are required. With this trend, we find that hyperMILL is the only software we will use on this machine. That is because the program files are so large and long that hyperMILL is pretty much the only system that can cope with it.”

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like Teams in the aftermath of COVID-19, we don't need engineers coming to see us. We contact them and they can link into the software and see what is on our screen via Teams. This means that with just a call, we can get things sorted over the phone with OPEN MIND. Even the updates can all be done online, so it's fantastic.”

Regarding the capabilities of hyperMILL, David Zollo states: “They do have more cycles on there, so you can now look at a part and have around 20 different cycles you can choose from and determine which one will work best for your part. OPEN MIND are launching more strategies all of the time too and this increases the number of options. Parts are forever getting more complex and you can

machines, we pretty much have the full suite of technologies available to us. For this, we find hyperMILL is fantastic. Once we've generated a program, the posts mean that we can almost move the program from machine to machine. We can even run a job on a 5-axis and with a small change move it to a horizontal machine. A horizontal may work completely differently from a 5-axis, but once you have the tool paths in there, you can just change it around. We found that once we generate a program, we can pretty much move it to any machine.”

David Zollo concludes: “We have invested in this large machine as our parts are getting bigger. The larger the part and the more complex the jobs become, the more lines of



## Lights-out machining of multiple small batches pays dividends

The benefits gained from automating the machining of prismatic components in a high-mix, low volume production environment are no better exemplified than at Alitech Precision Parts. Since 2019, the subcontractor has invested in four German-built Hermle 5-axis, trunnion-type machining centres from UK agent Kingsbury, two of which are equipped for automatic exchange of pallets with fixtured workpieces between a storage system and the machining area.

Alitech's owner and managing director Darren Cudd comments: “The essence of making this type of production profitable is to buy a high quality, powerful, reliable machining platform, equip it with accurate zero-point clamping systems, in our case from Lang and use top-end carbide tools, mainly CERATIZIT here, that can be pushed to the limit of their performance.

“Overlaid on this sound basis must be a second, essential factor if you want to produce a series of small batches, perhaps even one-offs, rather than a long run of the same part. It is to have the confidence to program and simulate a new cycle in CAM, we use hyperMILL, never having cut the part

previously and leave it to run overnight without anyone present.”

This is exactly what Darren Cudd has been doing since a Hermle C 22 UP machining centre, equipped with a PW150 storage and handling system for eighteen 320 mm square pallets, was installed in 2020, six weeks before the start of the Covid pandemic. He credits the production cell, which has a 450 x 600 x 330 mm working volume, as having saved the subcontract business through its ability to produce efficiently, with minimal operator attendance, batches of typically 10 to 20 motorsport parts, but often ones and twos for Formula 1 teams.

Two years later, a Hermle C 42 U prepared for automation, which may be retrofitted in the future, arrived on the shop floor. Then in October 2024, the second automated Hermle cell was installed, a 650 x 600 x 500 mm capacity C 32 U machining centre with an HS Flex two-level store housing twelve 400 mm square pallets.



Darren Cudd calculates that, disregarding this latest purchase, the other automated C 22 UP cell accounts for less than 30 percent of machine tool investment in Silverstone, yet has for the last few years generated up to 50 percent of Alitech's turnover, a performance-to-cost benefit approaching 2:1.

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# New lease of life for large milling machines

Three large, travelling-column bed mills at the Swansea factory of subcontractor Afon Engineering have been retrofitted with a HEIDENHAIN TNC 320 control and new drives to improve their reliability and performance. It has been an object lesson in how mechanically sound machine tools built in the late 1980s can be given a new lease of life for a fraction of the cost of investing in new equipment.

CNC milling forms the mainstay of the company's business and upgrading three of the Elgamills on site was a prime objective. Engineering director Andrew Beaujean comments: "The project has given us more confidence to take on a much broader variety of contracts and is bringing in new business as a result, such as evaporator tube plate machining.

The refurbished machines have beds measuring 12, 10 and 8 metres respectively in

the X-axis and the mid-size model, when it was installed in 2009 with an earlier HEIDENHAIN TNC 355 control, was the first CNC machine on site. The other two Elgamills, which arrived five and 11 years later, were fitted with a TNC 155 CNC system. Two smaller, as-yet unmodernised machines from the same manufacturer are also on the shop floor.

The ageing electronics and wiring on a pair of even older manual Elgamills, previously in operation in Swansea, had become unreliable. Replacement parts were no longer supported, and it was necessary to go to internet marketplaces to try to source spares. Refurbished parts were becoming very difficult to obtain. Consequently breakdowns were frequent, lasting from a few days up to one month, making job planning problematic.

Afon Engineering had been firefighting in this way for many years before it started to

invest in CNC machines. Even with the more modern 12-, 10- and 8- metre models on the shop floor, reliability issues meant that the three machines were rarely all operating together and sometimes only one of them would be running. With a lot of mainly one-off emergency work carried out on the Swansea site for the steel and energy supply power sectors and some parts requiring to be on the machines for up to three weeks, it caused a lot of difficulties for Andrew Beaujean and his management team.

Steve Wright from the technical sales department at HEIDENHAIN (GB), Burgess Hill and Simon Hopkins, engineering director of approved CNC retrofitting company SDH Controls and Services, Worcester, met with Andrew Beaujean in 2020 to discuss the problems.

Due to the age of the CNC Elgamills, well in excess of three decades, they all had the original analogue drives. A decision was taken to retain analogue technology and perhaps even keep the original motors.

However, they were no longer supported, so new, more economical analogue drives and



motors were fitted, together with the TNC 320 control. Assurance was given by the HEIDENHAIN factory in Germany that the latter would be fully supported for at least the next 15 years, while the drive manufacturer gave a similar undertaking.

Consideration was given to swapping to fully digital drives and a control package using the more powerful HEIDENHAIN TNC 620 or 640 CNC system. However, the overall cost of the refurbishments would have been pushed considerably higher. For machines of such a large size, the productivity benefits would have been very limited, especially as none of them even has an automatic tool changer. One of the machines previously carried one on the column, but it weighed two tonnes and unduly slowed the axis movements, so it was removed.

Reliability is of the essence in the Swansea factory, rather than speed. Dimensional accuracy is also important, as some milled features are tied up to  $\pm 0.1$  mm. Machining versatility is needed as well, so the 12- and 8-metre machines have 5-position spindle heads driven by M-codes from the control, while the 10-metre machine has a one-degree rear head controlled by an analogue signal from the TNC 320 and a 2-position front head controlled by M-codes.

Another advantage of having new controls is that off-line programming is now feasible, whereas on the older controls this was cumbersome and time consuming. Being able to prepare cutter paths away from the machines maximises spindle uptime. Reliable connectivity also allows input of data from reverse engineering of complex components that could not realistically be programmed in any other way.

Take for example a recent job, a sugar industry evaporator tube plate measuring four metres in diameter and containing 4,500 holes. Scan data, in this case provided by the customer, was loaded into Afon Engineering's OneCNC CAD/CAM system. A program was then created, post processed and run on one of the Elgamills, the whole project lasting about one month.



implement other upgrades including modifying the drives on our T-type travelling-bed Elgamill. More work will undoubtedly follow.”

As to the decision to return to the same control manufacturer for the upgraded CNC systems, he added that of the various makes of control system from three different manufacturers in daily use on the shop floor in Swansea, the operators much prefer HEIDENHAIN due to the ease of use. Clearly, therefore, there was no need to change supplier. Moreover, the overall cost of the refurbishments was within budget at approximately £350,000 for all three machines, an order of magnitude less than purchasing three new machining centres of similar capacities.

The family-run subcontracting firm, Afon Engineering, was formed in 1979 by Andrew Beaujean, providing engineering solutions to local, national and international customers. The scope of its machining capabilities encompasses press braking, tube and plate rolling, plate flattening and plasma cutting, fabrication, non-destructive testing and pressure testing of vessels.

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The upgrade to the new controls has considerably reduced program writing times by up to 50 percent, making more jobs economical to undertake. A benefit of having identical TNC 320s on three Elgamills is that the job could have been run on any of them. From the operator's point of view, all keys, buttons and switches are in the same place, so swapping between machines is seamless.

Andrew Beaujean adds: “SDH Controls started on the retrofits in April 2022 and completed all three by September of the same year. The relationship we have developed with Simon Hopkins has been excellent and he has to all intents and purposes become our maintenance engineer, working on a variety of different machinery throughout the factory.

“He has also carried out other work on the Elgamills, such as refurbishing or changing gearboxes and racks and he continues to



# XYZ bed mill hits the bullseye at Precision Rifles

A new XYZ RMX 3500 bed mill with ProtoTRAK® RX Touchscreen control is proving a sure-fire hit at one of the UK's leading manufacturers of custom rifles. Precision Rifle Services Ltd (Precision Rifles), located on the 55,000-acre Glenlivet Estate in Scotland's whisky country, is using the RMX 3500 to facilitate its transition to CNC milling. By moving away from manual mills, the company is already seeing a significant reduction in machining hours for key operations such as the in-letting of composite rifle stocks.

Formed in 1990, Precision Rifles is a small, four-employee business dedicated to producing the world's most precise custom rifles, providing customers with an accuracy guarantee. The company's workshop is located deep in the Scottish Highlands. Although an unlikely place to find an XYZ CNC milling machine, like much of the surrounding countryside, it is a sight to behold.

"Business is currently as strong as it's ever been, which is part of the reason for investing in a CNC bed mill," explains company owner and managing director Callum Ferguson. "There's a limit to how many workshop hours we can exploit with our existing manual milling machines. Investing in a CNC mill will help us move through our workload much faster."

Precision Rifles has known of XYZ Machine Tools for many years, largely from its prominent industry presence and exhibition appearances. After initial discussions, the company visited XYZ's showroom in Livingston to see demonstrations of an RMX 3500 bed mill with ProtoTRAK RX Touchscreen control.

"It's great having a showroom here in Scotland," says Callum Ferguson. "We wanted to make sure we were making the right decision. Investing in a CNC machine tool is a big commitment for a small business like ours."

The primary role for the XYZ RMX 3500, which arrived in August 2024, is the in-letting of rifle stocks. A rifle stock supports the barrel and action while simultaneously helping the shooter control the firearm. The machine's 750 x 480 x 510 mm of travel in the X-, Y- and Z-axis, over its 1,370 x 355 mm table, make it the ideal size for this challenging task, ably supported by a 5,000 rpm, 3.75 kW programmable spindle.

Precision Rifles imports its composite stocks from the US, where they are manufactured from layers of fibreglass cloth, impregnated with epoxy resin and moulded together at high pressure. Machining these synthetic materials is problematic because of subtle differences in

the geometric tolerances of each moulding. Precision Rifles has to calculate the optimal position for the action in relation to individual stocks.

"We use Fusion 360 software to create a drawing for each stock and then export the DXF file to the ProtoTRAK control," explains Simon Nicoll, who is responsible for operating the new XYZ machine at Precision Rifles.

"In-letting stocks is high-tolerance work, with precise draft angles and radii to ensure a perfect fit of the action metalwork with supporting contact all round."

Each stock costs hundreds of pounds before Precision Rifles even starts machining. Accuracy is therefore paramount, as scrap can prove extremely expensive.

