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XYZ MANAGING DIRECTOR

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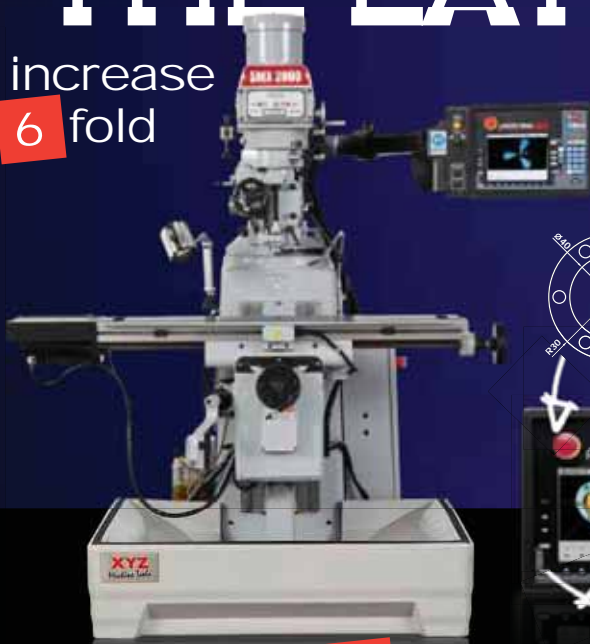
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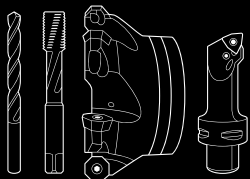
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**NEXT ISSUE NOVEMBER 2018**

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- CAD/CAM • DEEP HOLE DRILLING
- EDM • LASER CUTTING
- WELDING

Published by Roger Barber Publishing  
Enterprise House, Foundry Lane, Horsham, West Sussex, RH13 5PX  
Tel: 01403 266022

Publisher: Roger Barber  
Email: [roger@rbpublishing.co.uk](mailto:roger@rbpublishing.co.uk)

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Design & Production: Roger Barber Publishing  
Print: Holbrooks Printers Ltd, Portsmouth, Hampshire

Engineering Subcontractor is mailed to a controlled circulation of readers with a legitimate interest in the content. Roger Barber Publishing stores all business data securely and does not share with third parties.

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## Competence brands come together under CERATIZIT Group

CERATIZIT Group is bringing together four of the world's leading competence brands to consolidate and enhance its support for customers across the engineering spectrum. They are Cutting Solutions by CERATIZIT, KOMET, WNT and KLENK. These four brands, being brought together under CERATIZIT UK & IRELAND Ltd, bring greater benefits to customers, who now have access to a much wider range of products, technical know-how and customer support. While individually the four brands are leaders in their field, combined they take customer support and technical excellence to new levels.

A market leading range of high quality cutting tools is only part of CERATIZIT UK & IRELAND's success, with its customers benefiting from class leading expertise, logistics and customer service. This provides customers with benefits in its day-to-day business as it draws directly from the knowledge of its team of technical sales engineers, who have first-hand knowledge of the issues that its customers are facing. This mix of product, technical expertise and service gives each individual customer exactly the support it needs, providing the right tool at the right time with application knowledge to make the machining process more effective.



Cutting Solutions by CERATIZIT is an innovator in the development and manufacture of cutting tools, such as indexable insert and solid carbide tooling. Customers range from OEMs in the automotive, aerospace, power generation and rail industries down through their supply chains. The development of hard materials for cutting tool and wear resistance applications has been at the heart of the company's innovative strategy.

KOMET is a leader in high-precision drilling, reaming, milling, threading and mechatronic tools. It has thrived through innovation and quality, placing it at the forefront for solutions tailored to customer requirements, in order to fulfill the needs of customers requiring high-quality premium cutting tool products throughout every stage of the machining cycle.

WNT provides industry leading customer service through its European network of distribution and technical sales subsidiaries. WNT operates in a unique way to ensure that its customers are kept at the forefront of metalcutting efficiency, providing next day delivery on any of the 55,000 items in its range.

Klenk focuses on the aerospace sector, leading the way in rotary cutting tools for drilling, milling, reaming and countersinking. Many of its products are custom-designed for customers around the world.

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# Advanced Engineering celebrates its 10th year

Advanced Engineering 2018, the UK's largest annual gathering of OEMs and engineering supply chain professionals, is throwing down the welcome mat for UK's small engineering firms and subcontractors. New for this year, the show is excited to be supporting these UK contractors by introducing a dedicated area on its show floor, the UK Contract Manufacturing zone. UK subcontractors are facing growing competition from overseas and there is now a need more than ever for the UK market to have the best platform to showcase these businesses.

In order to support British industry, Advanced Engineering 2018 has initiated this dedicated and focused area.

Alison Willis, industrial divisional director at Easyfairs, organiser of the show, says: "Britain's small engineering companies are the backbone of the country's manufacturing capability, a capability which is renowned around the world for its technical expertise and fantastic customer service.

"As Advanced Engineering celebrates our 10th year, we are looking forward to seeing thousands of engineers from small and large companies who will see first-hand the latest developments in the industry. There will be networking and business development opportunities galore at the UK's largest annual advanced engineering show."

Advanced Engineering 2018 is celebrating 10 years of connecting technical specialists across the aerospace industry.



Last year the show saw a 15 percent rise in attendance, due to engineering specialists seeing the show as a fantastic opportunity to grow their networks of professionals across the industry. This two-day exhibition and conference is free-to-attend.

The show brings together over 600 supply chain partners and thousands of engineers all looking to source, specify and invest in the most up-to-date products and explore the latest industry innovations.

Advanced Engineering 2018 is for OEMs and SMEs, visitors and exhibitors to meet and do business, not only within their own industries but in those less familiar sectors they would not otherwise discover at a single exhibition.

The show is the UK's only event dedicated to R&D, design, test, inspection, production, procurement and assembly. It connects the entire UK advanced engineering supply chain, from large and small companies. Visitors will see cutting edge technology and materials, everything that is needed in today's manufacturing industry.

During the two-day Open Conference, visitors will be able to hear from leading names within the manufacturing industry covering thought-provoking topics that effect the industry every working day. Anyone who is anyone in the engineering world will be there, and speakers come from a who's who of advanced engineering; Jaguar Land Rover, Airbus, GKN, Network Rail, Atkins, Tencate, Siemens and IBM.

A wide range of subjects will be covered from drones through to surface measurement, additive manufacturing, getting the best from your CNC, EV batteries and quality standards, to name but a few.

The show is CPD (Continuing Professional Development) accredited by the CPD Certification Service. Recognised by employers, and complementing the policies of professional institutes and academic bodies, it also acknowledges the effective professional development visitors of the conference can gain. Attending the conference will help visitors broaden their knowledge around the various advanced engineering sectors and the interesting and technical topics that will be discussed.



Attendees will have free access to more than 200 presentations and case studies from a raft of OEMs and high-profile speakers in six open forums to suit their business needs and interests.

Alison Willis, Easyfairs' industrial divisional director, explains why lubrications experts should be at the show: "It's hard to believe that this show started 10 years ago to celebrate the fantastic innovation and opportunities in industry. And now it's developed into the largest annual gathering of engineering and procurement professionals in the UK. This is thanks to all those throughout the supply chain who are building capability and business in this exciting sector.

"We are proud to be able to put on this exhibition which offers unrivalled networking and business development opportunities. And it's not just about selling; it's about finding out the latest developments in high value manufacturing."

The show includes six other co-located zones under one roof: Composites Engineering, Automotive Engineering, Performance Metals Engineering, Connected Manufacturing which focuses on Industry 4.0 and new for 2018: Nuclear Engineering and UK Contract Manufacturing.

Also new for this year is the AE Connect matchmaking service which enables every visitor and exhibitor to set up meetings prior to the event with peers and suppliers,

helping you make the most of your time at the show and ensuring you meet the right people for your business.

With so many exhibitors and visitors at Advanced Engineering 2018, how can you make the most of your time? Alison Willis explains: "Most companies view exhibiting at the show as part of a wider marketing or supplier strategy and when attending the show with so many opportunities to learn and do business, it is important to prioritise."

Define your main reason for being there, think about exactly what you are going to do now to make the most of every opportunity. Network with existing clients and potential customers as the opportunities are immense. The team you select to represent your company, whether exhibiting or visiting, is key and they must be fully briefed in advance of the objectives. Set up a promotional campaign, before the show, so that your customers and suppliers are prepared to see you there and are considering how you can meet their engineering requirements.

Finally, grab the attention of visitors and engage. You are in a fast moving and sometimes pressured environment, so you have just a few seconds to grab a visitor's attention and ultimately generate a lead.

That's how you make the most of Advanced Engineering 2018 with preparation, engagement and achievement. Keep those three key aspects in mind

throughout the planning, execution and reflection upon your show experience and make the most of it.

Advanced Engineering 2018 is running a competition for all exhibitors with a prize for the company which brings in the most visitors registering using their trackable link. The winner will have six square metres of stand space, worth up to £3,020 off the stand rate for the 2019 show.

New innovations and technologies are guaranteed to take centre stage, presented by a number of start-ups, SMEs and national research initiatives. With such a variety of expertise on show, Advanced Engineering 2018 is this Autumn's unmissable trade show.

Advanced Engineering 2018 takes place on the 31st October and 1st November in Halls 2, 3 and 3a at the NEC.

To book your free ticket for the show and for more information visit: [www.advancedengineeringuk.com](http://www.advancedengineeringuk.com). Also follow the exhibition on Twitter via #AEUK18 for regular updates.



# Future-proofing its machining requirements

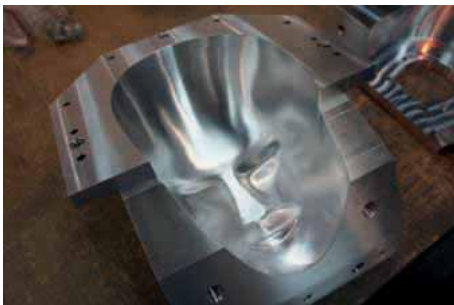
Leading manufacturer invests in advanced, high-performance 5-axis machine tool technology from GF Machining Solutions to meet its immediate and future needs. Cambridgeshire-based Encocam, an innovative and progressive manufacturing company, has recently invested in two Mikron HEM 700U 5-axis machining centres from GF Machining Solutions.

The machines were installed at Stonehill Engineering, one of Encocam's eight divisions, in June and November 2017. They are being used to machine a diverse range of high-precision components and mould tools for the company's internal and external customers.

Since being installed, the majority of work undertaken on both Mikron machining centres has involved the machining of precision parts for Encocam's largest division, Cellbond.

Established in 1988, Cellbond develops, manufactures and supplies passive safety testing products and equipment to the global automotive market. The business exports 92 percent of its products to markets including Japan, China, Korea, India, Malaysia, the USA and Europe and received the Queen's Award for Enterprise: International Trade in 2017.

Cellbond manufactures and supplies the full range of deformable barriers used in passive safety tests and consumer information tests such as the Euro NCAP Safety Rating programme. In 2012, Cellbond moved into the Anthropomorphic Test Device (ATD) sector, designing and manufacturing crash test dummies, leg-form impactors, and head-forms.



Complex and technically-sophisticated, Cellbond's ATD products are made from hundreds of precision machined, or moulded parts, which undergo rigorous inspection and testing prior to and post assembly. All machined parts are produced



in-house from a range of different materials that include aluminium, steel, bronze and plastics etc. They are machined to high accuracy, tight tolerance and an exacting surface finish.

In addition to 'machined' parts, Cellbond's crash test dummies also include a number of plastic and rubber moulded components which are produced from high-quality mould tools. These tools are also designed and manufactured in house.

Quality of parts and tools is critical. The business is accredited to ISO 9001:2008 and Cellbond's in-house ATD Certification and Test Facility achieved ISO17025 accreditation in 2016.

Individual metal and plastic parts as well as the mould tools are being machined on the new HEM 700U machines.

The decision to invest in the two Mikron machines was made following an audit and review by the company into its existing CNC machine tool capacity and capabilities. This would determine whether the current position was satisfactory to meet future customer demand for Cellbond crash test dummies, including spare and replacement parts.

David Sheahan, Encocam's purchasing & supply manager, says: "We have always invested in advanced machine tool technologies, and our machine shop includes the latest CNC milling, CNC turning and EDM machines.

"However, the audit revealed that our existing milling capacity was under pressure, and that if not addressed, could affect our ability to meet customer lead times in the future. After reviewing the audit findings, it was decided that new investment in the latest 5-axis machine tool technologies was required.

"We understand the strengths of 5-axis machining and how the technology can be used to machine complex shapes in one set up and reduce part cycle times, as well as how the technology helps improve component accuracies and surface finishes.

"However, we could see that our existing 5-axis machine, whilst still performing satisfactorily, was a little long in tooth and that its onboard capabilities and functionality had been superseded by newer models on the market."



Encocam approached GF Machining Solutions, who had previously supplied it with two high-performance Mikron VCE Pro 3-axis machining centres, to discuss its plans and requirements.

David Sheahan says: "Having discussed our immediate and future requirements with them, we decided to invest in the first Mikron HEM 700U."

The HEM 700U is a high-performance, rigidly-built 5-axis machine providing manufacturers full 5-axis simultaneous machining capability.

The machine model, invested in by Encocam, is equipped with linear guides on all the machine's axes, a 20 kW/12,000 rpm spindle, HSK tooling interface, a 630 mm diameter rotary/tilting trunnion supported table with +65/-110° B-axis tilt and 360° C-axis rotation, and the latest Heidenhain control.

This first HEM 700U machine was installed at Encocam's facility in June 2017 and a second machine was ordered and installed in November 2017.

**GF Machining Solutions Ltd**

**Tel: 02476 538666**

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The G350 5-axis universal machining centre offers all customers in the machining sector almost limitless possibilities for milling parts made of the most diverse materials.

GROB's G550 machining centre guarantees the best milling technology and extremely stable, precise cutting of practically all materials.

It's G750 5-axis universal machining centre offers customers in industrial manufacturing top notch results when it comes to milling large parts.

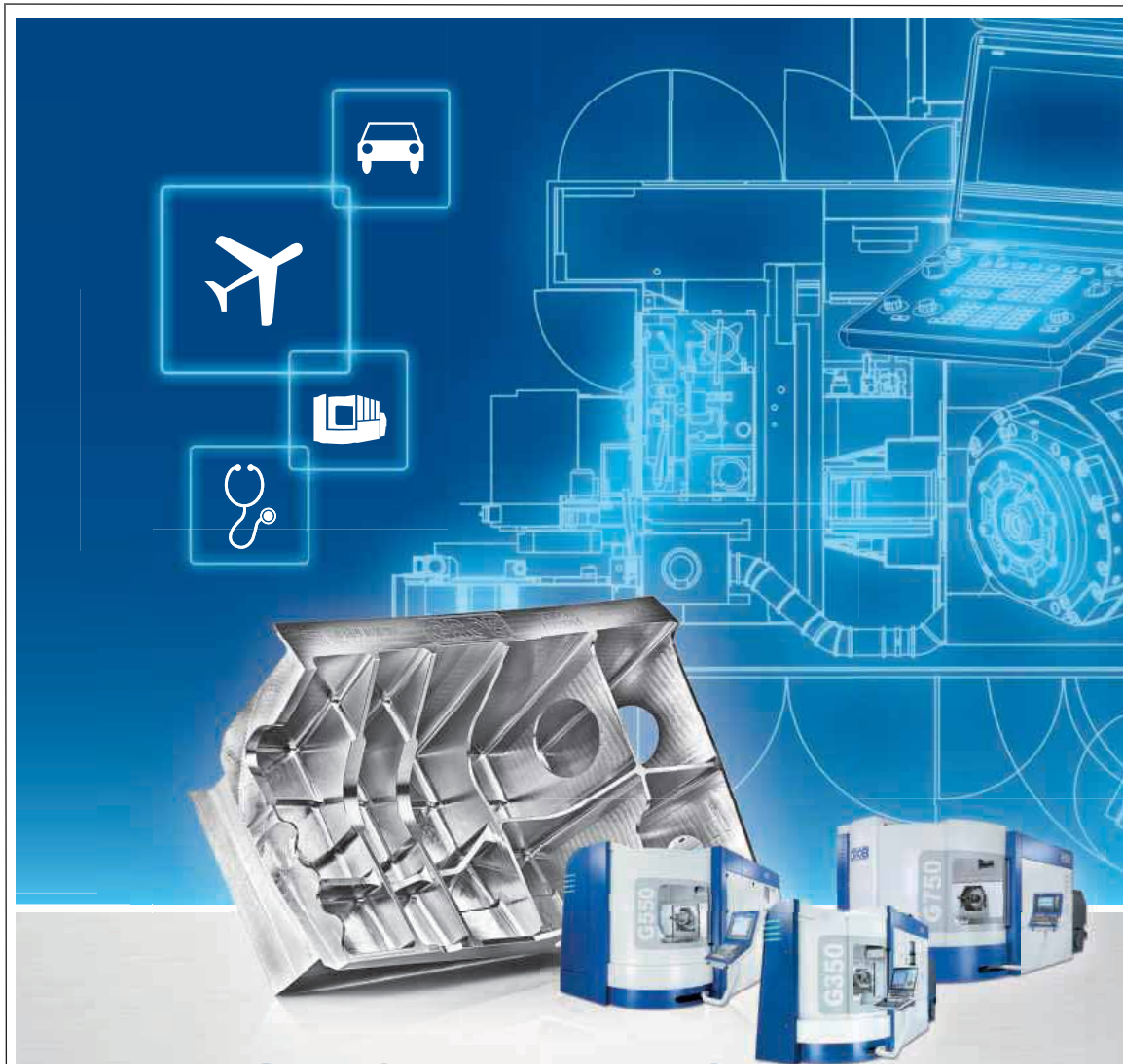
The innovative concept of the G1050 machining centre offers customers from diverse sectors the ideal pallet dimensions for large parts.