"One of the machine's many benefits is its flexibility," says Simon Nicoll. "We take advantage of the conversational programming capabilities of ProtoTRAK to make as many parts as possible in-house."

A good example is the custom base for each rifle's sight/scope. Machined on the RMX 3500 from aluminium, bases feature a custom radius and, depending on the rifle's intended use, an incline that makes it slightly lower at the front than the rear.

"We can machine these manually but it's an all-day operation that proves expensive for the customer," explains Simon Nicoll.

"However, with our RMX 3500 we machine the bottom side in just eight minutes, turn it over and complete the top side in 24 minutes. It's quite incredible what we can achieve conversationally at the ProtoTRAK control."

Precision Rifles takes particular advantage of the control's TRAKing® feature. Certain toolpaths feature very small clearances of 0.01 inch, 0.25 mm, which are quite easy to misjudge.

Simon Nicoll concludes: "We're so impressed with the precision of the machine. We get gauge-level accuracy almost without trying."

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The XYZ RMX 3500 in-situ at Precision Rifles.

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## CERATIZIT delivers success that is 'Made in Sheffield'

The term 'one-stop-shop' is banded around the subcontract manufacturing industry far too flagrantly and it's not until you find a company like Woodbrook Precision Ltd that you can truly understand what a single source solution provider looks like. The Lancashire manufacturer ventures beyond rivals' services and continually invests in the latest machine tools fully supported by advanced cutting tool solutions from CERATIZIT UK.

Located in Ashton-Under-Lyne on the northeast edge of Greater Manchester, the plant list at Woodbrook Precision includes a complete array of manual and CNC 3 to 5-axis machining centres and multi-axis turning centres from renowned brands such as Mazak, XYZ, Leadwell and Bridgeport. The state-of-the-art plant list is supported by services such as grinding, plating, shearing, profiling, welding, laser cutting, gear cutting, heat treatment, powder coating and more.

Rightly proud of its comprehensive services and recent investment in Mazak machine tools, managing director Stephen Hogg from Woodbrook Precision says that CERATIZIT has been instrumental in enhancing the productivity of the new equipment.

The second-generation business was founded by his father more than 35 years ago. When Stephen Hogg bought the company 16 years ago, Woodbrook operated out of a small unit with a single CNC turning centre and a series of manual mills, all supported by various cutting tool vendors, with WNT, member of the CERATIZIT Group, being one of the many. However, as Stephen Hogg has applied his vision and determination to the company, Woodbrook has evolved with a 2018 move to an 18,000 sq ft facility three times larger than the previous site. Plans are also afoot to add another 10,000 sq ft. This growth has stemmed from the business's progress in

general subcontract machining into the oil & gas, aerospace, rail and motorsport sectors.

Woodbrook has evolved the sophistication of its machine tool purchases to serve these industries. Initially investing in 3-axis Mazak VMCs with rotary tables and turning centres with live tooling, more recent acquisitions have included two 3.5m bed Mazak VTC800/30SR 5-axis machines and a 5-axis Mazak CV5-500. This has seen work for overhead cranes, rail and general subcon evolve to aerospace jigs and fixtures, critical subsea valves and manifolds, motorsport brake callipers, engine components and more. With an evolution driven by the expanding capabilities of its machine tools, Woodbrook has needed to rely more heavily on the expertise of its cutting tool suppliers. As the business has shifted from machining steel and aluminium to stainless, super duplex, titanium, inconel, carbon fibre, hastelloy and

much more, CERATIZIT UK has risen through the ranks to be the cutting tool partner of choice.

Referring to why CERATIZIT UK is number one, Stephen Hogg from Woodbrook says: "Over ten years ago, CERATIZIT was one of many suppliers and as I took control of the business, it became evident that CERATIZIT had the best-performing tools and their service was far beyond anything else. As we continually ventured into more complex work and more challenging materials, we needed greater support and new machining strategies; CERATIZIT UK's technical sales engineer Matthew Darbyshire has been with us all the way to provide the solution. It's been seamless and it's pointless going elsewhere as he makes it so easy and 'painless' for us."

Recalling the early days of working with Matt Darbyshire, Stephen Hogg adds: "With numerous sales reps continually calling upon us, we asked Matt for a few tools to trial. The tools initially performed well, but for the relationship to blossom to a position where we now have thousands of CERATIZIT tools, that has been built on tool performance, product range diversity, supply chain continuity and, most importantly, technical support, service and trust that has instantly been available. I can WhatsApp Matt with any drawings and queries and he'll deliver a solution imminently."

### The productivity gains

As a machine shop that typically manufactures prototypes in small batches, tracking continuous tooling improvement isn't always the priority for Woodbrook. However, you don't have to look far for quantifiable results

with CERATIZIT products. Stephen Hogg adds: "We recently implemented the CERATIZIT facing and parting-off tools and it reduced the cycle time on a 400-off job from 1 minute 58 seconds to 1 minute 26 seconds. We also applied the Dragonskin CircularLine DLC-coated solid carbide end mills with impressive results. The Dragonskin tools have cut cycle times on an aluminium part from three minutes to one minute 20 seconds whilst more than doubling our tool life."

"On another 100-off repeat order stainless steel aerospace fixture, we needed to reduce our cycle times to maximise margins and reduce costs. Matt introduced a CERATIZIT UK high feed indexable end mill, and this reduced our cycle times from 38 to 26 minutes per part, with a tool life improvement of more than 20 percent. This was a significant saving on a long-running job." However, the most significant saving wasn't from the cutting tools.

### Workholding grips imagination

With the 100-off stainless job running through the business frequently, Woodbrook set up six vices in a line on the spacious 3.5 m bed of its Mazak 5-axis VTC800/30SR. When each surface and cycle was completed, an operator would re-set the job to process the next face. With a total of four operations, the process was laborious. Stephen Hogg spoke with Matt Darbyshire from CERATIZIT and the way forward was a bespoke workholding solution that was 'Made in Sheffield' at the CERATIZIT UK Technical Centre and Headquarters.

Stephen Hogg visited the CERATIZIT stand at MACH 2024. He realised that the only cost for CERATIZIT's bespoke service was the price of



the aluminium tombstone billet and the cost of the four ZSG4-125 Centric vices that connect to the zero-point single riser tombstone system. Immediately impressed, Woodbrook Precision ordered a pyramid system to clamp smaller parts in its 5-axis Mazak CV5-500. The ZSG4-125 Centric vices with serrated jaws enabled Woodbrook to clamp on as little as 3 mm of stock, permitting the subcontractor to hit all five sides of the stainless parts with confidence in the high-torque clamping forces of the vice. With five faces machined in a single operation, the following operation was to turn the parts over to complete the sixth surface. This reduced this 100-off repeat job from a four to a two-operation process, saving an additional 10 minutes per part.

As Stephen Hogg concludes: "This job took over one hour per part from start to finish. The tombstone and Centric ZSG vices immediately took more than 10 minutes off each part, with peripheral savings being longer running times without operator intervention. Reduced setups also improved our precision, repeatability and consistency over an entire batch of parts. Furthermore, we work 12 hours a day, six days a week and the tombstone enabled us to set up a batch of four parts at the end of a shift to run unmanned for a couple of hours giving us further savings.

"We are now using CERATIZIT for everything from our back-ends and collets to solid carbide and indexable tools ranging from drills and threadmills to end mills, turning and parting tools. We never thought we'd be turning to CERATIZIT for our workholding solutions but, just like the cutting tools the quality and performance of the workholding solutions that come with a 'Made in Sheffield' brand is far superior to anything else we've encountered."

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# ITC simplifies advanced micro-machining

As an industry leader in premium high-precision tooling systems and solutions for the metalworking industries, Industrial Tooling Corporation (ITC) has announced the arrival of the new HSK-EZ15 MEGA Micro Chuck from BIG KAISER. This latest MEGA Micro Chuck collet version is specifically designed for applications using smaller workpieces such as jewellery, watches and micro-machining.

The HSK-EZ15 MEGA Micro Chuck is designed according to the HSK-EZ15 norm, a new interface used by the latest machine tools that replaces the previous ATC-E15 norm.



HSK-EZ15 sets a new standard for compactness and precision by enabling the miniaturisation of spindles. It also meets the microtechnology market's precision, performance and reliability demands.

The new collet is available in three variations with 10, 12, and 14 mm outer diameters. Each is perfectly suited for high-speed machining from 0.45 mm to 6.05 mm shaft size, maintaining a perfect runout of under 3 µm at 4XD. These collet holders can be operated at speeds up to 80,000 rpm. The BIG KAISER MEGA Micro Chuck from ITC is a compact, easy-to-use watchmaking and micro-machining solution that allows quick retooling for new parts. Its excellent guaranteed runout accuracy, under 3 µm, meets the exacting standards of manufacturers in the electronics and small-part machining sectors. Additionally, it provides high positional accuracy, excellent repeatability and noiseless operation.

The BIG KAISER MEGA Micro Chuck is a

collet chuck with a slim body and nut, designed with the highest rigidity for high-speed machining and reduced interference. It has a notch-free nut for high-speed applications, which prevents vibration and noise and offers superior balance and concentricity. This nut design eliminates whistling noise and coolant splattering and assures increased strength of the nut itself.

Giampaolo Roccatello, chief sales & marketing officer for Europe at BIG KAISER says: "The HSK-EZ15 is an innovative way of integrating functions into small spindles that



were previously only possible with much larger spindles, such as presetting outside the machine to save time and increase productivity. BIG KAISER was the first company to believe in this project and to develop an industrial toolholder that would allow these machines to be sold in series. Using a smaller spindle with its reduced mass and physical dimensions enables a sustained reduction in energy consumption."

## FCR end mills ensure vibration-free machining

If you want to achieve vibration-free machining and impeccable surface finishes



and tool life, Industrial Tooling Corporation (ITC) has now introduced the new Fullcut Mill FCR indexable end mills from BIG KAISER.

Incorporating a monoblock design, the new BIG KAISER system integrates the indexable inserts with the machine spindle in the BBT (BIG-PLUS BT taper) interface. To complete the range, the FCR end mills are also available in HSK A-63 and BDV interfaces. The monoblock design helps to reduce vibration and chatter whilst improving the rigidity of the system. As a result, manufacturers can achieve improved process reliability and consistency.

The Fullcut Mill FCR available from Tamworth-based ITC is an indexable insert tool that delivers excellent cutting performance for demanding milling applications. There are two variants available, the standard and long nose variants that are both supplied with a BBT interface. The FCR is available in 4 diameters that range from 16 to 32 mm with two or three insert seats. The long nose version is more cylindrical and thinner, resulting in less interference contour. This is perfect for difficult-to-access work surfaces.

Compared to solid carbide end mills, the Fullcut Mill has significantly enhanced performance through its increased stability and lower running costs.

This is a credit to users only needing to swap out inserts and not an entire solid carbide end mill. The advantage of the Fullcut Mill is the insert geometry that consists

of a dedicated single-diameter geometry with a sharp cutting edge for both high radial and axial rake angles. This allows a smooth cut that requires less cutting effort and therefore less spindle power, leaving the surface smooth and burr-free. This special geometry makes them particularly robust even where there is a strong interrupted cut.

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# Tooled-up for take-off

At the very forefront of advanced material technology is the aerospace industry, a sector driven by the demands for ever-increasing material strength, durability and optimisation. A sector pushing the boundaries of innovation, the machining of Heat-Resistant Superalloys (HRSA) and composite materials is an everyday challenge for the industry and this is where Tungaloy-NTK UK offers solutions beyond the realms of conventional cutting tool manufacturers.

With the amalgamation of leading ceramic and carbide cutting tool brands, the combined expertise and product portfolio now introduces a wealth of opportunities for manufacturers in this fast-paced marketplace. At the very forefront of innovation for increasing productivity and efficiency is the new Bidemics grade of patented inserts. Compared to whisker ceramics which are renowned for high-speed machining, the Bidemic range can more than double cutting speed and significantly extend tool life.

As part of the Bidemic family, Tungaloy-NTK UK is now presenting the innovative JX1 grade that offers cutting speeds close to an incredible 500 m/min on aerospace alloys. Perfect for everything from turning, internal turning, grooving and boring applications, this extremely hard grade provides unparalleled durability with cutting speeds on hard materials that will take your productivity to the next level. Complementing the JX1 grade is the new JX3. Where the JX1 offers wear resistance that takes tool life to a new level, the JX3 grade has been specifically designed for the toughest of operations. Perfect for rough machining, profiling and semi-finishing, both the JX1 and JX3 can machine at parameters from 180 to 480 m/min with a depth of cut up to 2.5 mm and a feed rate up to 0.27 mm/rev.

Complementing the JX1 and JX3 series is the JP2 grade for high-performance finish turning. Capable of achieving cutting speeds 10 times higher than carbide equivalents, the JP2 achieves unparalleled productivity levels. With machining in the realms of 520 m/min possible, the JP2 delivers superior surface finishes of Ra0.6 µm with a feed rate of 0.15 mm/rev.

Providing added flexibility for high-performance turning, Tungaloy-NTK UK has also introduced its new BX815 CBN grade for high-speed finishing. Extending the application range of the patented JX and JP Bidemic grades, the BX815 is perfect for both external and internal finish turning in the speed range from 80 to 500 m/min making it the allrounder for manufacturers that demand exceptional surface finishes on heat-resistant alloys.

Designed for machining superalloys, the BX815 incorporates Alumina-based binders and Zirconia grains that offer heat dissipation, oxidation and fracture resistance. Complementing this are the fine CBN particles that contribute to outstanding surface finishes to improve the quality and aesthetics of your machined parts.

Unlike the ceramic grades of the past where capability and flexibility were compromised for performance, the SX Series changes that perception. Specifically formulated to handle the intense demands of rough to semi-finish machining, the SX series offers a balanced combination of toughness and wear resistance, making them suitable for applications from machining turbine casings to blade machining.

The exciting SX3 Sialon ceramic grade is perfect for rough and semi-finish high-speed turning and milling of heat-resistant alloys. Hitting its sweet spot on materials like Inconel 718 and Rene, the SX3 is your go-to solution for high-performance machining of heat-resistant alloys.

Also developed for rough to semi-finishing of heat-resistant alloys, the SX7 Sialon ceramics grade provides improved boundary wear resistance to prevent cutting-edge wear and breakage, prolonging tool life and consistency. With excellent thermal shock and better flank wear resistance than other Sialon grades, the SX7 is the choice grade for semi-finishing turning, grooving and milling of materials like Inconel and Waspaloy. The SX7 is complemented by the SX9 - perfect for roughing operations in milling and turning.

The new AH8000 series for machining HRSA materials is the perfect all-rounder with insert geometries and grades for turning, grooving,



threading and milling. The AH8000 incorporates the AH8005 and AH8015 grades that have an advanced nano multi-layered AlTiN coating to enhance wear and heat resistance. The AH8015 is a versatile grade that provides an excellent balance between wear resistance and fracture resistance, making it the first choice for machining challenging materials under general cutting conditions. In contrast, the AH8005 is the perfect grade for finish machining.

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# Helical motion

The introduction of the ISCAR HELIMILL in the 1990s marked a significant milestone in milling tools. It revolutionised the design of milling tools with indexable inserts, establishing a new approach that would shape the industry for years to come. This breakthrough was achieved using a parallelogram-shaped carbide insert, featuring a helical cutting edge formed by the intersection of the insert's helical side and shaped top surfaces (Fig. 1). The HELIMILL concept offers several advantages.

Firstly, the consistency of the rake and relief angles along the insert's cutting edge, when mounted on a tool, reduces cutting force variations and ensures a smooth cutting

carbides, a new round of insert development was initiated. The successful adaptation of the helical cutting edge to triangular inserts addressed this limitation. The triangular insert concept not only provides three cutting edges but also offers additional benefits. When compared to other shapes with equal cutting-edge length, the triangular shape provides a wider central area. This allows for an increase in the central bore size, enabling the use of a clamping screw with a larger thread. As a result, the insert securing is strengthened, contributing to the overall durability of the milling tool assembly. Additionally, the triangular shape enhances the ramping-down cutting capability.

Paradoxically, the narrow width of the parallelogram-shaped insert, which is considered a drawback when compared to the triangular shape, also offers certain advantages. Firstly, a narrower insert allows for an indexable design suitable for smaller tool diameters. Secondly, this insert geometry reduces the depth of the chip gullet, strengthening the cross-section of the tool body. This feature is particularly important for extended flute cutter designs where higher strength and rigidity of the body are crucial. The parallelogram insert structure also permits increased corner radii. Additionally, the classical shape is well-suited for High Feed Milling (HFM) inserts, which can be mounted in existing pockets, effectively transforming a 90-degree tool into an efficient HFM cutter. Moreover, the "helical parallelogram" has a smaller overall length compared to the "helical triangle" for the same cutting length. Therefore, it would be premature and incorrect to dismiss classical parallelogram inserts.

As a result, the development of 90-degree indexable milling cutters harmoniously combines both approaches, utilising both triangular and parallelogram-shaped inserts. While the triangular insert concept dominates modern designs, the parallelogram insert principle remains relevant. The HELIMILL platform continues to be updated with new advantageous products. ISCAR's recently developed products related to milling cutters with parallelogram-shaped inserts demonstrate that the traditional design approach remains effective and capable of meeting the demands of modern manufacturing. Milling high-temperature superalloys and titanium, ISO S group of applications, as well as difficult-to-cut austenitic and duplex stainless steel, ISO M group, present challenges. Effective coolant supply, particularly pinpointed High-Pressure



action. Secondly, the uniformity of the insert's cutting wedge enhances its strength. Lastly, the helical cutting edge's proximity to the imaginary cylinder generated by a rotating tool improves accuracy compared to the straight edge found in previous generation milling inserts. These advancements have elevated milling performance to new heights.

Over the years, continuous improvement has led to significant changes in the classical HELIMILL inserts. The helix of the cutting edge has become more aggressive and the top surface topology has become more intricate. Combined with advanced carbide grades, these new designs have ushered in a new level of performance. However, the parallelogram insert shape limits the number of indexable cutting edges to two.

To maximise the efficiency of cemented

Overall, the introduction of the ISCAR HELIMILL and its subsequent advancements have revolutionised the milling tool industry. The use of helical cutting edges and triangular inserts has significantly improved performance, accuracy and durability, pushing milling capabilities to new levels.

A proximate successor to the HELIMILL is the HELI-3-MILL, a family of milling tools introduced by ISCAR in the last decade, featuring triangular indexable inserts (Fig. 2). The advantages of the "helical triangle" highlight why this family has gained popularity in the market. However, it is important to note that this does not mean the triangle shape will completely replace the traditional parallelogram contour with helical cutting edges soon. The parallelogram shape still possesses its own competitive edge.

Fig. 2



Cooling (HPC), can significantly reduce heat load on the cutting edge, enhancing lubrication and chip removal.

This, in turn, leads to higher cutting data and enables larger radial engagements, resulting in a higher Metal Removal Rate (MRR). Moreover, HPC facilitates the production of tighter and curled chips, allowing for tool designs with smaller chip gullets and higher tooth density. Taking these factors into consideration, ISCAR has expanded its HELI2000 family, the latest version of the HELIMILL, by introducing new tools that incorporate the High-Pressure Cooling (HPC) option within the tool body. The design of these tools has been optimised using Computational Fluid Dynamics (CFD). They are available in both integral-body configuration and as relatively small-sized exchangeable heads with indexable inserts, which are compatible with ISCAR's modular systems MULTI-MASTER and FLEXFIT (Fig. 3).

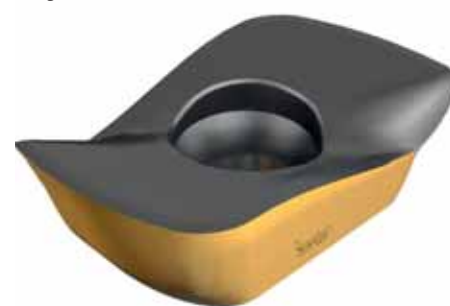
HELI2000 integrates the HELIMILL and HELIPLUS families, combining their latest developments into a single portfolio. This includes the introduction of two new highly efficient carbide grades: IC5600, designed for machining steel, ISO P group and IC716, specifically tailored for cutting titanium.

Fig. 3



Additionally, the insert range has been expanded with new cutting geometries. This includes inserts with a high positive chipformer for milling titanium, chip-splitting cutting edges for productive roughing, and other designs. Furthermore, the range now includes inserts with reinforced cutting edges for high feed milling of hard materials up to HRC 60 hardness, ISO H group, Fig. 4. These new products are also part of ISCAR's HELIALU family, which consists of milling tools with parallelogram-shaped inserts for machining aluminum alloys, ISO N group. The expansion of this family includes indexable endmill heads with threaded adaptations for both MULTI-MASTER and FLEXFIT systems, providing the option for High-Pressure Cooling

Fig. 4



(HPC). The screw-in design configuration of the heads significantly enhances the customisation capabilities of HELIALU tools, allowing for a wide range of MULTI-MASTER and FLEXFIT shanks, adaptors, extensions and reducers to be utilised. Therefore, the development of the "helical parallelogram" has not ceased and the traditional HELIMILL continues to gain momentum. This development follows a gradual upward helix, revisiting past turns but at a more advanced stage, much like in dialectics.

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# Navigating upcoming changes to cobot safety regulations



*Matt Androsiuk of Cobots and Machinery Safety.*

Known for their ability to share the same workspace as human employees, collaborative robots, or cobots, are now a mainstay of the industrial robotics sector. Lightweight, simple to programme and flexible enough to be moved around a factory with ease, unsurprisingly they have proved popular with manufacturers. The most recent IFR statistics show that cobot installations worldwide grew by 31 percent year-on-year in 2022 to 54,868 units, representing 10 percent of the total robot installations.

By their very nature of being collaborative with humans, cobots are also considered a safer option than traditional industrial robots. Until now, cobots have fallen under the technical specification ISO/TS 15066, which has left some users falling short of meeting their safety obligations. A recent project by the ISO working group has seen the robot safety standards ISO 10218-1 and ISO 10218-2 updated to take account of the technological changes and advancements in collaborative robots. The British Standards Institute (BSI) has recently reviewed the changes to the standards ahead of them being released later this year.