As a global, family-managed company, GROB has been developing manufacturing systems and machine tools since it was first established in Munich in 1926. Its customers include leading automotive manufacturers, their component suppliers and other renowned companies from diverse sectors. The company guarantees the best possible quality through its production facilities in Germany, Brazil, China, USA and Italy, as well as its worldwide service centres and sales branches.

All GROB universal machining centres, system solutions, assembly units and electric motor installations comprise the latest technology, from in-house developments and meet the market requirements, such as alternative drives and digital networking. With a high degree of technical empathy and engineering knowledge, its developers have worked

hard to earn the reputation of a leader in special-purpose machine tools.

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# Ideal machine for milling and drilling plastics

Within the range of services a typical subcontractor provides, production of plastic parts is frequently offered but normally accounts for only a small fraction of throughput compared with metallic components. Few companies like Dalau in Clacton-on-Sea, the largest specialist supplier and machinists of plastics in the UK, mill and turn such materials exclusively. This places exacting requirements on the purchase of machine tools.

As far as prismatic operations are concerned, the firm believes it has identified the ideal 5-axis production centre for machining plastics. Chosen from a list of no less than 18 potential suppliers and installed in September 2017, it is a Hermle 5-axis machining centre that has been modified to accept vacuum workholding fixtures. The machine was supplied by the German manufacturer's UK sales and service agent, Geo Kingsbury, which also carried out the customisation.

The Hermle installation is part of a £1 million spend on machine tools at the Clacton factory within the past year to cope with a steep increase in demand for Dalau's machined components across numerous industries. They include automotive and medical as well as the semiconductor sector, particularly in the US and Germany. The expansion has seen the number of 5-axis machining centres increase to six, the appointment of two extra programmers and a move to double-shift operation.

Production manager Ben Bonds explains:

"Floor space is limited here and so is the roof height. The Hermle C 250 machining centre offered generous axis travels of 600, 550 and 450 mm in a compact footprint and just fitted in below the ceiling by a matter of inches.

"It was also advantageous that the optional Hermle tool magazine extension we ordered for increasing the number of cutters from 30 to 80 comes as a separate unit, which simplified transportation up a ramp and through a narrow opening.

"Problems during automatic tool change are one of the biggest causes of downtime here, so we were keen to avoid machines with a swing-arm toolchanger.

"In contrast the Hermle ATC system, where the spindle travels through a shutter door at the back of the machine and picks the tool directly from the magazine, has proved to be very reliable."

Another box ticked by the C 250 was the ability of the magazine to accommodate



300 mm tools, long cutters being necessary for producing many of Dalau's components.

The machine's trunnion-mounted rotary table configuration is preferred over 5-axis designs employing either a swivelling spindle head or knuckle-type movement of the table. Compared with the latter BC arrangement, Ben Bonds says that an AC trunnion has the advantage of providing better visibility of the workpiece through the large window at the front of the machine when the table is tilted, the swivel range being  $\pm 115$  degrees.

He bemoans the fact that no machining centres of equivalent size exist specifically for milling and drilling plastics, as with so few dedicated machinists the market would not be large enough to make such a machine commercially viable. So companies like Dalau have to rely on production centres designed for cutting metal, which for processing plastics tend to be unnecessarily large for a given working volume. They are also far too powerful; in the 5-axis shop at Clacton, the load drawn by the spindle motors never exceeds five percent.



The C 250 is currently devoted to finish-machining a family of PTFE pump bodies that have been roughed on another of the 5-axis machines. Four or five operations are required to complete the machining operations in total cycle times of between three and four hours. An air-conditioned environment held at 21°C ensures that tolerances down to  $\pm 0.05$  mm can be held easily, despite the tendency for plastics to distort during machining.

The four-part assemblies into which these components go are delivered to a US customer specialising in manufacturing equipment for the semiconductor industry. Indeed, four-fifths of the shop's output is exported to long-standing customers in the US, where Dalau has had a sales subsidiary since 1990 in New Hampshire.



Scott Simpson, 5-axis team leader at the factory, concludes: "We opted for an 18,000-rpm spindle rather than the standard 15,000 rpm version to enable high material removal rates; and the  $6 \text{ m/s}^2$  acceleration to 35 m/min rapids ensures short idle times between cuts.

"We use air rather than fluid for chip removal and to cool the cutting zone whenever possible, as it is cleaner and reduces costs.

"Kingsbury was very helpful when it came to modifying the machine to accept the vacuum workholding system, which minimises deformation of our plastic components as they are clamped.

"Their engineers' gun-drilled from the outside to the centre of the rotary table to complete the air circuit and supplied all the switches, hoses and safety mechanism.

"They also provide good training and after-sales service. We have used the telephone helpline a couple of times and on both occasions, they were able to talk us through fixing the problem ourselves, without an engineer's visit, saving us time and money."

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# 5-axis mill-turn centre is versatile alternative to a driven-tool lathe

Tony Bess, director of subcontract machinists Plalite Ltd in Sittingbourne, Kent, has in the last three years invested £3 million in capital equipment. Included in the purchases were two Japanese-built Speedio M140X2 30-taper mill-turn centres from Brother, supplied by sole UK agent, Whitehouse Machine Tools. The first of the 5-axis machines was installed in mid-2017 and proved so successful that a second was added six months later.

Plalite undertakes a lot of work requiring both milling and turning, so the multi-tasking capability of the M140X2s was attractive, as was their compact footprint on the shop floor. Tony Bess says: "On the Brother machines, the number of operations needed to produce a part is minimised, there are no concentricity issues, blending is perfect and the tolerances we are able to hold allows us to quote very accurate work."

Short setup times, using milling cutter back ends and the adoption of Lang zero-point quick-change chucks, help to maintain profitability by allowing the machines to be changed over quickly, which is especially important when producing components in small batches.

When asked why he bought machining centres with turning capability, rather than

bar automatics having live tooling, for one-hit production of what are often predominantly rotational parts, Tony Bess says: "With a turn-mill machine you get low milling capacity and a limited number of tools, compared with the 22 stations in the Brother turret, added to which driven tool heads on lathes lack rigidity, which tends to cause vibration.

"With a mill-turn machine you get quick, very productive prismatic machining capability. All the tools are in taper holders that are much more rigid, particularly with simultaneous face contact in the case of the M140X2 spindle, setup is a lot quicker and we suffer no issues when trying to hold tolerance.

"There are few restrictions on turning capability, as the direct-drive C-axis accelerates in a third of a second from zero to a maximum of 2,000 rpm, which is a third the speed of a typical lathe but sufficient for many of the jobs we produce. If higher revs are needed for turning a particular component, we simply put it on a lathe instead."

The relatively limited turning speed is more than offset by high dynamics in other areas, notably the 16,000 rpm BIG Plus face-and-taper contact milling spindle with



The 2,000 rpm C-axis turning table is mounted on an A-axis trunnion that swivels from +120 to -30 degrees, allowing machining of features at the rear of components and facilitating loading and unloading of parts

0.2 second start / stop time, 50 m/min linear rapids and tool change that is so fast that it is difficult to observe at times, according to Tony Bess.

He concludes: "We engineer parts differently for production on the M140X2s to optimise productivity. Cutting strategies are altered and milling routines adapted, with more trochoidal milling for example, when a machining centre is used rather than a lathe.

"Provided it is the right kind of mill-turned part, each process route is highly productive on the two Brother machines, making us more competitive. We have certainly won new work on the basis of buying them."

Whitehouse Machine Tools has been at the forefront of machine tool technology since its foundation in 1983, supplying a unique range of intelligent precision engineering technologies and solutions to a variety of industrial applications throughout the UK.

Its portfolio includes a broad range of high quality, highly productive products from specialist manufacturers throughout Asia and Europe, including: high speed twin pallet VMCs, 5-axis machining centres, multi-axis turning centres, expandable horizontal machining centres and hard-turning lathes.

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The two M140X2 5-axis, 30-taper machining centres on the shop floor at Plalite's Sittingbourne factory. They are fitted with Brother's latest, high speed C-00 control system

## McLaren expands in-house machining resource with trio of new Mazaks

Yamazaki Mazak has supplied a further three machines to the McLaren Formula 1 team, as part of its ongoing role as the team's Official Supplier of CNC machine tools.

Having supplied the McLaren team for the last 19 years, the latest additions are two full 5-axis VARIAXIS i-600 multi-tasking machining centres and one QUICK TURN 250 MY turning centre. The investments take the Formula 1 team's current total of machine tools, at its Surrey-based McLaren Technology Centre, to 36.

The new machines are the latest investments by McLaren since the renewal of the partnership contract in 2017, confirming Mazak as the team's Official Supplier of CNC machine tools. Since exclusively partnering with Mazak in 1999, the team has won two world championships and 62 Grand Prix; with the Mazak machines providing a vital in-house engineering support infrastructure, ensuring the cars remain as competitive as possible throughout the season.

Simon Roberts, chief operating officer, at McLaren Racing, says: "Long-term partners like Mazak are extremely important to our

racing team. We expect a lot from our technical partners and official suppliers and Mazak continues to deliver year-on-year. With over 12 percent of our car being successfully produced on Mazak machine centres, it's vital to our Formula 1 operations that upgrades are delivered on time and to the highest standard.

"The expansion of our in-house machining capabilities demonstrates our commitment to designing and manufacturing McLaren's world-famous Formula 1 cars."

Richard Smith, Yamazaki Mazak European group managing director, concludes: "Formula 1 is a sport defined by the finest of margins, with a network of engineers making constant changes to the car throughout the season. Given the intense and often unpredictable nature of grand prix races, the ability to quickly produce precision parts in between race weekends is integral to the team's ability to arrive at the starting grid in the best position possible.



"To have been the team's exclusive supplier of CNC machine tools for 19 years is one of Yamazaki Mazak's proudest achievements and we believe the three new machines will contribute to McLaren continuing as one of the iconic motorsport teams for many years to come."

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## Growth and efficiency drive need for 5-axis machining

Investment Casting Systems provides a mix of toolmaking and injection moulding services to its customers and has seen turnover increase by 51 percent over the past three years, with forecast growth of 40 percent to year ending 2019. This growth combined with planned future expansion, that will double existing floorspace, has created a need for even greater manufacturing efficiency. As part of this efficiency drive, the company has purchased its first 5-axis machining centre, a UMC-5X from XYZ Machine Tools.

James Head, technical director at Investment Casting Systems, says: "We started investigating purchasing a 5-axis machining centre about 18 months ago. Initially we were looking at machines with up to 2M table capacity, but our customer profile changed, which meant we didn't need such large capacity. This opened the door to the XYZ UMC-5X with its 600 mm diameter trunnion rotary table and 600 mm axis travels in the X and Y axes."

The move to simultaneous 5-axis machining immediately brought the benefit

that Investment Casting Systems was looking for, increased efficiency. The very first job that went on to the XYZ UMC-5X was a complex bolster for an injection mould tool that required machining on all six faces. Using existing 3-axis machines would have required six setups, this was reduced to two on the XYZ UMC-5X. The result was a saving of 60 percent in manufacturing time, elimination of any potential inconsistencies from multiple setups and by making use of a fixture plate, all faces were machined from the same datum point.

The XYZ UMC-5X was introduced to the UK during 2017 and while there are over 200 installations across Europe, any concerns about being one of the first customers in the UK were put to one side due to Investment Casting Systems' previous experience with



XYZ Machine Tools. The company currently has 13 XYZ machines ranging from ProTURN lathes through to the XYZ 1060HS high speed vertical machining centre.

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# Bremont partners with DMG MORI to develop British watchmaking

Bremont Watch Company is committed to nurturing watchmaking skills in the UK and, as part of its objective, already manufactures components including its unique three-part case consisting of bezel, central body and case back at its manufacturing facility near Henley-on-Thames. The company intends to develop the skills and capability to make as many parts as possible itself in the UK.

Assembly and maintenance of every watch is carried out by Bremont, which has extremely high-quality standards, checking the accuracy of the watch over 15 days and at a temperature range of -40° C to +40° C to achieve daily accuracy of -4 to +6 seconds. Its stringent testing regime is well within 'Contrôle Officiel Suisse des Chronomètres' (C.O.S.C) parameters.

The company has built some impressive partnerships, reflecting its aviation roots and its association with sailing, exploring, motor sport, high adrenalin activities and travel, most notably with The British School of Watchmaking, whose mission is to train a new generation of British watchmakers, and Martin Baker, an icon of British manufacturing. Bremont's limited edition MB1 watches are supplied exclusively to pilots who have ejected from aircraft using a Martin Baker ejection seat. These watches are designed for a rigorous environment



with altitude tests to 100,000 feet, salt fog and humidity tests, ejection tests for high g forces and vibration tests to simulate the 30-year life of a helicopter.

To match the company's aspirations for a revival of UK watchmaking and the precision and skills necessary to achieve this, its choice of machine tool partner had to have the same values. DMG MORI is recognised as a leader in the design and manufacture of advanced, precision machine tools and its skill set enables it to work in partnership with manufacturers to deliver a turnkey solution. It supplies CNC machinery to companies making high value components in every sector and is a champion of UK manufacturing, supporting advanced manufacturing through organisations such as the AMRC, the AFRC and the MTC. It encourages and inspires young engineers through partnerships with universities and colleges and sponsorship of WorldSkills.

Bremont has a number of DMG MORI machines in its workshop, including NTX 1000 HSC, NLX 2000/500 and an EcoMill 600. It is to take delivery of a further NTX 1000 at the end of 2018.

The NTX 1000 HSC is used for machining the bezel while the NLX 2000/500 produces the central body and case back. For manufacturing the bezel, Bremont uses the full capabilities of the NTX 1000 HSC, cutting bar fed 316L stainless steel.

Machining involves both the main and sub spindles tapping M1.0 holes and produces 0.2 mm grooves to produce a complete part ready for grinding in one operation.

Parts are 100 percent inspected for visual defects and critical feature dimensions. The company is continually evolving new watch designs and demand is growing rapidly as it has boutiques in New York, Hong Kong and London as well as retail partners worldwide.

Batch quantities of individual parts are small and rapid changeover between different models of watch is easy to achieve with the DMG MORI machines. Tim Parker, production manager at Bremont, says: "We run 24 hours, Monday to Friday, with a permanent night shift and the option of working over the weekend if necessary. Material and tooling are on consignment, so we always have replacement and special tools available on site. To operate these hours, machine reliability is very important, and we have a service contract with DMG MORI to ensure reliability and to make sure that the machines are in peak condition. When we moved our manufacturing from Silverstone to our new manufacturing facility, DMG MORI worked with us, fitting around an intense schedule of works to get us running again within just two weeks."



Bremont's investment in the second NTX 1000 HSC will help it to increase capacity for its watches and also provide extra machining time to develop the manufacture of more watch components in house.

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# Tornos packs a punch for plastic part producer

Back in 1979, an entrepreneurial greengrocer diversified into selling plastic packaging, which eventually became more profitable than ensuring Staffordshire residents were getting their daily portion of healthy eating. This soon set the foundation for Kenson Industrial Plastics Ltd, a company that evolved from healthy eating to packaging and then on to the trading of plastic rods and tubes. Kenson purchased its first CNC machine over 25 years ago, to complement its capstan machines. Now the business employs nine CNC machines.

The four-employee company won a contract to manufacture gear motor components in batches of 10,000 per month and this instigated the search for a new turning centre. Prior to buying the Tornos, the monthly quantity was tying-up one of the company's 65 mm capacity single spindle turning centres for three weeks every month. The small subcontractor wanted to free-up capacity on its 65 mm machine and produce parts faster to prevent any potential supply chain issues.