What will this change mean for cobot users and integrators? Matt Androsiuk of Cobots and Machinery Safety, FANUC UK's cobot safety partner, is an experienced machinery safety consultant and cobot safety specialist, who also sits on the BSI robot technical committee. Here, he outlines how to navigate the new safety landscape and get ahead of the

proposed changes, to ensure your applications remain compliant.

## Assessing risk

Any changes to the regulatory landscape can seem daunting to a manufacturer. It is not only a finished product that needs to meet the required safety standards, but also the components which form part of the application. Now that the area of cobot safety is being improved to align it with industrial robot safety standards, end users need to be aware of the potential implications. Once the standard is released, it will provide integrators and end users with the information they require to ensure a safe application. Once the standard is harmonised to the Machinery Directive, it will support the requirements for CE/UKCA marking.

Integrators and end users are required to complete a detailed risk assessment to identify the risks that both the robot and the application present. Where integrators and end users are not familiar with the risk assessment process, support from independent safety specialists should be sought. It is important that integrators and end users move away from the 'cobot' analogy and start to think of cobots as robots for collaborative applications. By generating an audit trail via a fully traceable risk assessment, manufacturers will be able to demonstrate to the HSE that they fully understand the risks involved with cobot integration, have

measures in place to control them, and are therefore compliant with the new standard.

## Identifying potential hazards

The risk assessment should cover a number of stages in regard to identifying hazards, to enable integrators and end-users to achieve their ultimate goal of UKCA/CE Marking. These may include, but are not limited to:

### Validation and verification

Using calibrated force sensors to measure the collision forces in the event of a collision with the cobot and documenting the results.

### Guarding

Determining if physical or virtual guarding is required, or if risk can be mitigated through power and force limitation, or whether a combination of risk reduction measures is required.

### Permissible force values

Using the body model and the risk assessment to identify the areas of the body which could be struck in the event of a collision. This will then be validated.

### Using technology

While removing hazards or risk can be done in various ways, technology is also playing its part more and more in collaborative applications. The use of a cobot's internal force and pressure monitoring is one option but other



*Cobots are known for their ability to share the same workspace as human employees and are now a mainstay of the industrial robotics sector.*



*The most recent IFR statistics show that cobot installations worldwide grew by 31 percent year-on-year in 2022 to 54,868 units.*

easy to validate solutions exist and can be used not only with cobots but also industrial robots.

The FANUC Dual Check Safety (DCS) software function that monitors a robot's speed and position is a good example of technology that enables safer operation and reduces risk in system design. The use of external sensors, light guards or floor scanners, along with DCS is affording system designers a new method when human/robot collaboration is needed.

"Making higher payload collaborative

applications safe requires specific hardware and software solutions that can be validated and ensure risk-free operation. We have successfully implemented these types of solutions with robots with over one tonne payload. It's the technology that makes this possible," says Oliver Selby, head of sales at FANUC UK.

### Promoting best practice

As with any area of machine safety, it is always best to seek advice from your cobot supplier or an independent safety consultant if you are in any doubt as to your cobot or application's compliance with the proposed new safety standard.

This is relevant not just from a CE/UKCA Marking point of view, but also because the end user or cobot system integrator has a legal responsibility to show compliance to PUWER (Provision and Use of Work Equipment Regulations). If your cobot or associated processes do not meet the new safety standard, then you will not be PUWER-compliant, either.

While cobots may continue to be seen as the 'friendly face' of robotics, increasing in popularity across a variety of manufacturing sectors, it is important to remember that they are still industrial robots. The upcoming



*It is important that integrators and end users move away from the 'cobot' analogy and start to think of cobots as robots for collaborative applications.*

alignment of the cobot safety technical specification with those pertaining to industrial robots reflects this and end-users and integrators are advised to take their safety responsibilities seriously.

For more information and advice on cobot and robot safety, go to <https://www.cobotsmachinerysafety.co.uk>

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## Entry-level industrial robot cell for automating machine tool tending

Automatic loading and unloading of machine tools is becoming increasingly necessary for manufacturers to be competitive in the global marketplace. To address this need, Dutch firm Halter CNC Automation has introduced a new, entry-level machine tending cell, the Halter Basic Pro. Availability in England, Wales and Scotland is through sole agent 1st Machine Tool Accessories.

Comprising a 6-axis industrial robot, the Basic Pro offers a competitive, entry-level automation solution. By working closely with prestigious partners and suppliers, Halter has succeeded in maintaining high technology and reliability. With the manufacturer's user-friendly touch-screen SmartControl, even if a workpiece has not been handled before, the changeover time to start a new production process is only a few minutes. Furthermore, the operator needs no prior experience of robot programming, which is carried out while machining of the previous parts is in progress to maximise production output.

As with all of the company's systems, the

plug-and-play Halter Basic Pro can be supplied with new machines or retrofitted to existing plant regardless of machine age and type of control. Use of a floor-level, 270-degree laser scanner provides a safety zone. The robot slows if the operator approaches and stops immediately if the light curtain is breached.

An adjustable air pressure supply is provided for the double gripper, which can have either two or three fingers for holding raw material and finish-machined workpieces internally or externally. Workpieces from 10 to 135 mm diameter or square may be handled up to a maximum weight of 12 kg, including the gripper head. The grid plate holding the raw material and finished parts is adjustable in height to suit the installation and is able to hold up to 188 workpieces if the locations are sized up to 20 mm, the number dropping to 14 parts as the size reaches 135 mm.

Halter is a leading company in the field of high-quality robotic loading cells, with more than 1,000 installations worldwide feeding CNC lathes, machining centres, deep hole



drilling machines, grinders and other machine tools, as well as coordinate measuring machines and indeed any inspection equipment. Nearly 95 percent of customers across 25 countries, including two dozen or so in the UK, report a return on investment within 18 months, with some saying it is as short as five months.

**1st Machine Tool Accessories Ltd**  
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# Material traceability

Material traceability is essential to the process of tracking raw materials, often through their entire lifecycle. It is becoming increasingly important across most industries to establish robust systems for material traceability to improve quality control, meet regulatory requirements and mitigate risks associated with product recalls or defects. Material traceability also ensures that the correct grade of material has been used.

Industries, such as aerospace, oil & gas and automotive often need to meet specific regulatory requirements and/or material certification including tracking of material origin. Traceability helps in ensuring compliance and reduces the risk of non-compliance penalties. End of life traceability can also be managed to ensure that materials are handled appropriately when they are no longer in use, helping with sustainability goals.

Identifying material with direct part marking with either barcodes such as datamatrix or QR codes or alphanumeric data play a significant role in material traceability. This technology allows the real-time tracking of material as it moves through the supply chain. After direct part marking a barcode, companies can



quickly retrieve data about a material's history, location and quality, reducing human error and enhancing efficiency.

The Technomark Buddy handheld dot peen system is now being widely used for direct part marking material within metal stockists and subcontractors. When a consignment of sheet metal or bar is booked in it is often part marked with a variety of data such as heat code, batch number and grade. When the metal is cut and supplied, it is marked and the remaining material needs to be re-marked to ensure traceability for the remaining stock. Equally, when subcontractors receive material, such as bar

stock, the Buddy can be used to re-mark the remaining bar after cutting. It is also easy to apply a logo to identify the company for both brand awareness and to reduce the risk of counterfeit parts.

The Buddy is wireless and powered by an Android smartphone giving complete freedom to move around the factory or even outside, cable free. It is so easy to use that anyone can pick it up and be marking in minutes. The marking head itself is very light, weighing only 2.8 kg. It has a long life internal lithium battery so will mark all day long and if the battery does run low you can plug it in and continue marking in hybrid mode. The marking head can be oriented in any position to mark flat or curved parts and with magnets in the foot, gives great stability whichever way up you want to position the marking head. With two marking window sizes of 60 mm x 30 mm or 120 mm x 60 mm, it gives plenty of scope to mark multiple lines of data if needed. The Buddy comes with a handy fixture included that makes it easy to mark the side of plate.

We also have a bar end fixture to make it quick and easy to mark the end of bar.

If you are marking large batches at a time you may want to consider the Easy which is similar to the Buddy but allows you to import data directly from your ERP system, making large batch marking even easier and quicker, plus eliminating the possibility of data input errors. The systems have 11 marking forces so ideal for marking soft material right up to hard surface finishes to 63 HRC.

Both the Buddy and the Easy can be supplied with a column and base to enable them to be used as a benchtop system as well, ideal for marking smaller parts. A rotary drive can also be added for marking around the diameter of tube and pipe.

Universal Marking Systems offers long term support for these systems. In the first instance one of its engineers can discuss your exact requirements with you and visit you onsite if needed to demonstrate the system and to give you the opportunity to try it out for yourself. It also offers a sample marking service if you would like to see the marking quality without a visit. With inhouse design and manufacturing capability, it can also design and produce fixturing if needed. Once you receive your new



system, it is so easy to use that the company are confident you will be up and running in minutes. It also provides operating instructions, some online tutorials and unlimited telephone/email support should you need it.

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# The must-have engraving station for personalisation and small signage

## Gravotech releases the new generation of its M20

Gravotech has released the new generation of its M20, the M20 X. Compact and light, this machine can be used everywhere including workshops, stores and events. Its touchscreen ensures the M20 X is an incredibly user-friendly machine.



### Versatile

The M20 X adapts to different activities and products to be engraved. Thanks to decades of experience in engraving, Gravotech has the widest range of jigs and accessories for custom engraving, perfect to personalise gifts, jewellery, medals or door plates.

For in-shop use, the Cube, a transparent enclosure, limits noise and keeps the workspace clean. To ensure maximum security, the engraving does not start until the door is closed.

As the M20 X adapts to the environment, the touchscreen can be placed on top or on the right side of the machine, allowing comfortable use wherever it is placed.

For jewellers, the M20 X Jewel is ideal to engrave all types of jewellery, including chain bracelets, pendants, watches, and rings, interior or exterior engraving. It is also possible to cut metals up to 2 mm, perfect for realising all kinds of personalised designs.

### Easy-to-use

The latest innovation, the touchscreen, guides the user through the engraving process step by step, ideal for first-time use of the M20 X. Through the screen, it is possible to:

- Check out the preview before starting to engrave.
- Easily adjust the engraving settings.
- Manage the engraving queue as needed.



More touchscreen features will be released through free updates, allowing for increased functionality with the screen.

The M20 X also has features that make engraving an easy job, like the Point and Shoot for precision and the automatic Z-axis.

### Reliability

It is the ideal sturdy engraving machine to do professional high-quality engravings and cuts. The durable design requires minimal maintenance, leading to reduced aftersales costs. The M20 X is designed to last for years and Gravotech's expert technicians can also quickly diagnose any issue, ensuring fast and efficient service. Additionally, the latest generation of electronic boards offers advanced features like built-in Wi-Fi. Its compact and lightweight design allows the M20 X to be placed in a shop or you can travel with it to your events as it can be carried by only one person.

### Gravotech joins Brady Corporation

Gravotech has announced its acquisition by Brady Corporation, an International manufacturer and marketer of complete solutions that identify and protect people, products and places.

Arnaud Linquette, president and CEO of Gravotech says: "The sale of Gravotech to a market leader in printing and high-performance adhesive material solutions provides us with an excellent opportunity to expand into new markets and generate long-term profitable growth. Over the past several years, we have enhanced our new product development and manufacturing capabilities and broadened our portfolio of precision direct part marking and engraving solutions. We look forward to further developing and growing our business with Brady."

"The acquisition of Gravotech by Brady, a strong and innovative industrial company,



opens a new era of development for Gravotech. Complementarities between Brady and Gravotech are very strong and I am truly convinced that the combination of both companies will generate significant and robust value creation," says former Gravotech president Gérard Guyard who helped develop and drive the company over the past 28 years.

"We are pleased to welcome the Gravotech team to Brady," says Brady's president and chief executive officer, Russell R. Shaller. "Gravotech offers specialty laser and mechanical engraving capabilities intended for direct part marking within a variety of industries and applications. The addition of Gravotech expands our product offering into precision direct part marking and engraving, which aligns with Brady's market leading position in product identification solutions and specialty adhesive materials. We intend to expand Gravotech's addressable market utilising Brady's global footprint throughout Europe, Asia and the Americas."

### Metal marking laser machine on production line

Gravotech is an international manufacturer and marketer of engraving, marking and traceability solutions addressing applications of personalisation, identification and signage. Gravotech's product portfolio includes innovative and high performing marking and engraving machines based on laser and mechanical technologies and a comprehensive range of engraving materials and consumables.

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# Empowering SMEs in UK manufacturing: TLM Laser's contract marking services

## UK manufacturing: A resilient sector

As UK manufacturing navigates through economic fluctuations and rising costs, small and medium enterprises (SMEs) face unique challenges and opportunities. Amidst this landscape, TLM Laser's contract laser marking services emerge as a strategic partner for SMEs, offering cost-effective solutions to enhance their production capabilities without the hefty investment in technology and staffing.

## Adaptation through advanced technology



In an era where adaptability is key to survival and growth, TLM Laser equips SMEs with the tools to thrive. By providing access to state-of-the-art FOBA laser systems, SMEs can leverage advanced marking technologies such as Intelligent Mark Positioning (IMP) for precision and efficiency in production processes. This access allows SMEs to maintain a competitive edge by enhancing the quality of their

products and adherence to industry standards, crucial for sectors demanding high accuracy and traceability like aerospace, automotive, and medical industries.

## Cost-efficiency in operations



Investing in large-scale laser systems and the technical staff to operate them can be a significant financial burden for SMEs. TLM Laser's Job Shop services mitigate this by offering a pay-as-you-go model that eliminates the need for capital expenditure on expensive equipment and specialised personnel. This approach not only helps

manage cash flow but also reduces the overall cost of operations, allowing SMEs to invest their resources in other critical areas such as research and development or market expansion.

## Speed and flexibility in production

Understanding the pressures of manufacturing timelines, TLM Laser ensures that flexibility and speed are at the core of its services. SMEs can benefit from rapid turnaround times, which are essential for meeting market demands and maintaining production schedules. Whether it's a one-off job or regular contract work, our services are designed to integrate seamlessly with existing production lines, providing a swift and reliable solution that keeps pace with client needs.

## Sustainability and future growth

The current economic climate and consumer demand push businesses towards sustainable practices. TLM Laser's technology supports this shift by offering environmentally friendly marking solutions that reduce waste and energy consumption compared to traditional methods. By choosing TLM's services, SMEs not only align with green manufacturing practices but also position themselves favourably in a market that increasingly values sustainability.



## A partner in growth

As UK manufacturing continues to evolve, SMEs need partners who can provide not just services, but solutions that propel their business forward. TLM Laser's contract laser marking services do just that by offering a blend of technological excellence, cost-efficiency, and market responsiveness. By collaborating with TLM Laser, SMEs can navigate the challenges of today's manufacturing landscape with confidence, ready to seize the opportunities of tomorrow.

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# Manchester Metrology are now an official Matterport UK reseller



As an authorised UK reseller, Manchester Metrology brings Matterport's cutting-edge digital twin technology to businesses across a wide range of industries. Matterport's innovative reality capture solutions allow companies to create precise interactive 3D models of physical spaces, revolutionising the way industries manage their environments with impressive accuracy and detail.

## Digital twins for manufacturing production floors

A standout application of this technology is the creation of digital twins for manufacturing production floors. These highly detailed interactive 3D models offer businesses an unprecedented level of control over their production environments, enabling analysis and optimisation without the need for physical presence on-site. By capturing the entirety of a production facility with Matterport's Pro3 camera, companies can map out machinery, workflows and critical space dimensions.

This digital twin of a manufacturing floor allows engineers and managers to conduct inspections, perform equipment layout adjustments and identify potential inefficiencies, all remotely.

## Key benefits of digital twins in manufacturing:

**Remote visits and inspection:** Businesses no longer need to rely solely on on-site visits. A

digital twin provides access to a fully interactive and detailed model of the facility, allowing remote teams to assess workflows and conditions from anywhere in the world.

**Improved collaboration:** Digital twins enable teams across different locations to collaborate seamlessly on facility planning, maintenance and process optimisation. Teams can share data, discuss changes and make informed decisions by viewing the same virtual model, reducing the chance of miscommunication or errors.

**Optimised space utilisation:** With an accurate 3D model of the production floor, businesses can easily plan and implement changes to equipment layout or workflow. This optimisation can lead to improved operational efficiency, reduced bottlenecks and more effective use of space.

**Cost and time savings:** One of the biggest advantages is the significant reduction in time and costs associated with site visits. Frequent travel for inspections or project planning becomes unnecessary, as stakeholders can explore the virtual environment as if they were physically present.

**Training and simulation:** A digital twin can also serve as an advanced training tool. Employees can familiarise themselves with the

production floor, equipment and processes through the virtual model before stepping foot on-site, improving their readiness and reducing the learning curve.

## Pro3 Camera - Ideal for manufacturing environments

Matterport's Pro3 camera is a key enabler of this technology, offering high-performance 3D capture with a custom 20-megapixel sensor and advanced LiDAR capabilities. Its ability to operate in a variety of lighting conditions and cover a range of up to 100 metres makes it particularly well-suited for large complex environments like manufacturing facilities. Whether capturing indoor machinery layouts or outdoor logistics spaces, the Pro3 delivers an immersive digital twin experience that is both comprehensive and accurate.

For manufacturing businesses, the Pro3 camera significantly reduces the time and costs associated with on-site visits. Its ability to create detailed interactive models enables efficient space planning, operational assessments and safety evaluations all while improving communication between teams and external partners.

## Transforming operations with digital twins

By partnering with Matterport, Manchester Metrology is offering UK businesses the ability to harness the power of digital twin technology, transforming how they manage and optimise their production floors. This cutting-edge solution addresses real-world operational challenges by providing a fully digital approach to facility management, leading to improved efficiency, cost savings and innovation across industries.

With Matterport's digital twins, businesses can step into the future of manufacturing, where physical space becomes a manageable interactive and data-rich environment that enhances every aspect of production operations.



# Introducing the new PMT GAMMA Series



providing a fully enclosed, high-accuracy add-on axis that saves time and effort during hardware setup. Unlike turntables, the 8-axis is fully transparent to the measurement software and requires no software upgrades. This allows the real-time rotation of the workpiece in relation to the measuring arm, eliminating the need to reposition either the part or the arm.

### Key benefits:

**Reduced measurement time:** The 8-axis extends the measuring range, enabling users to scan, measure and digitise both small and large parts from a single arm position, reducing measurement time by up to 40 percent compared to a standard 7-axis arm.

**Improved operator efficiency:** The 8-axis removes concerns about measuring dead spots, ensuring minimal disruption to inspection tasks and enabling quicker digitisation of complex parts.

**Accelerated subsequent processing:** By reducing the number of scans that need to be aligned, the 8-axis accelerates subsequent processing tasks by eliminating the need to move the measuring arm around the part or reposition the part to capture all necessary features.

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### Setting new standards in portable measurement

The wait is over, a game-changer in portable measurement is here. The PMT GAMMA Series marks a new era, tackling the practical challenges faced by businesses across various industries. Designed for usability, efficiency and flexibility, the GAMMA Series builds on the success of the ALPHA Series, delivering enhanced functionality for complex measurement tasks. As the UK's official supplier of PMT products, Manchester Metrology is proud to offer this cutting-edge solution to businesses across the country.

### The new GAMMA series arm

The GAMMA Series Arm sets a new benchmark in portable measurement with its innovative dual suspension support structure, offering enhanced stability and usability. Designed with the world's first external decoupling and built-in balancing mechanism, the GAMMA Arm delivers optimal function, flexibility, reduced joint loads and extended standby time. Its lightweight aerospace-grade carbon fibre build makes it a reliable and portable choice for both on-site and in-house applications across various industries.

Available in three configurations: GAMMA P, flagship, GAMMA M, standard and GAMMA E, economic, providing options to meet various requirements and budgets.

### Force-isolation design

Force-isolation refers to the mechanism that separates the hand grip from the scanning

head on the GAMMA Arm, effectively decoupling holding pressure from the gravity of the scanning head. This advanced approach ensures greater scanning accuracy and stability, especially for complex tasks.

### The new GAMMA blue laser scanner

The optional GAMMA blue laser scanner enhances the GAMMA Series with its optimised optical design, ensuring more stable scanning accuracy. It enables precise measurement in complex usage scenarios, addressing all required features and helping to overcome the bottlenecks that traditional contact probes face, such as measuring the dimensions of large, special-shaped workpieces, while maintaining optimal function.

### The new PMT GAMMA 8-axis rotary worktable

The optional PMT GAMMA 8-axis Rotary Worktable is a complete rotary axis that connects directly with the GAMMA 7-axis arm,



# Aberlink brings a bright 'circle-of-light' to One-O-Five Precision



exhibition at the National Exhibition Centre, Birmingham, with example part in hand, to see who could help. He visited all the CMM brands exhibiting at MACH and settled on Aberlink after a very quick and easy demonstration. He explains: "We were immediately convinced that Aberlink was right for us because it is so quick and easy to use. The part I had with me was inspected in no time at all and David Ditchburn, Aberlink technical sales manager, explained exactly how we could use the Aberlink CMM to measure multiple parts fully automatically. We settled on the Halo CNC CMM, 10.12.08, with Renishaw PH10T-TP20 probe system and the Aberlink Programming from CAD software module. Not only being the best value-for-money CMM out there, we save more money by not having to pay for ongoing software maintenance, which means the running costs are also limited to only the annual service and calibration of our CMM."

The Aberlink Halo CNC CMM is a belt-drive version of the state-of-the-art, linear-drive, Horizon CMM. The Halo CMM has been launched to fill an important gap in Aberlink's price/performance CMM portfolio. Aberlink customers that do not need the metrology performance of the linear-drive Horizon CNC CMM can now opt for the belt-drive machine. Although not as accurate as the Horizon CNC CMM, the Halo machine does have a first term error of  $1.8\ \mu\text{m}$  when fitted with the SP25 scanning probe. It is available in four different sizes, with a significantly lower overall height than the Horizon CMM. This enables it to be installed in metrology laboratories with lower ceilings. The belt-drive system is also better suited to production environments, so the Halo CNC CMM can also be used where it is needed.