The machine instantly slashed the cycle

time of the Ertalyle TX plastic gear components from 50 to 25 seconds per part, taking more than seven days off the previous monthly production schedule. Additionally, the facility to work with and without the guidebush has reduced material consumption and with a changeover time in the region of 15 minutes, the customer can rapidly switch between modes to suit each batch run.

Historically, Kenson has only operated on a single eight hour shift basis, however, the Tornos DT26 has been supplied with the 3 m barfeed and the Tornos Active Chip Breaker (ACB) system for lights-out machining.

Kevin Hutcheson, managing director of Kenson, says: "We've only ever run day-shift machining, but now we have the Tornos and its ACB system, we can look at unmanned running. At present, the DT26 has halved our production times and freed capacity of the turning centre that was running the gear project."

The Tornos DT26 has completely changed



the way the subcontractor schedules its work, as Kevin Hutcheson concludes: "We have a monthly order for 2,000 nylon conveyor belt parts with a previous output of 400 parts a day; this would tie-up one machine for more than a week per month. The Tornos can do more than 1,000 parts a day, so we will produce 6,000 in a week and hold the quarterly stock for the customer."

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# Unicut increases productivity with investment in turn-mill centres

Unicut Precision invested over £1.5 million in seven machine installations during late 2017 of which six were by Citizen Machinery UK. The Citizen Machinery supplied machines comprised two Miyano BNE-51MSY fixed head and four Cincom L12-VII sliding head mill-turn centres, with one featuring Low Frequency Vibration (LFV) technology. The installations have contributed to a sales record in 2018 for the subcontractor, putting the firm well on course to hit sales of £5 million this year.

Jason Nicholson, managing director of Unicut, says: "Our order book reflects our revised strategy to move from being a subcontract machinist reacting to orders as they roll in, to one that continuously generates business from being a 'supply partner'. In this role, we have a policy of a willingness to invest and align our production capability across the company to the customers product and delivery needs."

Unicut is shipping on average 1.2 million parts a month and processes 370 different product orders of which a third is directly exported. In addition, as the company has moved forward, it has added the responsibility to provide some 30 different 'direct-to-line' assemblies and sub-assemblies to customers.

The decision to install two Miyano BNE-51MSY fixed head machines followed the firm's market review of twin-turret, two spindle turn-mill centres that could suit parts, already perfected and produced in batch quantities between 2,000 and 5,000, on top-of-the-range Citizen Cincom M32 sliding head machines that were coming up to five years old.

Jason Nicholson continues: "Such as been our reliability to meet the production schedule, we found the customer was then seeking an uplift of some 20 percent in the demand. We immediately decided to keep us cost-competitive and maintain the schedule now in front of us. We needed to expand and revise our well-proven 'single-hit' methods on the Cincom M32 sliding head machines and drive ahead with the best technology and application engineering to achieve the levels of productivity we needed."

He maintains that, once they looked at



alternative machines and discussed the project in some depth, the Miyano BNE-51MSY better fit the new target due to the combination of power, rigidity and flexibility. In addition, control familiarity plus the ability to maximise the benefit of three tools cutting simultaneously were important factors.

The discussions also included the replacement of sliding head machines that was concluded with four Cincom L12-VII's, of which one could be specified with LFV cutting technology. On the Citizen Cincom machines, the patented LFV technology is not based on changing macros at the control but on the initiation of selectable G-code sequences, programmed at the machine control to impart the most appropriate size of chip to be produced.

LFV introduces oscillation to the action routine of the cutting tool, backing it off through the servo axes in the direction of feed, using the enhanced development of the machine's special drive system. This happens in phases of tens of microns which are precisely synchronised with the rotation of the machine spindle. The resulting controlled 'air-cutting' breaks the swarf into the designated chip length which prevents 'stringing' and 'bird-nesting' and can be applied to turning, drilling and even threading cycles.

The order of six machines, brought the

total number of machines supplied to Unicut from Citizen since 1999 to 70. As part of the 'Future Proofing' production strategy of Unicut, it tends to replace machines every five to six years. In the case of the four L12s, while the investment might not improve the already well-proven cycle times, the overall influence on the business by upgrading productivity with increased flexibility, higher spindle utilisation and increased security for extending 'lights-out' unmanned operations has proven to be significant.

Unicut Precision, originally formed in 1999, now employs 51 people including five apprentices at the Welwyn Garden City factory. Growth has been steady and controlled from £2.2 million in 2010 to hit £5 million this year. The company exports to both North and South America, Mexico, France, Germany and Malta supplying the high end automotive as well as the demanding aerospace sector. It is also a very strong supplier to customers in the hydraulic and pneumatics industries.

Set up originally as a subcontract turning firm, it has progressively ventured very successfully into multi-axis turn-milling and now into 5-axis milling with robotised production cells. Batch work tends to cover 2,000 parts to continuous processing which leads to some 300 tonnes of steel, brass and aluminium passing through the doors each year.



Machines run 20 hours each day, five days a week plus, according to demand, weekends. 'Lights-out' production is common over periods of four to six hours largely governed by tool life, material management and chip evacuation. Hence one of the comments by Jason Nicholson over the recent positive LFV technology describes experiences in controlling swarf when unmanned.



The 8-axis Miyano BNE-51MSY has created an important advantage in work control and lead time reduction, due to the ability to overlap in a cycle and cut with up to three tools simultaneously on bar sizes up to 51 mm diameter. The machine has two 12-station driven turrets, one with three axes, the other with two, that can simultaneously service either or both spindles.

The main spindle has a 15 kW drive and the secondary 2-axis spindle is powered by a 7.5 kW motor. Both spindles have a 51 mm capacity with a maximum speed of 5,000 revs/min. Each driven tool position is ideal for milling with a 2.2 kW high torque 25 Nm drive and programmable speed of 6,000 revs/min.

The 5-axis Citizen L12-VIIIIFV machine has capacity up to 16 mm. It features a 3.7 kW 15,000 revs/min main and 0.75 kW 10,000 revs/min sub-spindle with a removable guidebush assembly for economic bar usage on shorter components. The guidebush stroke per chucking is 135 mm and 30 mm when removed. Rapid traverse rates are fast at 35 m/min to minimise non-cutting positioning times.

Up to 27 tools can be carried on the machine. The X1-Y1 gang toolpost has six gang turning tools, between four and nine gang-driven tools powered by 0.75 kW, 10,000 revs/min motors and four front and four back gang drilling tools. The back X2-Z2 toolpost holds a further four driven tools powered by 0.5 kW, 9,000 revs/min motor. Deep hole drilling can also be accommodated on the opposite toolpost.

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## The New Ajax Superturn range of CNC lathes



The range extends from 400 mm swing on the AJST400 with 1000 mm between centres, 500 mm swing on the AJST500 with 750, 1250 and 2000 mm between centres and 600 mm swing on the AJST600 with 750, 1250, 2000 mm between centres.

Spindle bore sizes ranging from 52 to 86 mm.

The control has simple cycles that any turner can understand very quickly and easily to make complicated parts in minutes. The control still also has full ISO G Code programming capability for offline CAD/CAM operations that can be entered from RS232, USB or flash card systems. Making this a great all rounder in the field of Teach CNC lathes.

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# Turning to Doosan

Lincolnshire-based Destec Engineering Ltd has recently invested in a new, large-capacity Doosan vertical ram-type turning centre from Mills CNC. The machine, a Puma VTS 1620M, was installed at the company's facility in Washingborough in December 2017, where it is being put through its paces machining a range of large, heavy and performance-critical precision components made from hard and difficult-to-machine materials that include Inconel, stainless steels and Duplex.

Once machined, these components, which are custom manufactured to order, undergo rigorous inspection and testing before being assembled into Destec-branded, high-pressure containment units used extensively, although not exclusively, by customers operating in the highly-regulated offshore sector.

Specific high-pressure containment systems designed and manufactured by Destec include the company's best-selling G-Range Clamp Connector and GSB Single-Bolt Subsea Connector ranges.

Destec Connector systems are available in a range of sizes. All components are machined to high accuracy and surface finish and have been designed to perform under adverse pressure, up to 25,000 psi, temperature and thermal shock conditions. Many components used in Destec's larger-sized connectors are being machined on the new Doosan VTS 1620M.

John Mullenger, Destec's operations

manager, explains: "We needed additional large vertical turning capacity to meet demand and to integrate into our customised, made-to-order manufacturing operation. We had a number of specific requirements, in addition to the machine's working range and table load capacity, that needed to be satisfied and, armed with our list of 'must haves', we investigated the market and approached a number of machine tool suppliers."

Destec's key criteria for the new machine included its power, rigidity, flexibility and ergonomic design.

### The VTS 1620M

The VTS 1620M is a large, rigidly-built vertical turning centre that has a maximum turning diameter of 2,000 mm, a maximum turning height of 1,556 mm and a large 1,600 mm worktable with a maximum table load of 10,000 kg.

The box guideway constructed machine is equipped with a powerful 45 kW/250 rpm heavy-duty, high-torque table spindle featuring large diameter cross taper roller bearings and a twin gear drive that delivers high-rigidity and zero backlash for increased accuracy.

The machine weighs 30,000 kg and features a rigid X type cast Meehanite column structure that reduces deflection.

John Mullenger says: "The VTS 1620M is a solidly built machine and was ten tonnes heavier than other competitor machines we looked at."



The VTS 1620M is also a versatile machine and has driven tooling capability that enables it to machine parts to completion in a single setup. The machine's ram rotary spindle, 18.5 kW/3000 rpm, and servo-driven C-axis table enables the VTS 1620M to undertake high-accuracy milling, drilling and tapping operations.

John Mullenger continues: "We've been impressed with the machine's cutting capabilities. Parts can be machined efficiently, and the machine's driven tooling capabilities means we benefit from reduced cycle times. The VTS 1620M has helped us reduce production bottlenecks caused by us having to transfer parts between machines."

Destec's final requirement concerned the ergonomic design of the machine, in particular the efficient and safe loading and unloading of workpieces, and good operator visibility of the machining area.

John Mullenger says: "There is good unrestricted access to the VTS 1620M's working area that facilitates trouble-free workpiece loading and unloading. In addition, the machine's large door and position of the control console provides good visibility to machine operators."

As part of the machine tool search, Destec visited Mills CNC's Technology Campus facility in Leamington where company representatives were able to view the VTS 1620M up close and personal.

John Mullenger concludes: "We needed a machine that could deliver high volumetric removal rates and super fine finishes and be able to maintain cutting performance and process reliability over long machining runs. The VTS 1620M's technical specifications, plus the fact that the machine was backed by Mills' excellent after-sales service and support contributed to the purchase decision. Since installation, the machine has performed well and we are delighted with it."

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## Steam-powered rocket bike

Motorsport and drag racing enthusiast Graham Sykes proudly gave visitors to the Fluid Power & Systems 2018 exhibition, held in April, a preview of his steam-powered rocket bike named Force of Nature. It is the culmination of almost six years' work by the precision engineer, which involved designing and then producing all of the prismatic parts on a Hurco vertical machining centre, mostly from DXF files output from AutoCad and input directly into the machine's proprietary Ultimix CNC system.

A holder of five motorcycle land speed records on his V8 powered drag bike, The Syko, Graham's top speed was 181.39 mph. Dynamic testing of Force of Nature on the track will commence following further satisfactory static tests. They have already seen 600 kgf of peak thrust over six seconds, which should allow acceleration to a speed of over 200 mph in a quarter mile. A public launch will take place later this year when all tests are complete.

In preparation for a test run, a 60 kW bio-fuel burner will be attached to the bike

to heat 50 litres of water in the pressure vessel to 250°C and 40 bar pressure via a flame holder tube running through the centre.

Meanwhile, Graham Sykes Performance Engineering Ltd continues to design and manufacture components for other race teams, as well as customers in the food industry, from its workshop in North Yorkshire.

From 5-axis machining centres to large format machining centres designed for the aerospace and energy sectors, there is a whole range of Hurco CNC machines available. The flagship VMX line is the workhorse of 3-axis CNC machining centres. However, the company does not stop at milling; it has worked diligently to ensure its turning centres are up to par with its mills. The TMX, TMM and TM lines include a range of turning centres with chuck sizes up to 25 inches and mill turn machines that support the "done in one" philosophy.

Whether you are turning, milling, doing 2D parts or 3D parts, Hurco CNC machine



Graham Sykes and his wife, Diane, with the Project Force of Nature steam-powered rocket bike on the IMI Norgren stand at the Fluid Power & Systems 2018 exhibition

tools, equipped with integrated control, enable you to make chips faster than any other CNC machine tool.

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## Hembrug presents hard turning technology

Hembrug Machine Tools, manufacturer of high precision hard turning and high precision multitask machines, presented its Mikrotorn® 100 at IMTS in Chicago last month.

The Mikrotorn 100 is suitable for turning hardened, or non-hardened workpieces up to Ø 380 mm with sub-micron precision requirements. On the basis of a test workpiece, Hembrug Machine Tools demonstrated at the show the advantages of the hard-turning process. It allows operations to be carried out in single clamping and enables accuracies to be achieved.

The Hembrug Mikrotorn machine series offers large application possibilities in the production of highly complex, high precision workpieces with or without finish grinding requirements. Form accuracies of 0.1 to 2 microns, surface roughness of Ra 0.1 to 0.4 microns and size accuracies up to 2 microns in hardened steel, up to 70 Hrc, are indicative of the machining capabilities of the Hembrug Mikrotorn machine series.

All Hembrug machines are built on a

foundation of natural granite with wear-free hydrostatic bearing spindles and guideways. Due to the absence of metal contact between all moving parts, the accuracy is also maintained after 20 to 30 years.

After expanding to China, Hembrug sees plenty of opportunities to exploit the potential of its hard-turning technology to America.

Hembrug Machine Tools has designed, built and sold its Mikrotorn series around the world for 50 years. The machines have oil bearings throughout ensuring that the high degree of accuracy can still be delivered after twenty or thirty years.

The Mikrotorn machines are widely used and can be found in various precision industries such as the bearing and automotive industry. Hembrug offers five horizontal and five vertical versions of its machines. The horizontal machines are designed for small to medium sized workpieces up to a diameter of 500 mm and 300 kg in weight. The vertical models are for large workpieces, up to a diameter of 1,500 mm and 2,000 kg in weight. Hembrug



also supplies its machines with turnkey automation and post-process measurement equipment. It also supplies hybrid machines with grind or tape-finish capabilities.

The Hembrug headquarters are located in Haarlem, the Netherlands. The company also has a sales office in North America and works together with a variety of agents around the world.

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# Goodman banks on Hartford machining centres for ultra reliability

The success of a pair of Hartford vertical machining centres (VMCs) at Goodman Metal Works has spurred the family-owned company to order a third machine from T W Ward CNC Machinery (Ward CNC), Hartford's exclusive UK and Ireland agent.

All three new machining centres are being used as replacements for ageing VMCs at the Nottingham-based firm, established in 1964 and a specialist in fabrications weighing up to 25 tonnes. While they are faster and consistently more accurate than the units they replace, it is the "unflinching reliability" of the first two that has prompted managing director Richard Goodman, son of company founders Terry and Dorothy, to invest in another model from the Hartford range.

Richard Goodman says: "The Hartfords are well-built, sturdy machines that work day in, day out achieving consistent standards of machining. It is these characteristics, knowing that when we switch them on they will always work and work well, that were the prime considerations when we chose them.

"The bulk of our machining is straightforward milling, boring and drilling, but I need ultra-reliable and highly rigid machines because I cannot afford to let customer delivery schedules go awry. In fact, the first two Hartfords helped us gain two new customers due to the fact that we were able to keep our delivery promises."

Richard Goodman explains that the initial



tranche of investments, firstly in a Hartford PBM-115A CNC horizontal borer then, three months later, the large capacity Infinity HSA-420 double-column VMC, was made on the realisation that the savings made on the maintenance costs and downtimes with his existing, older VMCs would simply pay for the new machines.

"I contacted a number of likely suppliers, but chose Ward CNC for a number of reasons. Ward CNC had plenty of machines

in stock, so we could immediately see what we could be buying. The Hartfords stood out on a variety of counts. Not only could I see and 'feel' the quality of machine build that is based on a one-piece heavy-duty cast iron bed for superb accuracy and rigidity but, importantly, these machines also offered exceptional machining performance with first-class back up and training from Ward CNC.

"This is ideal for the workpieces we process; a machine handling fabrications weighing up to seven tonnes every day, and night, can put a lot of stress on a moving table and I wanted machines that would guarantee to be operational all the time."

The two Hartfords in situ in the 45,000 ft<sup>2</sup> production area have all the capacity and power that Richard Goodman needs for the targeted work. The PBM-115A has a geared high power 3,000 revs/min spindle and X, Y and Z axes travels of 2,000 mm by 1,600 mm by 1,500 mm while the Infinity HSA-420 is rated at 6,000 revs/min and has X, Y and Z capacities of 4,000 mm by 2,000 mm by 1,000 mm.

Richard Goodman explains: "Ward CNC is very much a 'known quantity'. Plenty of other companies in the area, some of which we work with or for, are using Ward supplied



machines of varying makes and have only good things to say about the machines and the company's level of service and back-up."

For example, Goodman Metal Works took advantage of Ward CNC's training on the machines' FANUC CNC systems. Richard Goodman says: "Although our young operators, who are familiar with Fanuc systems, had the machines 'in tune' in no time."

With 91 employees including apprentices, Goodman Metal Works specialises in the fabrication and machining of a wide range of workpieces for a variety of industries, including work for customers in the oil and gas, nuclear, quarrying and mining sectors as well as, for example, Rolls-Royce with ground support equipment frames being one example of the type of work being processed.

Richard Goodman continues: "I would usually say we can handle any job, in any material, that is too heavy to carry, but predominantly we process mild steel as well as stainless and plastics and we take pride in working closely with customers to solve their manufacturing/machining problems."

The company added CNC machining to

its portfolio of services some years ago in response to customer demand and it purchased a VMC, then others, for the occasional fabrications that also needed basic milling, boring and drilling routines. Today, the added-value machining of fabrications accounts for around 15 percent of business and high-quality CNC machining is also a service offered in its own right.

It was in 2010, however, that maintenance of four old VMCs being used for such tasks was effectively becoming the company's third highest overhead, after salaries and materials, and Richard Goodman realised that if those costs could be reduced then the savings would easily pay for the finance on the new machines.

He says: "So, as long as the Hartfords weren't slower than the machines they replaced, and, of course, they weren't. In one example the Hartfords are at least three times quicker, then I knew the company would benefit, particularly in terms of minimal downtimes. In addition, customers also benefited because they knew delivery schedules wouldn't be hindered by machine breakdowns.

"A case in point surrounds the machining of a clamp set for a customer in the offshore

industry. The machine formerly used for this job was always breaking down, but now every delivery is made to schedule. That aligns perfectly with the subcontracting holy grail of offering the ultimate in quality, cost and delivery."

Richard Goodman concludes: "The initial two new machines have been working non-stop since they were installed, including one always on the night shift, and we've actually gained new customers because of our delivery record.

"Now, by ordering a third new Hartford, a 6,000 revs/min Super HMC 1892 with X, Y and Z axes travels of 1,800 mm by 920 mm by 820 mm, I not only have another superior machine but also one that is the ultimate back up for everything we do."

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## Muller Redditch caps ETG investment with fourth Nakamura purchase

One of the UK's leading precision machining specialists has taken its CNC machine spending to £1 m, with the installation of a fourth machine in just two years.

Muller Holdings, which employs 130 people across its four sites in the West Midlands and South Wales, has purchased a Nakamura NTY3-150 from the Engineering Technology Group (ETG) to help it meet increases in automotive work and free-up capacity for new contracts.

The company will use the three turret, twin spindle machine with 3 m magazine bar feed to reduce the cycle time of a new suspension part by 30 to 40 percent, after engineers at its Redditch site developed the process within one week of the machine being installed and training being completed.

Adam Cunningham, managing director of Muller Redditch, says: "This is the fourth Nakamura we have purchased from the Engineering Technology Group, equating to over £1m of investment in the latest CNC technology to help us continue to supply our global customer base with precision parts."

"All of the machines have been very reliable and offer excellent cutting performance. The latest one has three turrets and twin spindles that allow us to overlap a number of secondary ops, making the overall process quicker. This approach has now been adopted for other parts and is proving very successful in helping us win new business both at home and abroad.

"The Japanese machines are very reliable and we have a good relationship with ETG's servicing and maintenance team to ensure that downtime is minimised and any repairs are quickly addressed."

Muller Holdings specialises in CNC milling, turning, multi-spindle and CNC/Conventional escomatic manufacturing services.

It has recently secured the prestigious IATF 16949 quality accreditation, putting it in a perfect position to not only retain existing automotive work, but also explore additional contracts, starting with £300,000 of new orders with Wabco and THK Germany.



Jon Mannion, regional sales manager at ETG, added his support: "Customers are continually looking at ways where they can speed up processes yet retain the same level of accuracy. The Nakamura range is perfect for doing this, with its three turret, twin spindle capability now making machining faster than ever before."

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# How coolant can improve thread-turning performance

Threads are machined features that exist universally, across all sectors of industry. Despite decades of performing thread-turning operations, advances in the process continue to be made, particularly when it comes to challenging materials such as stainless steel, heat resistant super alloys (HRSA) and titanium. An example can be seen with the development of thread-turning tools that feature both over- and under-coolant, the combined precision of which serves to extend tool life, elevate thread quality and deliver the potential to run with higher cutting data. The positive effects stand out even more when machining challenging workpiece materials.

There are many machinability issues with stainless steel (ISO M) and HRSA and titanium (ISO S) materials. With regard to ISO M materials, machinability often decreases with a higher alloy content. However, while chip control is fair in ferritic/martensitic materials, it becomes more complex in austenitic and duplex types. Perhaps most troublesome of all is that machining these materials creates high cutting forces in combination with built-up edge and work-hardened surfaces. The combination of these factors serves to compromise tool life.

In terms of ISO S materials, the physical properties and machining behaviour of each varies considerably, due both to the chemical nature of the alloy and the structure of the material. For instance, annealing and aging can be influential on subsequent machining properties. It is well established that chip control is challenging,



while the cutting forces and power required to successfully machine ISO S materials are quite high.

## Keeping cool under pressure

It's clear that the use of coolant when machining ISO M and ISO S materials is vital. However, cutting tool and tooling specialist Sandvik Coromant is able to demonstrate that the specific way in which coolant is applied can lead to a multitude of extra benefits in thread-turning operations. The focus here is on precision; utilising jets of coolant from different directions, located close to the cutting edge, to serve specific purposes.

The technology is evident on the newly extended CoroThread® 266 range of tools for external thread turning, which offer precision over- and under-coolant to improve process security and maximise efficiency. Over-coolant improves chip formation and removes chips from the cutting area, supporting more secure, trouble-free machining and fewer unplanned stoppages, while under-coolant controls temperature for long and predictable tool life. This configuration of precision coolant also has positive effects on surface finish, further supporting the generation of high-quality threads, while an additional benefit of this innovative technology is that it will allow the tool to run with higher cutting data, therefore reducing cycle times.

## Process stability

Along with precision coolant, process stability is paramount to ensure the turning

of threads that are right-first-time. For this reason, CoroThread 266 also features the proprietary iLock® interface between the holder and insert, which prevents cutting forces from causing micro-movements of the insert in the tip seat, thus promoting accuracy, surface finish and consistency.

It can even be argued that precision coolant is able to troubleshoot thread-turning issues. For instance, those struggling with chip control and surface quality issues will certainly benefit from the application of over-coolant, which promotes chip evacuation and avoids defects caused by chips. Those with dimensional issues, which are normally attributable to excessive insert temperatures, leading to rapid insert wear, will benefit from the cooling action of under-coolant. In combination, over-coolant and under-coolant, the potential gains are considerable.



During tests measuring average flank wear per part when thread-turning ISO M components, results were compared between standard external coolant and precision over- and under-coolant. Running at 40 bar, 580 psi, the amount of flank wear was noticeably less upon comparing the threads turned using external coolant and those produced with precision over-coolant. Flank wear was reduced further still with precision under-coolant. As a general observation, tool life almost doubled.

Through testing it is possible to see that the use of precision coolant can offer significant gains in insert tool life. This effect has also been witnessed during numerous customer trials.



**Customer trial results**

One customer turning Whitworth G 1¼ inch pipe threads on SS2333 grade stainless steel parts, enjoyed a notable gain in tool life against the best competitor product. Moreover, the use of CoroThread 266, even at less than 10 bar, 145 psi, pressure, meant that chip control was greatly improved, with chips no longer sticking to the component and/or tool in the same manner as previously. Chips that stick can cause surface damage to the part, or get jammed between the cutting edge and component, leading to potential insert breakage.

Another customer, this time turning UN 60°, 3½ inch, 8 TPI threads on AISI 422 stainless steel workpieces, enjoyed very impressive increases in both tool life and cutting speeds. Operating with high-pressure coolant, the customer reports being very satisfied with the outcome, which also offered far better chip control.

Further tests have demonstrated impressive gains in tool life when performing thread turning on 316L stainless steel parts, as well as Ti6Al4V titanium alloy.

**Other materials**

Aside from challenging ISO M and ISO S materials, in many cases the use of precision coolant technology is recommended in steel (ISO P) components, as demonstrated by yet another customer. Despite low pressure of just 7-10 bar, 102-145 psi, a machine shop turning 1-inch NPT threads 11½ TPI, on AISI 1215 unalloyed steel witnessed a significant increase in tool life.

In tests on ISO P materials, there are marked reductions in flank wear per component when comparing precision over- and under-coolant at 40 bar, 580 PSI, with standard external coolant application. Tests also show that, although the solution demonstrates benefits at less than 10 bar, pressures of 70 bar will provide optimum results in terms of reduced average flank wear.

Ultimately, precision coolant effectively removes heat from the cutting edge and provides the possibility to increase cutting speed and thereby achieve higher productivity, with maintained tool life. In addition, precision coolant helps to remove chips from component and tool, and improve chip formation, which in turn boosts process security.

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# rhenus TS 440: The coolant that keeps on saving

### Robust new development from Rhenus Lub makes life easier for users

With rhenus TS 440, Rhenus Lub presents an innovative coolant where the lubricant specialist's entire focus is on functionality. Thanks to its new long-term stability concept based on the latest coolant technology, rhenus TS 440 is unrivalled in terms of robustness. It is also exceptionally easy to maintain and reduces the burden imposed on production staff due to being especially easy to handle. rhenus TS 440 thereby meets the highest demands in terms of quality and process reliability, while exhibiting optimal environmental friendliness and human tolerance. The new coolant has been developed for a wide variety of applications and is therefore very well suited for companies with constantly varying tasks and challenging production conditions.

### Durable and extremely user-friendly

As one of the preferred development partners for industrial companies, Rhenus Lub is aware of the challenges of modern manufacturing operations. More and more users are demanding a coolant that is robust and easy-to-use, but that is also future-proof and economical. Rhenus Lub constantly focuses its efforts on meeting market demands and with rhenus TS 440 has been able to combine the key performance factors into a single product. Daniele Kleinmann, head of product management coolants at Rhenus Lub, says: "From the very beginning, we gave equal priority to simplicity, versatility and performance during development. The result is an extremely durable product that is unique on the market in terms of this combination of characteristics. The robust composition reduces the burden on our customers. The coolant does not have significant maintenance requirements, thereby helping customers to concentrate fully on their core processes."

### Flexible applications options, good performance figures

Extraordinary functionality, reliable and flexible use under varying conditions are some of the essential requirements that Rhenus Lub can answer in the affirmative with rhenus TS 440. The water-miscible coolant can be used for grinding, turning,



drilling, milling and thread-cutting operations with consistently high quality. Designed for cast iron and steel, the coolant has also been successfully used with other materials and alloys such as stainless steel, aluminium, non-ferrous metals or plastic. As a result, only the one coolant is required in many scenarios, simplifying handling for users and helping to save time and money.

In addition, users also benefit from excellent performance data. The excellent flushing behaviour and rapid foam decay allow the process to run smoothly and make it significantly more reliable. It should also be mentioned that rhenus TS 440 does not leave any residues, processing machines remain clean as a result, effectively reducing the need for costly cleaning processes.

### No false compromises

As a modern and future-proof coolant, rhenus TS 440 boasts a novel preservation concept. It does not contain risky ingredients, such as secondary amines, formaldehyde depots or boron, yet is nevertheless extremely resistant to bacteria, fungi and yeasts.

Daniele Kleinmann explains: "As a result, the new product features optimal human tolerance while exhibiting good stability and it lives up to the current trends in terms of user protection, health and safety, and environmental friendliness, which we at Rhenus Lub pursued during development of rhenus TS 440.

"Of course, we also kept an eye on the

topping-up concentration and suspending agent consumption and have achieved excellent values in our new coolant. This not only improves the sustainability but also immediately delivers an appreciable cost reduction to companies."

Rhenus Lub is a leader in industrial lubricants thanks to its long-term thinking and actions. Founded in 1882, Rhenus Lub is an independent and successful, owner-managed company from Germany with international subsidiaries and distributors.

The rhenus brand is one of the world's strongest brands for special lubricants in a variety of applications and branches. As a premium partner to industry, it knows and understands its customers' fluid management. They trust in Rhenus Lub as a highly innovative, reliable specialist with detailed know-how in coolants and industrial greases.

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## One-stop portfolio of process solutions for the global metal coil industry

With more than 80 years of expertise in the metal processing/coil industry and an extensive range of process solutions for pickling, lubrication, cleaning, pretreatment, passivation, coating and lamination, Henkel has firmly established itself as a global one-stop partner of the metal coil industry. New product innovations are strongly focused on helping customers manage the process needs of next-generation alloys while meeting cost and regulatory challenges.

Metal is used in a wide range of diversified end markets from automotive and transportation, building and construction, appliances and general industry to power and electrical as well as food and beverage. In addition, growing urbanisation is creating demands for everyday applications in various emerging market segments. Henkel's comprehensive process solutions for this demanding industry are specially formulated for high-speed and continuous operation of manufacturing lines. At the same time, they address ambitious drives for greater cost-efficiency and sustainability.

Aziz Mabrouki, business director metal

coil Europe for Henkel, says: There is a clear trend in the metal coil industry towards greater process and cost control. And while new high-strength steel, aluminum and magnesium alloys open opportunities for increased lightweighting, sheet metal manufacturers and coaters are faced with ever stricter environmental regulations. Based on our close collaboration with industry leaders, we offer customers a one-stop portfolio of process solutions meeting these challenges. Overall benefits include cost savings through longer bath and tool lives, elimination of chromium, nitrate in waste water and NOx emissions as well as reduced waste. Moreover, Henkel also provides special equipment designed to ensure best manufacturing practices in many coil process steps."

Additionally, Henkel offers adhesives, engineered for reliable and cost-effective coil lamination in compliance with latest environmental regulations. In all of these product lines, the company's innovation focus is on developing and providing value-added solutions targeted at delivering higher productivity as well as extending the



lifetime of work rolls during rolling and skin passing as well as in four key areas: chromium-free formulations for a broad range of more sustainable paint technologies; cost-effective products such as adhesion promoters, Cr-free organic coatings, forming and stamping aids for new alloys and substrates; nitric acid free pickling and solutions for low-fluoride pickling processes to reduce overall operating and waste water treatment costs.

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## Wogaard and Seco Tools extend technical partnership

### New Keep-it-Covered swarf bin covers

Initially, Seco Tools gained significant results from the installation of a Wogaard Coolant Saver, which led to the units being installed across all of its production machine tools and resulted in the formation of an engineering partnership between the two businesses. This partnership has now been extended to include the recently launched Keep-it-Covered swarf bin covering system from Wogaard.

A diverse range of machine tools on the shopfloor at Seco Tools UK Technology Centre in Alcester, Warwickshire are used to produce bespoke cutting tool bodies and additional ancillary items for its customers in the aerospace, motorsport, medical, marine, power generation and general precision engineering sectors.

Alan Fellows, engineering team leader, explains the rationale behind the installation of the new covers: "We have adopted a '5S' approach to attain the good housekeeping required as part of a global drive from Seco for its business hubs. Aiming for aesthetic appeal to create a workshop that is closer to laboratory cleanliness rather than an engineering shopfloor environment, where there is a sense of pride in the workplace.

"The new Keep-it-Covered initiative from Wogaard has certainly helped us achieve this and as a secondary consideration has also reduced the risk of fumes escaping into the atmosphere."

Such has been the success of the Wogaard Coolant Saver since it was introduced to the cutting tool specialist, that when managing director, Jason Hutt approached Seco with the concept of the new skip covering system, the company was very keen to discover more.



He says: "Based on the results achieved by the Coolant Savers, within Seco's workshop, the staff were willing to listen to some suggestions of what could be done with the covers to improve the housekeeping along with proposed costings."

He made some detailed measurements and produced some preliminary covers to which Seco wanted to add a brand logo for the cutting tool business along with some machine specific Coolant Saver access points and so on.

However, it was not without any challenges, as Alan Fellows recalls: "We have a diverse range of machine tools and subsequently that means a variety of swarf receptacles and the new covers need to match them. Only two covers are the same, the remaining covers are bespoke to each machine type, and the interface between the swarf conveyor and the bins proved a challenge on some of the machine tools, but Wogaard worked at these and achieved the results we were looking for."