Since having the Halo CMM, the 100 percent inspection of 500 parts has become almost fully automated, Richard Pratt concludes: "We now load 50 parts on the bed of the CMM and hit the go button. We can get on with other work while the Aberlink CMM inspects all the parts, with fully collated inspection reports for each part at the end of the run. It has transformed how we work."

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One-O-Five Precision was founded by Richard Pratt in January 2021 and has grown to be an up-and-coming name in the Cumbrian engineering sector. After gaining qualifications and on the job training in machining and building up a reputation for his work whilst employed at Bendalls Engineering, Richard Pratt's dream was to create and grow his own company. One-O-Five was named after his keen interest in motorsport, in particular, Motocross and gives remembrance to his close friend Lee Tolson, someone who he looked up to dearly. Lee Tolson raced under the number 105 and was well known in the Cumbrian Motocross community.

Starting with just a 46m<sup>2</sup> workshop, Richard Pratt's first purchase was an XYZ 710 Mill and then a XYZ CT52 lathe. In October 2021 he moved into the bigger 'Unit 2'. During the 1½ year occupancy of unit 2, life was extremely busy as he explains: "I was working 90-hour weeks, doing whatever it took to satisfy customer requests. It was commonplace for me to travel 300 miles to pick up a part or piece of material just to get a job done. We've

now moved to a purpose-built 750 m<sup>2</sup> factory, Unit 1. We've admin offices, staff canteen, meetings rooms and enough space to expand in the coming years."

The One-O-Five team has grown since 2021, with Adam Warwick joining in 2022 as workshop foreman and Louie Burns as apprentice. 2023 saw Scott Davidson join the team, bringing 10+ years of machining experience. He was also joined by Holly Moss as the office manager, bringing 12 years' experience of office management and QHE Systems in engineering. James Baxter, another apprentice, also joined in October. 2023 also saw One-O-Five Precision complete its Quality Manual and the company is now certified with NQA and UKAS accredited to ISO 9001:2015.

It was the 100 percent inspection and quality assurance requirements of new nuclear power contracts that generated the need for a CMM. Previously, it would take 80 hours, four man-days, to complete the 100 percent inspection of 500 parts with conventional handheld gauges, verniers and micrometers. Richard Pratt visited the MACH



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# Mitutoyo CMM ticks all the boxes for AML

Just as manufacturers look to achieve increased production efficiencies and improved quality levels by investing in the best available machine tools, farsighted businesses are increasingly applying the same criteria to their Coordinate Measuring Machine (CMM) purchases. A major reason for this is, although premium quality machine tools are able to reduce manufacturing times, as components cannot be dispatched and invoiced until they are inspected, it helps that the use of rapid acting CMMs considerably reduce inspection times, whilst also improving quality standards. Furthermore, the speed of the latest generation of CMMs allows much quicker feedback to production staff related to component features that are drifting towards out of specification situations. This rapid feedback enables prompt interventions to be made.

As with all of their expensive plant purchases, prudent manufacturers also consider the levels of after-sales services offered when buying CMMs. One such judicious manufacturer that took into account both the speed and precision of their recent CMM purchase and also the standard of the after-sales service offered, is Advanced Manufacturing (Sheffield) Limited. (AML).

AML is recognised as a leader in the delivery of flexible manufacturing capability at the leading edge of machining technologies and efficiencies. Utilising the very latest technologies, AML manufactures the highest quality precision parts including highly complex gas turbine components, such as blades, shafts, discs, blisks and bearings. Given the nature of the industries it serves, AML's customers require it to work within the most stringent of quality procedures and to extremely tight drawing tolerances.

In accordance with AML's policy of regularly

investing in its inspection and quality control equipment, the company recently purchased a second advanced CRYSTA-Apex V122010 CMM from Mitutoyo UK. Mark Hands, AML operations director explains: "AML is an advanced manufacturing supplier specialising in the development of manufacturing solutions and production services for a variety of prestigious blue-chip clients. Amongst other demanding sectors we serve are the aerospace, defence, nuclear and energy industries. Therefore, we use cutting-edge processes and utilise the most up to date equipment to manufacture and inspect our precision parts."

He continues: "As a long standing Mitutoyo customer, we are aware of the superior quality of the company's products and the excellent levels of support it provides. Therefore, having been very impressed with our first CRYSTA-Apex V122010 CMM, we were happy to place an order for a second machine.

"The advanced Mitutoyo CMM ticks each of our important boxes, of speed of use, accuracy, and not least, as Mitutoyo are our trusted inspection partner, we have the upmost confidence that, as previously experienced, we would continue to receive excellent levels of after-sales support from the business."

Mitutoyo's recently launched CRYSTA-Apex V1200, 1600 and 2000 series CMMs were developed for supporting the quality evaluation of volumetric parts and offer users up to 12,8m<sup>3</sup> of measuring volume. The robust machines were designed and constructed according to Mitutoyo's extensive experience in CNC CMM technology, while the flexible

range is able to accept touch trigger probes, scanning probes and both laser and scanning probes.

CRYSTA-Apex CMMs make use of a proven, lightweight bridge-type construction with high rigidity air-bearings on every axis, helping to deliver excellent levels of accuracy in addition to high speed and high acceleration rates. ABS linear scales provide



high environmental resistance and save time at start-up as, unlike some other CMMs, homing is not necessary. The UC480 controller supports Multi-sensor and Smart Measuring System (SMS) functionality.

Although CRYSTA-Apex V Series machines are suitable for use within temperature-controlled environments, thanks to their robust construction and features such as an advanced, real-time thermal compensation system, the range is also able to provide high levels of precision when installed close to the point of production, such as within machine tool cells. This ability is in stark contrast to earlier generation CMMs where accuracy could not be guaranteed unless the CMM was installed within a temperature-controlled environment.

The CRYSTA-Apex V122010 variant, as purchased by AML, provides a generous X,Y,Z, capacity of 1,200 x 2,000 x 1,000 mm. Therefore, in addition to being able to handle large individual components, users are able to load large batches of smaller parts onto the machine's bed and to perform fully automated mass inspection routines.

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# WEC Group installs new Flow Mach500-4030 6500 bar Dynamic Waterjet

With over 45 years in business, WEC Group is one of the largest engineering and fabrication companies in the UK. The group provides fabrication, laser cutting, precision machining, waterjet cutting and CCTV mounting solutions. It installed its first FLOW 6500 bar Dynamic Waterjet® at its new WEC Waterjet facility in Blackburn in 2013 and this was followed by a very successful implementation of two additional machines in 2014 and 2016.

The latest system to be installed at WEC Waterjet, is the Flow Mach500 4 m x 3 m. This entered into service in the summer and has added new capabilities to WEC Group and its customers.

The combination of Dynamic Waterjet with 6500 bar pump provides not only very precise geometry but very fast cutting speeds. This technology is complementary to the vast laser cutting capability and also helps with the machining division within WEC.



## About WEC Group

Over 45 years of manufacturing with 900+ staff across Lancashire, Merseyside, Yorkshire, Dorset and the West Midlands, WEC Group comprises of 15 manufacturing companies specialising in individual areas of engineering and fabrication.

Spanning across 750,000 sq ft of manufacturing floorspace, WEC Group is well placed to meet any engineering requirement



and provides services across a broad range of industries such as nuclear, aerospace, oil & gas, defence, rail and marine.

WEC Group operates within ISO 9001:2015 requirements, is AS/EN 9100 aerospace accredited for CNC machining, works to ASME IX coded welding standards and has achieved full compliance with BS/EN 1090-1 structural steel CE/UKCA marking. This demonstrates the ability to consistently deliver high quality products conforming to customer demands and applicable statutory and regulatory requirements. It also endorses the company's commitment to the quality of its work, products, systems, procedures and service.



Apprenticeships are at the heart of continued growth and success and the WEC Group training academy is the only one of its kind in the UK. A member of The Association of Welding & Fabrication Training & Education (AWFTE) and The Welding Institute (TWI) certified welder training centre, the internal apprentice training academy provides

individuals with the skills and qualifications required to carve out a career in engineering.

Finally, the decision to purchase an additional FLOW 6500 bar Dynamic Waterjet system was based upon Flow's technology and production capability. Gareth Taylor, service centre manager of WEC laser and WEC waterjet divisions, claims that the addition of the new Mach500 Flow Waterjet to the company provides it with new capabilities and has allowed it to provide new services to its customers. According to Gareth Taylor, the Flow Dynamic Waterjet systems complement the existing portfolio of machines confirming its position as a leader for engineering and fabrication in the UK.

## 50 years in waterjet

Over the past five decades, there has been an evolution of Flow waterjet technology and its profound impact on shaping the world through water. Committed to leading waterjet innovation, the company strives to deliver solutions that go beyond your expectations.

Flow's mission is to be the leading global provider of the most advanced waterjet cutting technology across the widest range of applications and industries. It accomplishes this by keeping customers at the forefront of everything it does and by creating a work culture that fosters innovation, collaboration and respectfulness.

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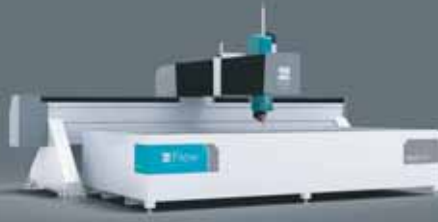


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# Customised NCP40 waterjet cutting machine for luxury superyacht builders

A global leader in yacht refit, restoration and custom build required a specialised waterjet cutting machine to add to its UK production capabilities. Known for its exacting quality standards, this organisation is renowned for ensuring every project is executed with the highest levels of craftsmanship and precision.

After extensive market research and site visits to Original Equipment Manufacturers (OEMs) and end-users, the customer chose Water Jet Sweden as a long-standing and trusted industry leader in this field, renowned for reliability, longevity, and dedicated support. With an array of over 100 machine configurations, each waterjet cutting system is built to order and made to last. This ensured the customer could be confident that they would receive a machine tailored to their exact specifications and one they could invest in with confidence. This case study exemplifies the importance of custom solutions for waterjet cutting to address unique industrial needs and achieve operational excellence.

### Customisation requirements

#### Premium NCP40 waterjet cutting machine

The customer opted for the NCP40 model, a premium waterjet cutting machine known for its versatility and efficiency. The machine is ideal for both 2D and advanced 5-axis 3D cutting, making it suitable for various professional job shop and industrial applications. The NCP40's advanced features and customisations ensured maximum

productivity, flexibility and profitability for the customer's application requirement.

#### Extended table option

The customer selected the larger table option, extending the working range to 4.2 metres. This choice was driven by the redesigned NCP40 and NCP30 models, which now feature extended working ranges to accommodate the growing adoption of BevelJet60™ and AlphaJet™ 5-axis technology solutions. The extended range allows full 3 m and 4 m working ranges even at extreme cutting angles, essential for the customer's diverse cutting requirements.

#### 6000 bar cutting head

For the processing of thick plates, the customer opted for the 6000 bar cutting head. This technology package offers the fastest abrasive waterjet cutting in the industry, providing higher throughput while reducing the processing cost per unit length of cut. Despite the higher initial capital cost, this investment promised a short payback period, aligning with the customer's need for efficient and cost-effective production.