Initially, there was resistance from the shopfloor as it was perceived that the covers would make it more difficult to gain access and empty the full swarf containers.

Alan Fellows says: "The reality is the covers can be removed and replaced in a matter of seconds, the time required is not even

measured in minutes. The viewing windows in the covers let us check the swarf level without disturbing the cover seal."

Although the covers were effectively developed exclusively for this application, the time between the initial measurements being taken and the covers being delivered for fitting was very reasonable and Alan Fellows points out that the results are even better than anticipated:

"They have not been installed long enough for us to comment on their longevity, however the material and product quality certainly seems robust enough to last in operation. We just have to ensure we take the swarf out regularly, so it does not backup into the covers, and the viewing window certainly help us keep on top of this."

Visitors to the popular Seco Tools' manufacturing best practice event 'Inspiration Through Innovation', held on the 9th and 10th October 2018, were able to see the new Keep-it-Covered swarf bin covering system in operation.

Primary customers for Coolant Saver are CNC machine shops, of all sizes, that are constantly looking to improve competitive edge and reduce any impact on the environment from day-to-day manufacturing processes.



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# Increased production and reduced drag out when grinding pinions



A leading global transmission and gear box manufacturer for the automotive industry was looking to replace its grinding fluid. The customer was unhappy with the amount of oil left on the pinions after grinding and how quickly the filters needed to be changed. They were specifically looking to reduce drag out, eliminate dermatitis and odour and to improve the filter change interval.

Quaker Chemical had previously worked with the manufacturer to improve its gear cutting operation by supplying QUAKERCUT® 020 XP. Based on the customer's positive experience with lower consumption and an improved working environment, QUAKERCUT 005 XP was suggested for the pinion grinding application. QUAKERCUT 005 XP is a low viscosity, extra high-performance neat cutting oil based on advanced ester technology from renewable raw materials and is particularly suited to honing or grinding operations where good wetting ability is required.

At the onset of the trial, QUAKERCUT 005 XP was filled in one system supplying two machines. The customer noticed improved cleanliness and visibility during machining, very low mist, and no unpleasant smell. The filters no longer were changed every three months, but every nine months, saving two full shifts of production time and reducing the cleaning efforts by a total of €5,500 a year. QUAKERCUT 005 XP fulfilled the customer's requirements and the following improvements were also achieved: increased filter change interval by 200 percent; drier parts; no dermatitis issues; reduced consumption; less drag out.

QUAKERCUT 005 XP is a low viscosity extra high-performance neat cutting oil based on advanced ester technology from renewable raw materials, particularly suited to honing or grinding operations where good wetting ability is required. This wetting phenomena provides high washing performance ensuring clean finishing stones or grinding wheels. QUAKERCUT 005 XP contains advanced ester technology from renewable raw materials, is biodegradable, has a high flashpoint for lower fire risk, and no labelling according to the new CLP regulation (Classification, Labelling and Packaging of chemicals).

Metalworking lubricants represent a very minor part of the costs in a metalworking process, typically less than one percent. This case illustrates the importance of correct fluid selection. The impact of the fluid can be a multiple of its costs, making the price of a metalworking fluid insignificant. That is why Quaker focuses on developing fluids with the highest performance without compromise, fluids that sharpen your competitive edge.

Since 1918, Quaker has been establishing and maintaining long-term relationships with leading customers in primary metals, metalworking, and other basic process industries all over the world.

Today, it has a global presence in 21 countries and 35 locations, with over 50 percent of 2015 net sales outside the U.S. It is also well positioned for growth in key emerging markets such as China, India and Brazil.

Quaker's corporate headquarters is located in Conshohocken, Pennsylvania, with regional headquarters in Uithoorn, The Netherlands, Rio de Janeiro, Brazil and Shanghai, China. The company is publicly traded on the New York Stock Exchange, under the ticker symbol KWR, and has a long track record of financial consistency and strength.

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**Coolant Saver**



**Neat Oil Saver**

\* Typ. Usage Sliding Head Machine



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# Protect your machines with Kraft & Bauer

### New automatic bottle weighing systems

Kraft & Bauer, whose automatic fire extinguishing systems are fitted to all kinds of machine tools, offers a complete range of systems from small 5 kg CO<sub>2</sub> based models to protect the smallest of machines up to huge multi cylinder variants having multiple 50 kg bottles.

One popular option is to have the CO<sub>2</sub> or argon gas cylinders contained within its own stand-alone cabinet that can be bolted to the factory floor and/or placed directly against a machine. These may be optionally equipped in the case of using CO<sub>2</sub>, as the fire extinguishing media, with automatic weighing systems. These monitor the weight of the CO<sub>2</sub> cylinder and, in case it is empty, will not allow the machine to be run, thus providing added protection.

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



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

Kraft & Bauer UK, whose fire extinguishing systems protect many hundreds of machines here in the UK, has expanded further with the addition to its fleet of a larger long bed van that doubles as a mobile workshop. A further service engineer has also been employed and additional stock has been added to both of its storage facilities in Coventry and in Cork.

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

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

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

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# How mobile solutions in the manufacturing industry support ergonomic machine operation

Gone are the days where an engineer would monitor one, or a small number of machines. Today, maintenance and service technicians are constantly on the move, monitoring multiple machines and potentially, multiple facilities. Here, Lee Sullivan, regional manager at industrial software specialist COPA-DATA UK, explains how engineers can monitor machinery performance on the move.

### Mobile monitoring and alerts

Traditionally, it would have been impossible to monitor the performance of equipment without positioning a technician beside every machine in a plant. However, modern automation software makes it possible to visualise machine performance and gain an oversight of the entire factory floor. That said, today's production engineers want to monitor their machine performance at all times, inside and outside of the factory walls.

Using mobile monitoring solutions, every machine can be tracked and monitored and the relevant maintenance team, or individual technician, can have constant access to data, regardless of where they are located.

The ability to remotely monitor machine

performance can identify opportunities to improve efficiencies and production. However, it is also vital for technicians and engineers to be able to react quickly to unexpected issues and minimise any unplanned downtime if a machine were to break down or show any signs of failure.

### Operational awareness

Maintaining awareness of how a machine is performing and also its health is important to modern day manufacturing plants that want to improve their efficiency and drive down costs. Meeting production deadlines and being more efficient in production ensures customer satisfaction. Using mobile solutions that constantly monitor machinery against your production schedule and KPI's, manufacturing teams will be aware of progress and potential production delays will be highlighted in real-time.

This production insight also widens the operational awareness across teams and departments. For instance, quality control teams are often detached from manufacturing operations and are only made aware of production issues at the end of the process. By enabling key members of this team to gain mobile access to

production data, all departments will be kept up-to-date from the start, resulting in less waste and more control.

### Lean manufacturing and predictive maintenance

Unexpected downtime can cost millions in lost revenue. In fact, for the automotive industry, a break in production is estimated to cost \$22,000 per minute. It is impossible to prevent all incidences of unexpected downtime. However, by opening up mobile monitoring solutions, with real-time production data, to the entire team, the time it takes to identify performance issues and fix the problem, is reduced.

The software can remotely monitor the essential elements of the value stream and feed this data directly to the mobile of an engineer. The system can then provide alerts should any part of the facility show signs of effecting the OEE. An example of this would be by predicting the required maintenance of production equipment, this way unplanned downtime can be avoided.

COPA-DATA's zenon, for example, provides emergency alerts that are sent by text message or email, ensuring that the right information gets to the right person, as



soon as possible. Hierarchical alerts also mean that if an alert is sent out and not responded to using the required code, the alert is escalated to the next person defined in the communication chain. This way, issues can't go unnoticed.

The range of zenon mobile solutions modules can be added as a stand-alone client, a web client or a mobile phone viewer, at any time, even after the initial installation of zenon. The mobile phone viewer opens up remote monitoring to those who need to know the details of machinery status and productivity levels at all times.

### The future

Remote monitoring and alert systems are only the beginning of what we should expect from the future of a SMART factory with respects to monitoring and management. Streamlining communication between teams, individuals and even between machines and maintenance technicians is proving essential to supporting machine ergonomics and ultimately, efficient factory operations.

Technicians no longer need to be positioned directly beside their designated

machine to understand exactly how their machinery is performing. Using mobile solutions, maintenance teams will never be left in the dark.

COPA-DATA is the technological leader for ergonomic and highly dynamic process solutions. The company, founded in 1987, develops the software zenon for HMI/SCADA, dynamic production reporting and integrated PLC systems at its headquarters in Austria. zenon is sold through its own offices in Europe, North America and Asia, as well as partners and distributors throughout the world. Customers benefit from local contact persons and local support thanks to a decentralised corporate structure. As an independent company, COPA-DATA can act quickly and flexibly, continues to set new standards in functionality and ease-of-use and leads the market trends. Over 100,000 installed systems, in more than 90 countries, provide companies in the food and beverage, energy and infrastructure, automotive and pharmaceutical sectors with new scope for efficient automation.

zenon is a software system from COPA-DATA for industrial automation and the energy industry. Machines and

equipment are controlled, monitored and optimised. zenon's particular strength is open and reliable communication in heterogeneous production facilities. Open interfaces and over 300 native drivers and communication protocols support the horizontal and vertical integration. This allows for continuous implementation of the Industrial IoT and the Smart Factory. Projects with zenon are highly scalable.

zenon is ergonomic, both for the engineer and for the end user. The engineering environment is flexible and can be used for a wide range of applications. The principle of "setting parameters instead of programming" helps engineers to configure projects quickly and without errors. Complex functions for comprehensive projects are supplied out-of-the-box to create intuitive and robust applications. Users can thereby contribute to increased flexibility and efficiency with zenon.

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## Safer, smarter operations with the new GuardLink Safety System

### Connected technology reduces maintenance and increases reliability

Rockwell Automation has introduced the Allen-Bradley Guardmaster GuardLink safety system, a new safety-based communications protocol that helps operators reduce and improve machine diagnostics and downtime while increasing productivity.

Traditionally, safety devices are wired to separate safety inputs which require significantly more wiring and introduces more potential fault points. When wired in this series connection, customers lose the ability to distinguish information from each device. With GuardLink, safety devices are easily connected in series while providing access to individual device diagnostics. This system provides safety, diagnostics, remote reset and lock command over a single four conductor cable with up to 32 devices per link. In addition, customers can greatly reduce installation cost, with up to 38 percent reduction in wiring, when using GuardLink.

The GuardLink technology seamlessly integrates with Allen-Bradley Guardmaster

safety relays and components, allowing users to access status information throughout the entire safety system. The connection of safety devices with smart taps enabled by GuardLink technology and standard cabling to a Guardmaster safety relay, allows greater visibility into the system, down to individual guard doors and E-stops.

Thomas Helpenstein, safety product manager for Rockwell Automation, says: "When an e-stop or interlock switch is operated, the individual safety signal is sent to the Guardmaster safety relays. That information is then communicated seamlessly across the connected enterprise, via the Guardmaster network interface, making it easier and faster to diagnose and repair problems when compared to traditional wired systems."

The GuardLink safety system fully integrates with the Logix platform with predetermined tag names in the Rockwell Software Studio 5000 application. Its simplified design and reduction in wires allows for simple plug-and-play installation.

Rockwell Automation, Inc. (NYSE: ROK) is



the world's largest company dedicated to industrial automation and information that makes its customers more productive and the world more sustainable. Headquartered in Milwaukee, Wis., Rockwell Automation employs approximately 22,000 people serving customers in more than 80 countries.

**Rockwell Automation**

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# Slotting has never been faster, easier, and more accurate

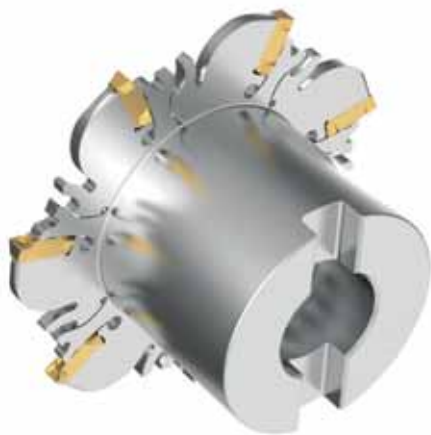
### Many uses, one solution

Slotting is a common machining practice. Automakers can use the new KNS cutter from Kennametal to separate cast exhaust manifolds and steering components.

Equipment manufacturers can cost-effectively mill the clamping slots on shaft supports and stock collars. Power generation and electronics companies now have a more productive way to machine keyways, add heatsink grooves, yokes, and O-ring grooves. Simply put, if there's narrow slotting, grooving, or parting to be done, KNS is the new go-to solution.

Scott Etling, Kennametal's director of global product management for indexable milling, says: "This tool is a game changer in a number of situations. Customers can mount a series of KNS cutters on an arbor called gang milling to either machine multiple grooves at once or conduct multiple cutoff operations.

"This tool can also be used to remove 5-axis machined or 3D-printed parts from their base material. Also, since raw material prices continue to increase, our customers wish to machine away as little material as possible. Here it's beneficial to use the narrowest slotting cutter possible to reduce waste. KNS does that."



### The right stuff

The KNS has a Double-V design for secure insert retention. A combination of radial and axial positioning not only improves tool life but part accuracy as well. The insert range accommodates slot widths from 1.6 mm to 6.4 mm, 0.063 in. to 0.250 in. Inserts are available in single or double-ended cutting edges with either a flat or full radiused



cutting edge. The cutter diameters range from 63 mm to 250 mm, 2.5 in to 10 in, and depending on the body size, arbor or shell mounting, or both, is possible.

Scott Etling continues: "We're really excited about this new design. It's stronger and more accurate than competing solutions and reduces tooling costs as well. Customers can use both ends of a double-ended KNS insert on shallow slotting applications, then move to a single-ended insert when they need the additional depth. It definitely offers a lot of value."



### A real winner

These features already give Kennametal a substantial lead over the competition in the narrow slotting market, but the benefits don't stop there. There's also the carbide. Tim Marshall, senior global product manager for indexable milling, notes that Kennametal has made significant improvements in grade technology recently, and that the KNS leverages these developments.

He says: "With the KNS program we offer three insert grades. KCU25 and KCPM40 are multiphase PVD grades that provide excellent edge stability and wear characteristics in steels, stainless steels, and

high temperature alloys, even at elevated feeds and speeds. While KCPK30 is a CVD-coated grade suitable for rough milling and general machining of steels and cast iron."

Good carbide is important, but so too is the insert geometry. Thanks to a positive rake geometry and special edge preparation, the KNS inserts are free cutting without sacrificing the edge toughness needed in most slotting applications. What's more, the SGP geometry promotes excellent chip flow, curling even the stringiest materials into tight, easily-evacuated Cs and 9s. This means you can put the shim stock and home-made chip hooks back in your toolbox.



### Easy-X assembly

The KNS is also easy to use. The innovative, symmetrical Easy-X wrench design means no more digging in the chip pan for lost screws and inserts and no more wedges or clamps to misplace. Just pop the wrench into the cutter body, give it a twist, and the insert is easily replaced, even in tight quarters. Each cutter body and wrench are also clearly marked, so there's no chance of damaging the cutter body by using the wrong tool.

Last but not least is the integral hub design. This eliminates the need for drive rings and washers, and greatly contributes to the system's repeatability and accuracy. And because the hub has dual keyways, the cutters can be staggered in gang-milling scenarios, reducing cutting forces and generating a smooth cutting action.

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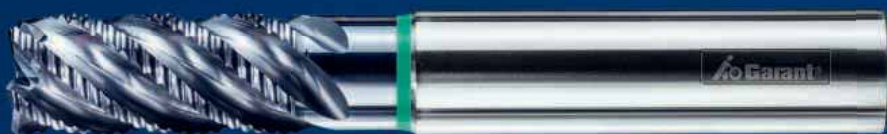
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# Subcontractor has a grip on productivity benefits with ITC

Leaving the comfort of employment and starting a business is a decision loaded with emotion and taken with cautious trepidation. For the two ex-aerospace engineers that founded GD Precision, re-mortgaging their homes to finance the leap emphasises their confidence and passion. Seventeen years later and the decision has paid dividends for the West Sussex entrepreneurs.

Now operating from a 4,400 sq.ft facility in Arundel, the South Coast Company has seven staff, a host of Mazak, XYZ and Dugard CNC machine tools and a prestigious list of clients that span across the F1, aerospace, transport and medical industries. Like most subcontract machine shops, GD Precision is continually striving for cost-reductions, greater efficiency, enhanced productivity and component quality. Luckily for GD Precision, it has many of these facets covered by cutting tool supplier Industrial Tooling Corporation (ITC).

Recalling life before the cold call of ITC sales engineer Dave Cleeve, some 10 years ago, company director Dale Buckthorpe says: "In the early days, we were conscious of our spending and we watched every penny. We would buy low-cost tools from a variety of suppliers and when tools were near burn-out, we would get buckets of tools re-ground. Of course, this was a false economy. When Dave Cleeve came in, with tools that were considerably more expensive than the cheap tools we were using, we took some convincing."

Taking up the story, fellow director and head of the milling department, Gary Short recalls: "Dave from ITC reviewed our workload and he offered us the 3081 Series

square-end 3 flute solid carbide end-mill. At the time, we were using a 20 mm diameter rippers from another supplier to machine an aluminium component at the full 20 mm width at a depth of 1/2XD

applying a low feed rate. Taking-on-board Dave's expertise, we applied the 3081 Series at full flute depth with smaller cuts at speeds and feeds that were remarkably high. We were sceptical, but we trusted Dave and immediately realised cycle time reductions of 50 percent.

"Not only did we achieve 50 percent cycle time reductions, the surface finishes and tool life were anything from 4 to 5 times better than our previous tools. While we instantly realised the benefits of paying more for tools from a premium brand manufacturer like ITC, we also recognised the technical expertise was invaluable."

This success noted the arrival of a full-line of 3081 end mills from 6 to 20 mm diameter for everything from roughing to finishing applications.

Gary Short says: "The 3081 Series blew our previous tools away. It's a general purpose aluminium end-mill, with a high-helix, that we now use for just about every task. We have recently been machining dental mould tools and the 3081 Series is achieving 70+ hours of trochoidal machining on high-grade HE15 aluminium

The ITC 3081 Series soon became the tool of choice for all aluminium machining tasks at GD Precision, giving the directors confidence to trial further ITC tools. This followed in the guise of the ITC Widia VariMill range of TiAlN coated four-flute end mills for machining stainless steel and exotic materials.

For dedicated high speed roughing of challenging materials, GD Precision is now utilising the ITC 6051 Series of 6-flute centre cutting end mills.

The success of the 3081 Series, the



VariMill and the 6051 Series has seen GD Precision continually implement new machining strategies and tooling lines from ITC. The recent addition of the company's second Dugard Eagle 1000+ machining centre has a BIG-PLUS logo on the spindle housing, which didn't go unnoticed by Dave Cleeve.

Recognising the Dugard Eagle 1000+ is a machine with a BIG-PLUS spindle interface, Dave Cleeve recommended that GD Precision purchase a BIG KAISER face and taper contact Hi-Power Milling Chuck to complement the spindle interface. As the only genuine face and taper dual-contact spindle system, the BIG-PLUS system improves rigidity, concentricity, tool life, surface finish, clamping forces and precision whilst reducing vibration.



Gary Short says: "We've had the Dugard machine a while and when Dave recommended we try the BBT40 Hi-Power Milling Chuck, we trusted his judgement based on previous results and we were not disappointed."

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# New milling grade boosts productivity when machining heat resistant alloys

Reinforcing its credentials in the aerospace sector, CERATIZIT Group has introduced a new milling grade targeting heat resistant nickel-based alloys. Often described as difficult to machine, these materials pose challenges to those involved in their machining, with particular emphasis on process security and tool life. The new CTCS245 grade complements the existing CTPM245 and CTC5240 grades, from Cutting Solutions by CERATIZIT, by enhancing performance on materials such as Inconel, Nimonic and Rene, making it the 'go to' grade for aerospace applications.

The chief factors in CTCS245's success are the new, extremely tough and heat resistant substrate, combined with a very hard and smooth CVD TiB<sub>2</sub> coating, unique to CERATIZIT. This high-performance grade is thus able to withstand the rigours of machining these materials, ensuring process security together with significantly increased tool life. For example, when machining Nimonic 80A material, which is commonly used in turbine blades, 12 mm button inserts were run at 45 m/min at 0.25 mm/tooth feed and 2 mm depth of cut. The tool life increased by 100 percent from 62 minutes to 124 minutes compared to using CERATIZIT's older CTC5235 grade. When used on Inconel 625 the gains were even greater, with tool life increasing 200 percent, even when the cutter was run at 38 percent higher cutting data than the competitor's grade.



While the initial focus has been on the aerospace sector, with insert shapes including button inserts, high-feed, shoulder and face-milling inserts, CTCS245 is also finding success in other industries such as medical, petrochemical, energy and sub-sea engineering.

Nathan Paxton, UK & Ireland business development manager, says: "The development of CTCS245 completes our optimised family of high-performance insert grades for milling heat resistant materials, heat resistant steels (CTPM245), Titanium alloys (CTC5240) and now nickel-based alloys with CTCS245."

With the significant increases in cutting performance and tool life Cutting Solutions by CERATIZIT has extended the lead it has within the aerospace milling sector.

For over 95 years, CERATIZIT has been a pioneer developing exceptional hard material products for cutting tools and wear protection. The privately-owned company, based in Mamer, Luxembourg, develops and manufactures highly specialised carbide cutting tools, inserts and rods made of hard materials as well as wear parts. It is a leader in several wear part application areas, and successfully develops new types of carbide, cermet and ceramic grades which are used for instance in the wood and stone working industry.

With over 9,000 employees, at 34 production sites and a sales network of over 70 branch offices, the Group is a global player in the carbide industry. Its international network also includes the subsidiaries KOMET, WNT, and Becker Diamantwerkzeuge, as well as the joint venture CB-CERATIZIT. As a leader in materials technology, it continuously invests in research and development and holds over 1,000 patents. Its innovative carbide solutions are used in mechanical engineering and tool construction and many other industries including the automotive, aerospace, oil and medical sectors.

It is active on the market through the seven competence brands Hard Material Solutions by CERATIZIT, Toolmaker Solutions by CERATIZIT, Tool Solutions by CERATIZIT as well as Cutting Solutions by CERATIZIT, KOMET, WNT and KLENK.

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# All-directional turning goes inside out

## PrimeTurning now available for internal turning operations

Following last year's launch of PrimeTurning™ methodology and tools for external turning operations, Sandvik Coromant is now introducing a dedicated CoroTurn® Prime SL head that makes this groundbreaking process available for internal turning operations. The new SL head will cater for the needs of oil and gas, aerospace and other manufacturers with machining diameters in excess of 90 mm, 3.5 inch, and overhangs up to 8-10 x D.

Hakan Ericksson, product manager for general turning at Sandvik Coromant, says: "The inside-out machining capability provided by the CoroTurn Prime SL head solution, in combination with PrimeTurning techniques, promotes excellent chip evacuation and chip control. In turn, manufacturers can achieve an excellent surface finish, matched by high productivity, longer tool life and high machine utilisation."

In contrast to conventional internal turning, PrimeTurning sees the tool enter the material at the chuck end of the component and remove metal as it travels back out towards the bore exit, inside-out direction. This allows for the application of a small entering angle that offers significant productivity gains. However, if required, another variant is also available with a reversed tip seat that makes it possible to perform PrimeTurning in the opposite direction, outside-in.

There are two insert types for internal PrimeTurning: A-type for profiling, finishing and light roughing and B-type for roughing to finishing operations.

Speed and feed rates can effectively be doubled with PrimeTurning. This is because the small entering angle and higher lead angle create thinner, wider chips that spread the load and heat away from the nose radius, resulting in increased cutting data and/or tool life. Furthermore, as cutting is performed in the direction moving away from the shoulder, there is no danger of chip jamming, a common and highly undesirable effect of conventional internal turning.

With CoroTurn Prime SL heads, customers can create a wide range of tool combinations from a small inventory of adaptors and cutting heads. SL heads are available in 40 mm, 1.575 inch, diameter, and fit with solid steel bars and carbide bars, as well as with Silent Tools™ damped boring bars for vibration-free internal machining.

In a further development, Sandvik Coromant can now offer the new -H3 geometry to eliminate any concerns about chip control, which can be challenging when machining low-carbon and high-strength steels. The -H3 geometry is available for B-type inserts in grades GC4325, GC1115 and H13A.

Part of global industrial engineering group Sandvik, Sandvik Coromant is at the forefront of manufacturing tools, machining



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# Cutting tools and a great deal more

A recently signed annual Preferred Partnership Agreement between Walker Precision Engineering and Seco Tools UK provides the former with access, not only to Seco's best-in-class cutting tools and tooling solutions, but also to its range of innovative and integrated technical, consultancy and support services.

The agreement, with its emphasis on continuous improvement and best-practice methods to help WPE increase productivity levels, reduce operational costs and optimise its machining processes, provides the company with preferential and priority access to a range of Seco's technical consultancy services.

To ensure that the Partnership Agreement is focused, proactive and maintains momentum, regular monthly planning and quarterly review meetings with key personnel from WPE and Seco are scheduled.

Within the first few months of the agreement being signed in December 2017; the collaborative Partnership Agreement was delivering impressive results, most notably with the machining of a complex precision chassis part manufactured by WPE for a defence industry customer.

Working in partnership with Seco's product and technical staff, employing process improvement strategies and a focused DCR programme, WPE has been able to reduce cycle times for this part by 40 percent.

The monthly planning meetings act as a forum to discuss issues and progress with existing projects, agree the direction and responsibilities of new projects and, for Seco staff, to alert and inform WPE personnel on new products and services.

At one of these meetings, Seco's technical sales engineer, Douglas Austin presented an overview on My Pages, Seco's powerful, flexible and simple to use digital portal. It



provides customers with fast and easy access to Seco's product information, cutting data, previous purchase history and test reports.

In the past, WPE staff, especially those working in the company's design, planning and programming department, had used Seco's Machining Navigator publication, a voluminous printed paper resource, to access the latest product information. While being satisfactory, the Machining Navigator publication did have some drawbacks.

David Hunter, planning engineer for WPE, says: "Seco's Navigator is a good reference resource, but it is a bit cumbersome especially when you want to find information quickly.

"When My Pages, along with its onboard SUGGEST feature, was presented to us we could see the immediate time saving benefits."

These benefits include the ability to quickly and reliably find the most appropriate tool for any specific application. This is achieved by searching the SUGGEST database and selecting specific component characteristics, machining priorities and machining strategies that will be employed.

Key search criteria include workpiece material, machine tool technology to be used, component shape and dimensions, machining conditions, machining priorities i.e. speed, quality etc.

From the information supplied, SUGGEST will generate 2D and 3D models, tooling recommendations and related cutting data, program code to machine the component and tips. It also provides best-practice to help optimise the specific machining process in question.

Since the Partnership Agreement was signed, WPE's design, planning and programming department staff has increasingly relied on Seco's My Pages and SUGGEST.

Kieran Murphy, planning engineer at WPE, concludes: "My Pages and SUGGEST have become vital tools and we use them constantly.

**Seco Tools (UK) Ltd**

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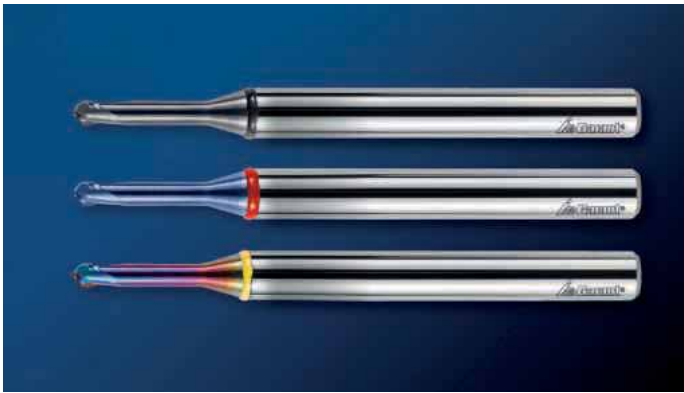
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## GARANT micro-milling cutters are now also available for high-alloy and hardened steels

The high-precision solid carbide micro-milling cutters from the Hoffmann Group are capable of extreme repetition accuracy. With immediate effect, they are also available for machining high-alloy and hardened steels. The micro-milling cutters have a particularly tight tolerance band of only 0 to -0.005 mm and enable milling operations to a precision of only a few microns. Due to the expansion of the range, high-performance tools are now available for an even broader spectrum of materials in toolmaking and mould making. The first micro-milling cutters of the new generation were produced in autumn 2017, for machining aluminium and copper alloys, graphite and fibre-reinforced composites.



The new GARANT micro-precision milling cutters are available in three versions: sharp-edged milling cutters, torus cutters and copy slot drills. Special micro-geometries make the cutting edges extremely stable while optimised face and tip angles coupled with enlarged flutes regulate chip formation and ensure optimum chip evacuation. The latest generation of Diabolo coating imparts extremely high wear resistance to the new micro-milling cutters. The multi-layer coating of titanium-silicon nitride is 1 to 2 microns thick and ensures outstanding results, even on electrolytic copper. Thanks to the latest carbide substrates, the new GARANT micro-milling cutters offer very good process reliability.

The new GARANT micro-milling cutters, for high-alloy and hardened steels, are available with immediate effect from the Hoffmann Group e-Shop and from its 2018/2019 catalogue.

As a leading system partner for quality tools, the Hoffmann Group combines commercial expertise with both manufacturing and service competence. To more than 135,000 customers this combination guarantees reliability in supply, quality and productivity, in the tooling sector and also in the workstations and storage sector. Optimum and reliable advice, from individual needs analysis through to efficient use of products, is assured at all times.

Alongside tools for machining, clamping, measuring, grinding and cutting, the portfolio also comprises hand tools, protective work-wear, workstations, and storage and workshop accessories. Customers include major listed companies as well as medium-sized and small companies in more than 50 countries.

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# Exotic milling with Multiside

Dormer Pramet's Multiside range is ideally suited to milling applications in a range of exotic materials, including titanium and high temperature alloys.

Consisting of three specific cutters, Multiside AD, Multiside SC and Multiside SD, the program covers a comprehensive variety of operations, including shoulder milling, slot milling, copy milling and face milling, through to progressive plunging and roughing.

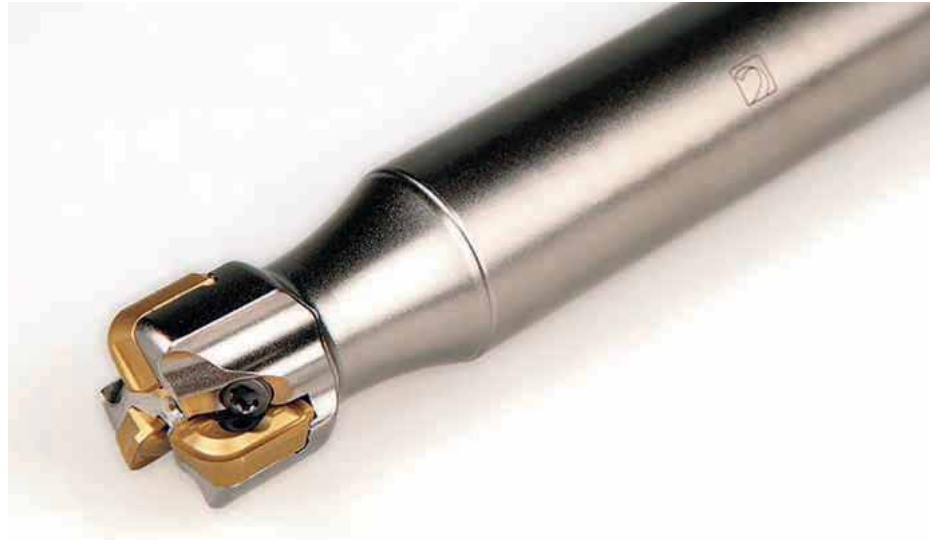
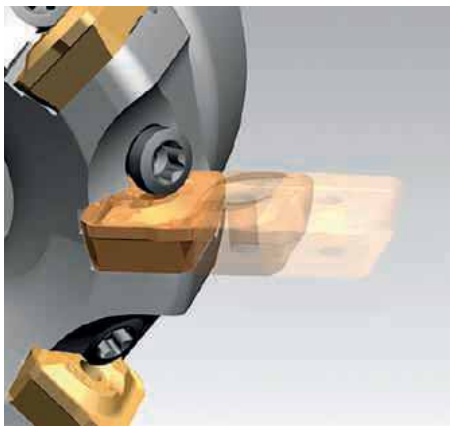
A key feature of the Multiside range, which is part of the company's Pramet assortment, is its patented SideLok clamping system.

This is an extremely efficient and secure way of holding inserts which provides a high level of stability, especially in 5-axis machining of complex surfaces. As a result, increased metal removal rates are achieved even in difficult to machine materials.

As there is no need to accommodate a central fixing, the insert itself is much stronger, while the seating position means more of the geometry is engaged.

Another benefit of the SideLok system is that there is no need to remove screws from the body when indexing the inserts, speeding up the process.

A wide range of insert shapes and radius sizes from 0.4 to 6.0 mm is available, with chip breakers designed for materials



commonly used in high temperature environments.

A wiper insert option offers improved surface finish and the close pitch means reduced machining time and increased productivity. To further support specific applications, the Multiside range can be offered as custom tooling to meet a variety of bespoke requirements from customers.