#### 2D cutting head

Although the premium model includes a 3D cutting capability, the customer opted for a 2D cutting head. While the BevelJet 60 was considered for its advanced capabilities, there was no proven requirement to justify the

additional investment. The focus remained on optimising for their specific applications.

#### Application

This NCP40 machine will be used for cutting custom plates used in the overhaul and repair of yachts. These tasks range from cutting external structural pieces for the hull to creating decks and aesthetic finishing panels. The precision and efficiency of the NCP40 waterjet cutting machine significantly enhances the quality and speed of these tasks, meeting the customer's high standards.

#### Delivery and implementation

The NCP40 machine has been delivered to the customer's UK facility and installation has been scheduled. This is a long-term project which has cemented a strong partnership between the customer and Water Jet Sweden, built on shared business values and ethics. The Premium machine is a versatile and efficient machine tool that can be found in almost any professional job shop or industry. With a huge range of optional settings, it can be designed to meet a wide range of cutting requirements, both 2D and 3D cutting. Based on Water Jet Sweden top class mechanical design it is a machine model for experts and tough performance demands.

#### Introducing the Auto TCP calibration tool

##### A new era of precision

In high-precision waterjet cutting, accurate tool calibration is essential for maintaining superior results. Traditionally, this process has been time-consuming and reliant on operator expertise. Water Jet Sweden's new Auto TCP Calibration Tool transforms this critical step, making it faster, simpler and more reliable than ever before.

Maintaining consistently high precision in waterjet cutting requires meticulous calibration, particularly after a tool change. Traditionally, this process has demanded both expertise and time, as accurate calibration is essential to uphold cutting precision. Water Jet Sweden's new Auto TCP Calibration Tool revolutionises this critical step, automating the process for improved efficiency and remarkable reliability. With this innovative tool, calibration is completed in a fraction of



the time, eliminating the need for specialised skills while consistently delivering precise results.

**The Auto TCP Calibration Tool comprises three key components:**

**Specialised Software:** Integrates seamlessly with the machine’s control system to ensure precise calibration.

**Measuring Probe and Base Plate:** A robust setup designed for consistent measurement accuracy.

**Calibration Ball:** Provides a fixed reference point for ensuring tool alignment.

By combining specialised software, a measuring probe, a base plate and a calibration ball, it ensures precision in all types of angled cutting. This includes machines equipped with Alphajet, Beveljet, or FiveX cutting heads.

**Key benefits at a glance**

**Faster Calibration:** Saves valuable production time with a process that’s five times quicker than manual methods, ensuring consistent accuracy across operations while significantly reducing downtime.

**Flexible:** Whether you’re working with small batches or large-scale projects, the Auto TCP Calibration Tool helps optimise productivity without compromising on quality.

**User-Friendly:** Eliminates the need for advanced expertise, making it accessible for operators at all skill levels.

**Accurate Results:** Ensures consistently precise calibration, minimising errors and maximising machine performance.

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# Revolutionise your workflow with waterjet cutting technology

Are you turning away work due to limited cutting capabilities or concerns about profit margins? Traditional tools such as press brakes, shears, punches and plasma torches often struggle to cut through thick or challenging materials without costly errors. It's time to transform your workflow with abrasive waterjet cutting, the ultimate solution for precision, versatility and efficiency in any job shop.

## Why add waterjet cutting to your shop?

### 1. Boost cutting versatility

Waterjet cutting offers unparalleled flexibility compared to conventional methods. These machines can cut through a wide range of materials, from hard metals and ceramics to composites and even softer materials like rubber. This versatility enables you to take on a broader variety of projects, attract more customers and expand your business. OMAX, provides waterjet cutting systems in various sizes to suit your shop's specific needs. Short on space? Simply select a compact model that maximises productivity without occupying excessive floor space.

### 2. Improve profitability

Investing in waterjet technology can help you reduce reliance on external vendors, saving on outsourcing costs while giving you greater control over your projects.

Additionally, waterjet cutting significantly reduces material waste. By delivering precise cuts with minimal scrap, you'll lower expenses on high-cost materials such as metals, plastics, and composites, ultimately improving your profit margins.

### 3. Enhance operational efficiency

Waterjet machines are capable of cutting components to near-net shape, simplifying the transition to secondary operations. This streamlined process allows you to complete



jobs faster, keeping clients happy and ensuring production remains on track.

### Upgrade your shop today

Adding a waterjet cutting system to your job shop unlocks new opportunities for flexibility, profitability and efficiency, no matter your shop's size. Take on more diverse projects, cut overheads and deliver superior results that set you apart in a competitive market.

Ready to make the leap? Discover OMAX's range of waterjet cutting solutions to find the perfect fit for your workshop.

Waterjet technology has seen remarkable advancements over the years, delivering precise cutting solutions while minimising environmental impact. One of the most significant innovations in this field is the introduction of water level control systems, which have transformed the way waterjet cutting is performed. In this article, we will discuss how these systems enhance the efficiency and performance of waterjet cutting machines.

### Boosting safety and comfort with water level control systems in waterjet cutting

#### Noise reduction and improved work environment

Traditional waterjet cutting, conducted above water, often produced significant noise. Water level control systems now allow for underwater cutting, drastically reducing noise levels and creating a more comfortable working environment for operators. This advancement also helps reduce overall noise pollution in industrial settings, making workshops quieter and safer places to work.

### Superior precision and quality

Underwater cutting also contributes to cleaner and more precise results. By maintaining a consistent water level, these systems contain particulates and prevent contamination during the cutting process. The results in more accurate cuts, ensuring higher-quality finished parts. Consistent water levels also allow for controlled cutting depths, improving precision and elevating the quality of the end product an essential factor for any high-performance operation.

### Reduced garnet and water splash

Water level control systems play a key role in safety and cleanliness. By minimising garnet and water splash during cutting, they help maintain a cleaner workspace. Reduced splashing not only keeps the environment tidy, but also lowers the risk of slip hazards, ensuring a safer environment for machine operators.

### OMAX Rapid Water Level Control System

OMAX's Rapid Water Level Control system, available on its OptiMAX, OMAX, and MAXIEM models, is a state-of-the-art pneumatic solution that offers quick water level adjustments in the catcher tank for efficient underwater cutting.

#### Key features of this system include:

- Easy access to controls conveniently placed near the waterjet controller.
- Significant noise reduction lowers sound levels to approximately 76 dB during underwater cutting.

- Minimised frosting on finished parts, ensuring excellent part quality.
- Consistent water levels, optimising the overall cutting process and efficiency.
- A new standard in waterjet cutting

Water level control systems represent a crucial advancement in waterjet cutting technology, offering solutions that are cleaner, quieter, and more precise. With benefits ranging from noise reduction to improved part quality and enhanced operational safety, these systems have become essential in modern machining.

As technology continues to advance, innovations like water level control will only further enhance the capabilities of waterjet cutting machines, driving productivity and efficiency across various industries.

### Waterjet proves a perfect fit for lean manufacturing principles

Abrasive waterjet machines are a formidable technology for stewards of Lean Manufacturing principles. Value for the customer, ultra-high workflow efficiency and

the pursuit of perfection are at the top of Lean Manufacturing's objectives and waterjet technology easily integrates into the strategy's methodology.

### Value

Value sits at the top of the Lean pyramid. Identifying and adding value for the customer and maximising internal operational value for the shop are Lean's primary goals. To that end, waterjet technology's primary value-add proposition is found in its flexibility. Waterjets cut like a saw, process external geometries for near net production, cut round parts like a lathe and square parts like a milling machine. Additionally, they cut complex parts like an Electrical Discharge Machine (EDM) and slot like a broach.

### Value stream

As a result, shops provide a deep range of capabilities for customers through waterjet cutting. OMAX waterjets process virtually any material, from steels, super alloys and exotics to composites, plastics, stone and more at a wide range of thicknesses without creating a Heat-Affected Zone (HAZ) or changing workpiece properties.

### Create workflow

Waterjet cutting tools never wear out or get dull, so tooling inventories and costs are reduced. Setups and downtime due to tooling changeovers are also decreased, which improves overall workflow and part quality.

As these operational and workflow improvements are realised, value is added to the shop. Further, with parts produced faster and more cost-effectively, customers benefit in terms of price and speed to market.

### Pull value

Because of their flexibility and efficiency, waterjet machines promote the Lean model's sustainable production and customer pull value through just-in-time production. Instead of producing inventory that sits on a shelf waiting for a customer to order, parts and products are manufactured quickly and efficiently upon customer demand.

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# Tube stockholder remains loyal to sawing and storage equipment manufacturer

Sawing equipment manufactured by German company KASTO has been used by Austrian tube stockholder Karl Mertl Handelsges in Schwechat since 1970, when it installed an EBS 400 U hacksaw that is still in use today for maintenance and repair. The company is currently managed by the third and fourth generations of the Gruscher family, with both daughters active in management, as well as son-in-law Jürgen Spannraft who has been CEO since 2019.

In a 30,000 square metre warehouse, the 90-employee stockholder stores 8,000 tonnes of steel tube, which is mainly seven metres in length, from 3 to 660 mm in diameter and of wall thickness from 0.5 to 100 mm. KASTO bandsaws and a modern hacksaw are employed to cut the stock to length for delivery to customers throughout Europe.

As an old manual storage system with 1,012 cassettes was bursting at the seams in 2012, Mertl built a new warehouse and installed a KASTO Unicomact automated honeycomb storage system equipped with 2,633 cassettes and served by an overhead gantry crane. Additionally, extra automatic bandsaws provided increased cutting capacity and efficiency. The system is connected to Mertl's enterprise resource planning system so that orders may be processed without human intervention.

"It was not a difficult decision to opt for KASTO for this round of investment," recalls Marie Gruscher. "By then we were already

familiar with the quality of the products and the great service. KASTO's recommended solution was also the best fit for our requirements and we were able to connect it seamlessly to our packaging machine."

She added that the new facility not only provided increased storage but also raised operational safety, as goods come to the person and not the other way around. Reduced manual handling and movement in the warehouse leads to a significantly lower risk of accidents.

The company currently operates ten KASTO bandsawing machines. The KASTOtec horizontal model, with its intelligent control system that stores cutting parameters, is ideal for large series production and cutting very hard materials. A bi-metal or carbide saw band can be used. KASTOwin is a similar but more general-purpose bandsaw. KASTOssb is a compact, vertical bandsaw that cuts precisely and quickly in series production and is well suited to bundle cutting.

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

The company develops comprehensive machines and systems with interlocking



*The KASTO Unicomact storage system installed at Austrian tube stockholder Karl Mertl Handelsges significantly increased storage capacity and improved safety.*



*Mertl has been using a KASTO EBS 400 U hacksaw for more than 50 years and continues to do so for maintenance and repair.*



*One of the KASTOtec A 4 bandsawing machines is in a historic vaulted cellar on the site.*

components for metal sawing and storage technology. Perfectly complemented by industry and customer-oriented services. Complete solutions provide profitability and competitiveness to ensure investment security. This means more advantages for all users.

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## The nation's metal cutting tool partner since 1956



Addison have been the chosen partners of the UK metal cutting industry since 1956, starting with steel cutting saws and later expanding to cover aluminium cutting and fabrication machinery. It has supported the UK's manufacturing industry by installing reliable, cost efficient metal cutting saws and keeping those machines working hard through regular maintenance and supply of a trusted range of metal cutting saw blades and cutting fluids designed to improve your sawing process.