For more information regarding Dormer Pramet's Multiside range visit [www.dormerpramet.com](http://www.dormerpramet.com) or contact your local Dormer Pramet sales office.

Dormer Pramet is a global manufacturer and supplier of tools for the metal cutting industry. Its comprehensive product

program encompasses both rotary and indexable drilling, milling, threading and turning tools for use in a wide variety of production environments. An extensive sales and technical support service operates from 30 offices, serving more than 100 markets worldwide. These are assisted by dedicated production facilities in Europe and South America and a highly developed distribution and logistics network.

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## A quantum leap for the process-reliable turning of aluminium alloys

LACH DIAMANT can look back on twenty years of experience in the development of PCD chip breakers. The first CO-type patent was issued on January 26, 1999. It was a laser cut chip groove for PCD materials. Practice has shown, however, that chip breakers with a manufactured chip groove have proven to be only suitable to a limited extent for a process-reliable, controlled chip breaking process of long chipping aluminium alloys. An active chip breaker was the final solution. It had to show outstanding performance during rough machining as well as fine finishing.



LACH DIAMANT's PCD IC-plus already announced as the world's best chip breaker was born.

While CO-type chip breakers only redirect the chips, the new IC-plus world's best chip breaker will already guide chips with a cutting depth (ap) of 0.01 mm. The cutting depth can be increased up to the maximum length of the cutting edge.

### Monoblock PCD milling cutter for high performance cutting

In November 2004, when LACH DIAMANT was awarded the Hessian Innovation Prize for a newly developed technology for the cost and time efficient machining of aluminium components with a monoblock diamond cutter dia-compact, it was said "Nothing is more efficient than this."

However, there was still something more efficient, as proven by the development of Cool Injection-Plus, cooling directly via the PCD cutting insert.

Today, maximum tool life, extremely high cutting results and feed rates are taken for granted by leading automotive manu-

facturers and suppliers due to the use of LACH DIAMANT's monoblock milling cutters.

In addition, perfect surface quality and part accuracy have been achieved. This is followed by reductions of cycle time by 50 percent and more.

The PCD monoblock milling cutter by LACH DIAMANT is completely mounted and balanced, delivered with an adapter of your choice and it can be immediately used on a machine, without adjustments.

Since 1973, LACH DIAMANT has been a pioneer in the PCD cutting tool sector. Today it offers a wide product portfolio for a multitude of industries.

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# Cubic Boron nitride-tipped cutting inserts

The 315 system from Horn for internal and external grooving has gained a new range of single-edged, CBN-tipped inserts suitable for hard machining applications. They are available for producing grooves from 1 mm to 3 mm wide and up to 5 mm deep.

The insert seat has a large contact area to direct the cutting pressure efficiently into the holder and the central clamping screw enables maximal tightening of the insert for vibration-free, accurate machining. These properties make the system ideal for counteracting the high forces generated during hard turning. The holder range is available in monoblock design and as a cartridge system for HSK-T and PSC connections.

CBN is the second-hardest material in the world after diamond, unlike which it can be used to machine ferrous metals as no carbon diffusion occurs.



### Adjustable side milling cutter for grooving

A new side milling cutter for stepless adjustment of groove width has been introduced by Paul Horn GmbH and is available through the firm's UK subsidiary, Horn Cutting Tools, Ringwood. The milling body features a central sleeve that enables the required groove width to be adjusted easily on a pre-setter.

Dimensional accuracy, stability and process reliability are assured, as the torque generated during machining is dissipated into the body. Horn offers two body types, the first having a cutting-edge diameter of 100 mm. It is equipped with 14 type 406 indexable inserts, which produce seven effective cuts ranging from 9.6 mm to a maximum of 12.9 mm wide. Milling depth is up to 20 mm.

The second body type is equipped with



12 cutting inserts of type 409 and has a cutting-edge diameter of 125 mm. On this tool, the cutting width with six effective cuts can be adjusted between 12.9 mm and 18.8 mm. Maximum milling depth is 32.5 mm.

The successful 406 and 409 type indexable inserts have been chosen for the application. They are precision ground and achieve outstanding surface quality at the base of the groove and on the flanks. Double positive axial and radial rake angles ensure a soft cut. The tangentially screwed cutting insert's trailing chamfer produces a secondary cutting edge, resulting in outstanding machined surfaces. An additional free-form surface chamfer provides a stable wedge angle and very smooth milling.

### Horn introduces Boehlerit ISO turning tools with internal cooling

Under the joint cooperation between Horn, Germany and Boehlerit, Austria, whereby both sell each other's tooling, Ringwood-based Horn Cutting Tools has announced the availability of Boehlerit's new turning toolholders with connections for internal coolant supply. They are available from stock with toggle clamp (ISO-P) and screw clamp (ISO-S) systems,



allowing manufacturers to benefit from the productivity advantages of cooling directly at the cutting edge.

The P variety is suitable for all ISO indexable inserts. There are no loose parts and only a few spares are required, making them easy to handle. Inserts can be clamped quickly and securely and released easily. Chip flow is smooth, as there are no obstructions. The S toolholders also enable the insert to be secured simply and safely, in this case using a cone-shaped positioning screw. Here too, chip flow is not compromised and a maximum of three spare parts is needed. In both cases, the coolant is supplied at the back of the shank end as standard or from below the head as an option.

Horn Cutting Tools Ltd. Ringwood is the wholly owned UK subsidiary of Horn S.A. Luxemburg, a leading European supplier of grooving tools and a leader in precision grooving technology. The company was incorporated in the UK in 2008, having previously traded as Horn UK since 1995.

The Horn group of companies is led by Paul Horn GmbH, based in Tubingen, near Stuttgart, which has been developing and producing grooving, side turning and slot milling tools since 1969. These tools occupy a leading position in the market. Its products are used by automotive, general engineering, aerospace, hydraulics/pneumatics, jewellery and medical equipment manufacturers.

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## Sumitomo extends MDF Flat MultiDrill series

Following Sumitomo Electric Hardmetal's application success with its range of Flat MultiDrill series (MDF), the tool series has now been extended. MDF now includes overall length tools up to 10:1 length-to-diameter ratio, a long shank, external coolant supply, L2D Type and through coolant feed, H3D / H5D Type, variants.

The MDF series of high rigidity, coated carbide tools benefit prime applications such as when cross drilling, expanding hole sizes and deep spotfacing. With its 180 deg point angle, true flat bottoming can be achieved, for instance in order to create a seating. Pre-tapped holes can also be produced in thinner plate or sheet material. Now with the up to 10:1 overall length ratio, tools can be used to access component features that are deeper within housings for example.

Significant in the high rigidity tool series is Sumitomo's 'RS' thinning development which creates a greater wall thickness at the tip of the drill. Swarf evacuation is very effective due to wider pockets that accommodate chips with high orders of flute

finishing and a specific shape applied to the rake face. A special high strength cutting edge helps resist impact damage when features involve interrupted cuts while also maximising the overall stability of the tool. Due to the design of the tool, minimal burr formation is a further benefit.

The extended line up of MDF drills can be used on general steels, stainless, alloy and hardened steels up to 50 HRC. Also, grey and ductile cast irons and aluminium can be drilled. Standard tools can be used with pilot holes and are available between 3 mm and 20 mm giving 2:1 depth to diameter ratio.

Recent MDF applications resulted in a 400 percent increase in tool life when producing counterbores within a 34CrMo4 steel gear frame. The MDF tool was run at 65 m/min with 0.1 mm/rev feed rate. Meanwhile, on a C35 automotive component featuring a starting surface of 60 degrees, MDF



significantly reduced cutting edge damage and chipping compared to existing competitor tool methods. The MDF was run at 80 m/min and 0.45 mm/rev.

The latest additions to the MDF series further expand the higher performance Sumitomo drill solution portfolio, where both the SumiDrill SDP and SDM Type Power-Series enable higher productivity drilling for holes between 3 mm and 16 mm diameter to depths of 7 x D.

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## Maximise steel cutting performance

New CA025P CVD coating technology and base material with excellent durability ensures long-term cutting performance for automotive and industrial machining.

Kyocera has announced it has developed a new ultra-durable coating technology and base material for indexable industrial cutting tool inserts to improve steel machining. The new CA025P CVD Coated Carbide grade was first made available, to the European market, from the middle of May this year.

Steel is often used in numerous industries including automotive and industrial machining. There is a growing demand for long-lasting inserts with excellent resistance against wear, fracturing and chipping capable of stable machining performance over a wide range of cutting conditions.

Kyocera's new industrial cutting tool series features multilayer CVD coatings with a layer using a thick film of aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) for excellent heat resistance. Utilising cemented carbide as a base material ensures excellent fracture resistance, long-term performance, and longer tool life. These new cutting tools can

accommodate a wide range of machining applications from roughing to finishing by using a variety of chipbreakers. Kyocera aims to support customers by reducing the frequency of insert replacements and improving production yield.

### New CVD coating with enhanced chipping and wear resistance

The thick film aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), with excellent heat resistance, is applied to the new base material as one of its coating layers. This material ensures longer tool life by reducing the amount of wear. During the cutting process, the unique surface structure of the coating resists welding and chipping of the insert.

### New base material ensures excellent fracture resistance

The optimised composition of the cemented carbide base material is resistant to high temperatures. This helps prevent fracturing of the insert.



### A wide range of applications with four chipbreaker styles

The new CVD inserts can accommodate a wide range of steel machining applications from roughing to finishing with the availability of four different chipbreaker styles (PG, GS, PQ, and PP).

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# Workholding solutions for 5-axis machining

German company Roemheld, whose UK and Ireland subsidiary is located in Hitchin, specialises in delivering flexible, cost-effective workholding solutions for a range of applications designed to cut setup and cycle times, increase work throughput, reduce handling times and minimise material costs.

Vices from its Hilma division include models intended for full 5-axis and 5-sided machining. They are designed to raise the component from the machine table so that it is as close as possible to the spindle. For most customers, it means that standard spindle nose tooling can be used, rather than having to resort to more expensive and vibration-prone extra-long tools, while additional versatility is provided for component rotation and positioning.

The extensive product range starts at a jaw width of 40 mm, rising to 125 mm. Using up to 40 kN mechanical clamping force, or 37.5 kN for hydraulically actuated vices, components can be gripped with absolute security on 3 mm. By exposing more of the billet to the cutters, users can often save between 15 and 20 percent of material. It is a significant incentive for manufacturers, especially in the aerospace industry where expensive materials such as titanium alloys and Nimonic are frequently used.

Collision-free tool paths are a basic prerequisite for effective production on 5-axis machining centres. Roemheld-Hilma clamping systems are especially developed to achieve this aim. In conjunction with the Quintus rapid change block, with or without



zero point clamping, the available space for spindle and tool access is further increased. Encapsulation of the vice leadscrew protects movable components against the penetration of swarf.

An extensive variety of jaws, including grip jaws, pendulum jaws, step jaws, soft jaws and Vee jaws suitable for different machining tasks, completes the product range. A serrated jaw is available to provide a pull-down action at the same time as the clamping force is applied, while if the opposing jaw is smooth, a component may be turned around without damage for another operation.

Workholding systems from the MC-P 5-axis vice series excel by having a compact, patented segment design and wide jaw widths for both concentric clamping and clamping against a fixed jaw. They offer precision and stability to enable first and second operations to be completed within a single clamping system.

Major components are made from hardened steel. Positioning the adjusting spindle in the upper part of the housing minimises deformation in the base, providing a very rigid workholding system. MC-P 100 and 125 are prepared for use on zero point clamping systems, for which purpose there are location threads for retractable nipples on the underside of the housing.

The flexible workholding system MC-P Z Balance has a floating clamping point. After operation of the clamping spindle, first the two clamping slides concentrically approach the workpiece. When the first jaw reaches it, just the second jaw advances until they are both in contact with the workpiece. Only then is the desired clamping force introduced using a torque wrench to hold the workpiece. Subsequently, the clamping position is fixed with the locking spindle.

Clamping systems in the series SCS with a jaw width of 80 or 120 mm are particularly suitable for use on 5-axis machining centres due to their compact design. Improved accessibility to small workpieces is achieved by moving the fixed jaw. An external, rather than internal, clamping configuration may be used to hold more components and so prolong machine running time.

Mechanically operated vices, in the PC range, are entry level products for 5-axis machining and are well suited to use in CNC milling cells equipped with a pallet storage unit for the production of small or medium-sized batches of components. Jaw width is 80 mm and models are available for concentric workholding or clamping against a fixed jaw.

Most recently, the PC80Z self-centring vice was introduced in a new, two-in-one version that accepts the manufacturer's optional round inserts, enabling cylindrical components or billets from 44 to 95 mm in diameter to be clamped securely. There is now no need for a machinist to buy a bespoke workholding solution, or machine sets of soft jaws, to hold parts of different diameters.

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# Partnership between Boeing Portland and HAIMER intensifies

The Oregon Manufacturing Innovation Center Research and Development (OMIC R&D) continues to grow a strong membership base with the addition this month of HAIMER, a leading German toolholding, shrinking, balancing and presetting. With a total now of seventeen manufacturing industry partners and three Oregon public universities, the Scappoose, Oregon (USA) based R&D facility continues to build a world-class operation to develop advanced metals manufacturing technologies through its collaborative research and development activities.

Through this partnership, Boeing, with its centre of excellence and main production plant for heavy metal machining in Portland, Oregon, is intensifying its strategic partnership with HAIMER by sponsoring a joint membership at OMIC R&D. The partnership between Boeing and Haimer reaches back more than 10 years when HAIMER's Safe-Lock™ pull out protection system became a true game changer at Boeing. With one of the largest titanium machining shops in the world, Boeing Portland has set the standard for cutting tools and tool holder applications for difficult to machine materials. The partnership will be strategically strengthened by HAIMER's investment and support as a new member at OMIC R&D.



Due to its technology advantages, the Haimer Safe-Lock system has become the Boeing Portland standard for roughing in its milling operations. Haimer implemented an open licensing policy where additional American and other cutting tool makers offer this technology as a standard solution which is widely used in the Boeing machining operations. In fact, the Boeing Company has also received an IP, patent and trade mark license from Haimer to be able to quickly respond to machining needs for this innovative technology.

Prior to implementing Safe-Lock in its production, Boeing was constantly facing the challenge of preventing the cutting tool from pull-out which potentially created very expensive scrap. Over the last 10 years, since implementing Safe-Lock, it has not had a single tool pullout incident for its high value components. This avoids any sort of expensive scrap and machining failure that was a common problem before implementing Safe-Lock.

William Gerry, global technology program manager for Boeing Research and Technology, says: "Boeing is very carefully vetting and inviting members to partner up and contribute to OMIC R&D. We are delighted about the new membership of HAIMER, who we know as a high quality toolholding, shrinking, balancing and presetting technologies company that

Boeing has relied on heavily and exclusively for this service. HAIMER can support OMIC R&D and its members with state-of-the-art technology and industry 4.0 connectivity solutions."

OMIC R&D is the fifteenth such research centre established with Boeing leadership worldwide and the first Boeing has sponsored in the United States. Its mission is to bring together manufacturing companies and higher education in an innovation environment where "outside-in" applied research with faculty and university students solves real problems for advanced manufacturers while training the next generation of engineers and technologists. Member companies share machinery, equipment such as tools, and expertise to create a highly dynamic and innovative R&D function for members.

Andreas Haimer, president of the HAIMER Group, explained during the official handshake at becoming an OMIC R&D member: "We are proud and happy to be closely associated with Boeing as a leading aircraft manufacturer and one of our biggest global customers. The investment and membership at OMIC R&D is a clear commitment to the community, our customers and the entire manufacturing industry in Oregon, the Pacific Northwest and American manufacturing. OMIC R&D is an ideal platform to share these kinds of



best practices making American and Oregon manufacturers more competitive. Apart from Boeing Portland we also heavily support the leading U.S. Boeing facilities with our system technologies in Auburn, Seattle, Everett, Helena, St. Louis and Fredrickson."

HAIMER joins nineteen other OMIC R&D industry and university members in the Scappoose facility. Craig Campbell, executive director of OMIC R&D, says: "Outside-in advance manufacturing research activities from Oregon Institute of Technology, Portland State University, and Oregon State University are solving manufacturing problems sets at OMIC R&D to support our members. Due to the strong investments from state and local government, OMIC R&D has become a draw for global manufacturing companies and is realising its promise as an economic driver for the state and region."

The OMIC R&D model focuses research on helping indigenous industries increase competitiveness while creating a real partnership with and integration into the local economy. As research activities expand with high-cost, high-value machinery added on to the production floor,

OMIC R&D will increase state and regional commercial productivity in manufacturing and stimulate economic growth and development.