These days it offers the UK's largest selection of metal cutting machines. From simple manual band saws and workshop circular cold saws through to fully automated

production lines for the most modern smart and connected factories, the company has customers throughout the UK in every county and city.

Its stock of saw blades is one of the largest in Europe and caters for every application, from the smallest jewellery making blades through to large, tipped blades used by the largest cutting machines available. Using leading CNC machinery, it can manufacture saw blades from blanks to any requirement and even design new geometries for complex cutting needs. Its band saw blades are always genuine branded products welded in-house to ensure strict quality standards are maintained.

The Addison consumable team recently launched its newest range of specially formulated synthetic sawing and machining lubricants designed to protect metal cutting machines, saw blades and the materials being cut while being better for the environment, safer for operators and easier to dispose of.

With its vast history and intricate knowledge of metal cutting saws, fabrication machinery and the industries these machines serve, Addison Saws can guide customers through the buying process, ensuring that the best machine for the job is offered.

It will take your budget into account and match your current and any future workload needs to the best metal cutting saw for your business. Then it backs that decision with leading warranties, training and saw maintenance services if required. You're not just buying a piece of equipment, you're investing in access to nearly 70 years of unique and dedicated metal cutting knowledge, along with some of the best metal cutting saw brands in the market.

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# Fully automatic sawing centre with storage connection

As a global specialist for pumping complex media, NETZSCH Pumpen & Systeme GmbH, headquartered in Waldkraiburg, Upper Bavaria, Germany, specialises in the development, production and sale of positive displacement pumps. More than 75,000 pumps are produced every year, which are used in a wide range of industries.

For the manufacture of the pumps, semi-finished products in various grades with diameters of up to 540 mm are cut from whole bars and tubes. These saw cuts are then fed to the subsequent turning/milling production processes. The old sawing centre at NETZSCH consisted of two stand-alone automatic band saws from Behringer and many individual cantilever arm storage systems, which took up an entire production hall. The overhead crane was used to unload the raw material from the lorry, store the bars in the manual long goods store and feed the saw. In addition, the materials were not catalogued. The main aim of the project was to achieve a significant increase in efficiency and a reduction in costs.

When the raw material is collected, the bars are separated and sorted into the storage cassettes of the bridge storage system. Within the storage cassettes, the bars or tubes are separated using dividing pins so that they can be automatically removed later. The cassette is then stored in the high-bay warehouse.

Remmert's goods management system, WMS for short, serves as the central planning and control system. This is where the complete material inventory management takes place. It also serves as an interface between the customer's ERP system (SAP) and the two Behringer bandsaw machines. Production orders are automatically imported from SAP, the raw material is scheduled accordingly and the order is transferred to one of the two bandsaws.

The raw material is transferred fully automatically from the high-bay warehouse to the saws by a gantry robot, the so-called PICK system. At the same time, the corresponding order data is imported via an interface. On the infeed side, both sawing systems are equipped with pendulum roller conveyors that move transversely. This makes it possible to load and unload one roller conveyor while the long material for the active sawing job is on the other side. This virtually eliminates



*The old sawing centre consisted of two older Behringer band saws. The required sawing section had to be measured and set up manually. The material was stored in cantilever bearings and stored and retrieved by an overhead crane.*

non-productive times and maximises system throughput.

### Fully automatic processing of sawing orders

NETZSCH relies on proven sawing technology from Behringer to process the sawing jobs. The two high-performance automatic band saws, HBE411A Dynamic and HBM540A, are characterised by precise saw cuts and reliability in unmanned operation. This is ensured by the basic design of the two bandsaws in portal construction, the use of vibration-damping cast components, their saw feed system with servo motor and the reliable chip disposal system. As a result, costs can already be reduced during the sawing of semi-finished products by minimising processing allowances.

The finished semi-finished products are sorted by order for transfer to subsequent process steps. NETZSCH opted for the following solutions for this:



*The new sawing centre consists of the HBM540A high-performance automatic band saw (left in the picture) and the HBE411A Dynamic automatic band saw. The Remmert bridge bearing can be seen in the background.*

On the outfeed side of the HBE411A Dynamic bandsawing machine, a link conveyor is responsible for transporting the material. In addition to long, good parts, it can also easily convey very short offcuts or remnants. A push-off device pushes the good parts, whether long or short, onto the designated material storage and closed material tables. Cut-offs and offcuts end up in a scrap container at the end of the link conveyor.

Meanwhile, the HBM540A industrial saw offers a cut-off gripper on the outfeed side for sorting the sawn parts.

The manual labour required by the operators has been drastically reduced. The overhead crane is now only used for the initial storage of the material in the warehouse and for the final removal of the sawn sections.

The space required for the warehouse has also been significantly reduced. Where previously an entire hall was required as storage space, storage is now concentrated on the footprint of the high-bay warehouse. The bridge storage system consists of 412 long goods cassettes with a total capacity of around 1,600 tonnes.

The new sawing centre with bridge storage and fully automated material flow ensures a significant increase in efficiency. Around 1,500 saw cuts are made per week in three-shift operation.

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## Software opens new opportunities for saw blades

The Loroach range of circular saw blade grinding machines from VOLLMER has been an exceptionally successful addition to the portfolio. With everything from entry-level sharpening machines to high-end solutions for sharpening, chamfering and creating chipbreakers in metal and TCT saw blades, the Swabian manufacturer has again taken innovation to a new level with software updates to its class-leading TWIN 860 machine.

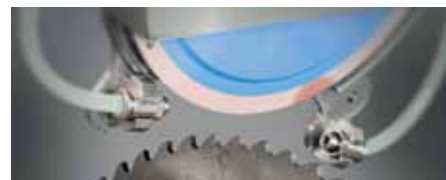


Already regarded as the perfect 'all-round' 2-in-1 solution for grinding metal saw blades with CBN abrasive and TCT blades for both the metal cutting and wood industries, the new

updates take flexibility to a new plateau. The innovative new software can be integrated into new and existing machines to create new business opportunities for manufacturers using the Loroach TWIN 860 machine.

Now, users of the Loroach TWIN 860 can purchase four different software packages. The software program for Skip Tooth processing on circular knives and saw blades opens many new business opportunities for VOLLMER customers. Perfect for generating a randomly arranged sequence of teeth and gaps, even saw blades with pointed and curved teeth can be processed. The Skip Tooth suite is a new facility available in the new year. With Skip Tooth blades being versatile enough to be applied to everything from wood and plastic to bone and Corian, manufacturers can now grind and re-grind Skip Teeth saw blades that are widely used in the food, medical and FMCG industries.

The Plunge Grinding program is another software introduction that the food industry supply chain will well receive. Developed for processing circular knives with any number of plunges, the shape of the grinding wheel is



reproduced in every case. The number of teeth entered can either be distributed evenly around the circumference or ground one after the other on a limited segment. Even micro-tooth wave profiles can be created by entering different plunge depths for successive teeth. End users can now apply V-pointed grinding wheels or wheels with EDM-generated profiles to reduce production times.

Loroach experts have also created a software program for circular knives to accommodate single or double-sided grinding. The software combines with the kinematics of the Loroach TWIN 860 machine to permit a maximum bevel angle of 75 degrees at the front and 60 degrees from the back.

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# Innovation at the heart of Fastener Fair Global 2025

From 25th to 27th March, industry professionals will meet in Stuttgart, Germany for the 10th edition of Fastener Fair Global; the international flagship event for the worldwide fastener and fixing industry. After a record attendance in 2023, visitors can look forward to another transformative event full of networking and business opportunities, with premier access to top-tier suppliers from across the globe. 2025 will see the launch of two focus pavilions, promoting specialist solutions for a fast-changing industry.

Nearly three months ahead of the show, more than 900 companies from 44 countries have already confirmed their participation at Fastener Fair Global 2025, covering a gross exhibition space of well over 52,000 sq m. Visitors can expect a stellar line-up on the show floor, presenting the full supply chain for fastener and fixing elements in manufacturing, construction, and other industrial applications.

Over three days, there will be numerous opportunities to personally engage with innovation leaders like: Ambrovit, Böllhoff, Chavesbao, Eurobolt, Fastbolt, Index, Inox Mare, Lederer, Norm Fasteners, Obel Civata, Paal, Pasvahl, Reyher, Sacma, Schäfer+Peters, Tecfi, WASI, Würth, and many more. Filling four expansive halls, they provide a unique cross-section of the global fastener and fixings sector, with significant participation from Germany, Italy, China, Taiwan, India, Turkey, the Netherlands, the United Kingdom, Spain and France.

With its unmatched coverage of fastener

and fixing products and related equipment, Fastener Fair Global 2025 is expected to attract widespread interest from diverse markets. In 2023, key visitor sectors included metal production, automotive, distribution, construction, mechanical engineering, hardware and DIY retailing and electronics. Nearly three in four visitors came from outside Germany, pointing towards the increasing global reach of the show.

## New in 2025: Special focus pavilions

2025 will see the introduction of two special focus pavilions to encourage deeper engagement with emerging trends and innovations and to open new avenues for networking and dialogue.

Launching for the first time in **Hall 7**, the “Innovation and Sustainability Pavilion” will highlight groundbreaking fastener solutions that deliver high on performance while reducing environmental impact, for example by utilising efficient manufacturing processes, recyclable materials, or lightweight designs.

In **Hall 3**, the “Hand Tool Pavilion” is making its debut, showcasing specialist hand tools designed for advanced, cost-efficient, and precise applications in key sectors such as aerospace, defence, energy, shipbuilding, construction and manufacturing.

The popular “Route to Fastener Innovation Competition”, organised by media partner Fastener + Fixing Magazine, will also make a return, promoting clever innovations on the market, with the aim to show the benefits of new fastening products to a wider audience.



## Fostering a culture of innovation to serve fast-moving markets

Tangible improvements for users, for example in efficiency, durability, safety, or cost-effectiveness, is what drives the ongoing development of fastener and fixing innovations. By aligning its advancements with the needs of various industries, the fastener and fixing sector acts as a critical enabler of solutions to global issues.

“Our exhibitors are vital strategic partners in driving progress and resilience,” explains Stephanie Cerri, event director for Fastener Fair Global at RX. “Their innovation power lies in developing customised, high-precision fastening solutions, using advanced materials for lightweight or high-strength applications, embracing automation, IoT and other smart technologies and introducing sustainable practices and materials in production processes.”

In fostering this culture of innovation, Fastener Fair Global stands as the keystone event of a progress-focused industry, allowing visitors unparalleled access to a wealth of pioneering ideas and solutions.

## Essential online tools and resources for visitors

The official event website provides extensive information on the exhibition profile and show visit, including the latest Exhibitor List and Online Show Preview to search for companies, products and services. A one-click Planning Tool allows visitors to add companies, products and sessions to their personal agenda for downloading, printing or sharing. The show’s Travel Hub offers useful links and information on travel, visa, and accommodation, including a bespoke HotelMap with hotel offers in Stuttgart.

## Connecting fastener professionals worldwide

Fastener Fair Global serves as the flagship event in the successful Fastener Fair series, dedicated to the worldwide fastener and fixing industry. The exhibition portfolio also includes regionally focused events.

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