Coordinated with OMIC R&D's applied research projects will be hands-on "earn and learn" apprenticeship programs at the PCC OMIC Training Center, led by Portland Community College, and located in a nearby facility that PCC is building. While the Training Center construction is underway, PCC has a temporary delivery site at Scappoose High School.

Brendt Holden, president of Haimer USA and North America, says: "We have been delighted to support various production facilities in the Northwest over the past 15 years with state of the art shrinking and balancing machines which have helped reduce operating costs and increase productivity. With presetting, toolholding and milling tools we have become a system partner around the machine tools. Lately we have been involved with multiple presetting



projects in the Northwest which can reduce setup time and increase significantly the efficiency of the operation while implementing industry 4.0 technology by tool management capabilities. We are happy to share our equipment and knowledge in the OMIC in an effort to help the setups of the R&D projects be as efficient as possible."

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## SCHUNK highlights new innovations at SECO event

At the Seco Tools 'Inspiration through Innovation 2018' event, SCHUNK Intec once again demonstrated why it is a competence leader in the field of gripping systems and clamping technology. The company was delighted to be participating in one of the highlights on the UK manufacturing calendar and showcased its technology on two machine tools.

Hosted by a world leading cutting tool manufacturer, the Seco event was held over two days in early October and the schedule included seminars, tutorials, more than 15 machining demonstrations and over 50 exhibiting technical partners. SCHUNK was

an integral part of the machining demonstrations with its Kontec KSC 160 centric clamping vice with reversible grip jaws, the VERO-S Zero, VERO-S NSL 3 and Vero NSE PLUS being demonstrated at the event.

Central to the SCHUNK display was the new KONTEC KSC-F single-acting vise and the KSC 6-jaw gripper vise. Lauded as the next generation in efficient workholding systems, the impressive modular configuration of the KSC-F is credit to the VERO-S interface and the 160° quick clamping system that can be adapted to new clamping tasks in no time at all.

This highly efficient all-rounder for raw and finished part machining is suitable for manual and automated machine loading. The new KSC-F demonstrates a quick-adjustment of the clamping range, flat design and a lightweight and robust design. These attributes ensure the perfect conditions for use in pallet storage units. The sizes KSC-F 80, KSC-F 125, and KSC-F 160 are particularly

designed for the common machine tool pallet sizes of 320 x 320 mm, 400 x 400 mm, and 500 x 500 mm. The new KSC-F achieves high clamping forces even at a comparably low torque level.

The KSC-F works in tandem with the new KSC 6-jaw gripper vise and this combination was on show at the event. The six-fold grip jaw system performs exceptionally well when processing high-strength materials and the safe clamping configuration can resist extreme lateral forces when machining difficult to process materials.

Also, presented was the VERO-S NSE3 that incorporates a quick lock cone seal, which prevents chips or dirt from lodging in the interface. Without changing the height, it locks the last gateway of the otherwise completely sealed modules.

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# Seychell profits from real time information with status board displays

Seychell Engineering has added the Status Board display system to the PSL Datatrack production control software modules used to run the company's business. All jobs that pass through the shop floor, on a daily basis, are now presented as clear visual information with action lists and alerts to shop floor operators, ensuring they are dealt with at the right time and in the correct sequence. As a result, customer deliveries are more punctual than ever before, fulfilling one of the company's essential Key Performance Indicators (KPIs).

Since acquiring Seychell five years ago, owner Roger Williams has transformed its profitability and grown the thriving subcontract engineering business through the establishment of new KPIs. These are being met thanks to major improvements in the company's IT, administration, marketing, branding and engineering processes. He recognised early on that the company's existing PSL Datatrack software could be core to the future success of the company if used correctly and to its full potential. Its functionality and modularity also meant that further investments could be made as the company grew.

At the outset, it was identified that a serious shortcoming in the company's business was the ability to manage production time, resources and machine processes on the shop floor. There was no way of knowing whether customer quotations bore any resemblance to costs and therefore whether a specific job was actually profitable.

Initially, PSL Datatrack was set up and used to store all the key information about Seychell's production processes for the subcontract manufacture of ferrous and non-ferrous metal components, as well as plastics and ceramics, for customers in the industrial, scientific, medical, aerospace, marine and motorsport industries. Supplying various sized machined parts and large fabrications as one off specials, or as high quantity repeat orders, meant that the accuracy and speed of dealing with quotations and subsequent order processing was of fundamental importance.

Since 2013 there has been continuous investment in PSL Datatrack modules and



these are now being used to their full potential. Together with Quotations, eight other modules are used on a daily basis including Sales/Works Orders, Purchasing, Shop Floor Data Collection, Invoicing, Sequential Scheduling, Job Costing, Non Conformance and Gauge Calibration. These have all helped to improve the efficiency of Seychell's production processes, provide a highly accurate method of pricing any component or fabrication, give accurate comparisons between actual costs and quotations and enable variances to be addressed quickly.

The Sequential Scheduler module plans the production flow for the entire factory. It schedules the complete manufacturing process for the large number of jobs completed on a daily basis, breaking each one down by the materials to be used, the required machining processes and times as well as any outside subcontract processes. The time and cost for each step is calculated by PSL Datatrack and through the generation of reports the company can review each job in detail. The Non Conformance module tracks any production issues which may have affected the job and how they have been dealt with.

The versatile Gauge Calibration module is used to highlight which tools or machines need recalibrating and to set the frequency of machine servicing.

For Roger Williams, one of the big advantages of using PSL Datatrack has been the ability to generate bespoke programs and reports which are critical to Seychell's achievement of its KPIs. For example, a request for reports on profitability by individual order was addressed through PSL Datatrack's customer wish list programme.

Roger Williams says: "PSL Datatrack as a company is very responsive in terms of special requests and their overall customer support has been fantastic."

Whilst they may not be the final piece in the PSL Datatrack jigsaw for Seychell, the investment in the two Status Boards for use on the shop floor and a third in the programming section of the company has been a vital investment.

He concludes: "Having all the information from the Sequential Scheduler on a dynamic visual display is an essential means of communication. Like the PSL Datatrack software in general, the Status Boards have been well embraced by everyone."

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# Femtosecond lasers open up new opportunities in prototype production

Prototyping is a challenge for manufacturers producing small, high-precision parts, as when accuracy is measured in microns, it can be difficult to create a prototype that will be manufacturable at scale.

While 3D printing has made it possible to prototype everything from minute implantable medical devices to full-scale auto engines, creating a prototype model with equipment and processes not used in production manufacturing means that manufacturability may not be possible with existing equipment, delaying time to market. In other words, rapid prototyping doesn't always lead to rapid product development.

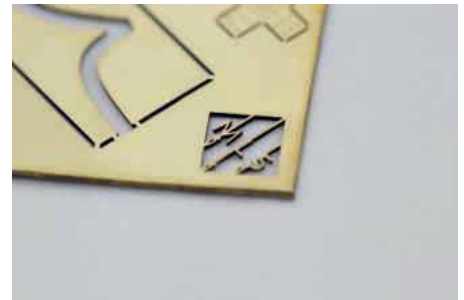
### The Laser option

Laser machining platforms have been used in prototyping for years, because setups are fast and high levels of accuracy can be achieved. Furthermore, there is no physical tool or tool wear to impact accuracy and repeatability.

Laser prototyping for micro-parts, however, is more challenging because thermal damage, by way of melting, burring or creation of recast layer, occurring in the Heat-Affected Zone (HAZ) will clearly affect the quality and accuracy of microscopic parts.

However, with ultrafast lasers i.e. lasers with pulse widths in the femtosecond range, thermal damage can be avoided enabling 'flawless' micro-part prototypes to be made.

Until recently, femtosecond lasers have shared the limitations of 3D printers for prototyping. Femtosecond lasers were fine for creating models in laboratory environments, but were not robust enough for full-scale manufacturing and so the



question of the manufacturability of prototypes remained.

This has changed in recent years with the advent of commercial-grade femtosecond lasers and manufacturing platforms that offer the stability, part handling, and beam control to deliver repeatable, precision material removal on micro-parts in a 24/7 manufacturing environment.

This means that the very same tool, equipment and the process used to create a prototype can also be used to manufacture production parts at scale.

The emergence of industrial femtosecond laser micro-machining platforms has enabled new parts and new products to be designed and manufactured at an accelerated rate. Once a prototype is finalised, the time required to take the prototype to volume manufacturing is greatly reduced.

Examples of next-generation designs that have moved from prototypes to finished manufactured parts using femtosecond lasers include, among many others, OLED panels, fuel injector nozzles and medical devices such as coronary stents.

### The ML-5 Industrial femtosecond micro-machining platform

GF Machining Solutions' ML-5 is a leading ultrafast laser micro-machining platform, combining exceptional part handling, motion control and real-time positional feedback to deliver perfect micro holes and other features in seconds.

The ML-5 features a 5-axis laser scan head, a precision ground natural granite base, iron-less linear motors, Heidenhain glass scales, and automatic palletised workholding to deliver the kind of precision and performance required for machining at the micro level.

The ML-5's femtosecond laser makes it possible to machine a wide range of materials producing little or no tool wear and without creating the heat affected zone, thereby ensuring part quality, high surface finishes and sharper edge reproduction.

This laser can create unique shapes that are beyond the scope of conventional machines i.e. negative taper holes, holes that change shape, circular entrance and elliptical exit, star patterns etc.

GF Machining Solutions is a leading provider of machines, automation solutions and services to the tool and mould making industry and to manufacturers of precision components. Products range from electric discharge machines and high-speed and high-performance milling machines, including clamping and palletisation systems, to 3D Laser surface texturing machines, services, spare and expendable parts, consumables, and automation solutions.

Based in Switzerland and maintaining a presence of 50 sites worldwide, GF Machining Solutions is a globally active group and source of strength to its customers. A company belonging to Georg Fischer Group (Switzerland), GF Machining Solutions has 2,873 employees and generated sales of CHF 867 million in 2013.

GF Machining Solutions' competences extend far beyond its machines to include peerless customer support, deep application expertise, innovation driven by the market, and standard-setting excellence as measured by its customers' success.

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# Computed tomography for process control in additive manufacturing

Metal additive manufacturing (AM) company Sintavia has installed a Nikon Metrology computed tomography (CT) system in its facility in Florida, USA to help control the AM process. The company is a global leader in the technology, providing a high-end design-to-production subcontract service to customers in the aerospace, automotive and oil & gas sectors, amongst others.

Eight high-speed additive manufacturing machines are installed as well as post-processing equipment, powder, metrology and mechanical testing laboratories and various quality assurance tools. Using the powder bed process, with electron and laser beam melting, Sintavia currently manufactures components from Inconel 718 and 625, aluminium, titanium, cobalt-chrome, stainless steel and other proprietary powders.

AM allows special internal designs to be realised, such as conformal cooling channels, lattice networks, hollow members and other complex geometries. Both additive and traditional manufacturing can result in microscopic voids and gaps within the structure, which can cause stress fractures and reduce the longevity of a component's lifecycle. All of these internal

features can only be inspected non-destructively with CT scanning.

Brian Neff, Sintavia's CEO says: "There are thousands of metal AM machines in place globally with just as many people, if not more, still figuring the process out. We're making it a mission to work with our customers to develop optimal parameters for their builds. If you don't understand and control the process, you won't be able to build what you want to."

"Working with our customers to develop optimal parameters for builds demands nothing less than total process knowledge and understanding. Sintavia is able to optimise parameters, serially manufacture and audit quality much faster than any of our competitors."

To assist in furthering this capability and achieving the desired level of quality control, the company decided to invest in the latest CT scanning technology. Other AM companies often outsource this aspect of inspection but Sintavia wanted the equipment in-house to enable rapid inspection and allow full control over the quality of products.

Brian Neff added that manufacturing standards are highest in aviation, driving the need for a process that is robust and repeatable to raise component quality and clearly demonstrate the improvement. It is essential to know whether voids or inclusions are present, how large they are both individually and in total volume and where they occur.

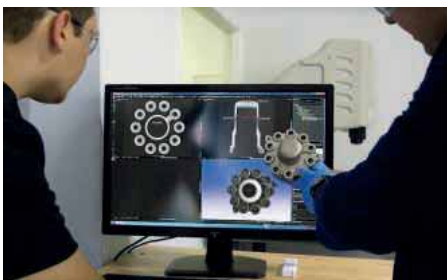
In such cases, X-ray computed tomography is a powerful tool and Sintavia has installed a 450 kVA micro-focus computed tomography (micro-CT) system



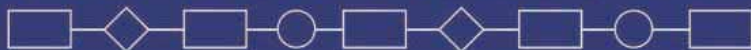
from Nikon Metrology. By converting 2D pixels to 3D voxels, supplying a full 3D density map of the samples, the technique gives all this information in a visual, easy-to-interpret format and shows any departure from the CAD model. It is straightforward to detect and measure powder residues blocking channels, porosity, contamination, cracking, warping, and dimensions such as wall thickness to an accuracy within tens of microns. Given a 100 mm sample and a detector 2,000 pixels across, the limiting resolution would be 50 microns, for example.

Micro CT is now much faster and more suitable for production-line use and CT scanning of similar parts can be automated using loading and unloading equipment. Scan times down to a few tens of seconds per part are possible.

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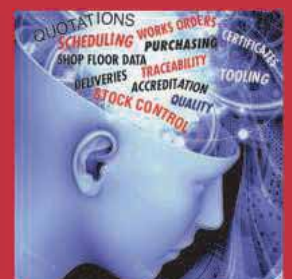
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## Renishaw looks to the future of AM

At the Additive Manufacturing Conference at IMTS 2018 last month, Marc Saunders, director of global solutions centres at Renishaw, gave a talk on the next phase of market growth in Additive Manufacturing (AM).

The event focussed on the industrial applications of AM for making functional components and end-use production parts. Attendees gained practical knowledge on AM adoption and implementation and were able to network with AM industry leaders.

Marc Saunders has over 25 years' experience in high tech manufacturing and precision engineering. In his current role, he is establishing a global network of solutions centres, that enable customers to gain hands-on experience using AM technology. During his talk at the event, he discussed the boosters needed to power AM market growth and examine how current challenges can be overcome.

Marc Saunders explains: "Additive manufacturing is already taking off. Early adopters are taking advantage of AM's unique capabilities to produce end-use

components with exceptional product performance. Despite this, the technology still occupies only a small market share of manufacturing methods.

"For the technology to reach the mainstream, three boosters are needed. At the conference, I outlined the three ways to bring more manufacturers on board; reducing the cost of AM parts, streamlining process validation and quality assurance, and extending the capability of AM equipment."

Renishaw exhibited its additive manufacturing products and services at IMTS 2018 in the 3D printing and additive manufacturing zone as well as its metrology stand in the quality assurance pavilion. At the show, Renishaw showcased its advances in multi-laser AM technology and how this increases productivity. It also launched a new external powder silo option for its RenAM 500 series, which has been developed in collaboration with LPW Technology.

UK-based Renishaw is a leading engineering technologies company,



supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has over 4,500 employees located in the 35 countries where it has wholly owned subsidiary operations.

Throughout its history, Renishaw has made a significant commitment to research and development, with historically between 13 and 18 percent of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company's products is carried out in the UK.

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## Hybrid technology from OGM reduces injection mould tooling lead-times by 50 percent

An innovative new service from OGM, a leading UK injection moulding specialist, has been introduced to reduce the lead-time for producing mould tooling by up to 50 percent. Based on the combination of conventional subtractive machining and the latest additive manufacturing processes, to form a hybrid technology, the new Rapid Production Mould Tools (RPMT) service will help both to compress lead-times and enhance still further the quality and finish of most types of mould tool inserts.

Mould tool inserts have traditionally been manufactured using conventional CNC machining techniques. Although these produce high quality inserts, the production time, especially for complex tooling, can be lengthy, the ability to create intricate shapes is limited and the costs are relatively high. In an effort to drive down tooling cost, many companies in recent years have outsourced production to the Far East, in the knowledge that there is then a trade-off in even longer lead-times and potential quality issues.

Typically, the lead time for a new tool set can be between 12 and 14 weeks.

By comparison, the hybrid RPMT technology can reduce lead times to between 4 and 6 weeks. This has been achieved by using standard modular tool components, such as bolsters, blank inserts and ejector sets, which are then CNC machined and drilled to create a substructure with the appropriate cooling channels and fixtures to match the characteristics of each injection moulding machine. OGM then uses an advanced direct metal laser sintering (DMLS) system, to build custom designed mould inserts onto the standard tool base.

The DMLS technology incorporates an automatic milling capability for fine finishing of each design as it is sintered layer by layer. This allows extremely complex mould shapes to be built and finished in a matter of hours and produces an exceptionally high-quality surface finish. The process can be carried out using a variety of materials,



including steel, stainless steel and Inconel, to create tool sets capable of withstanding extended use. It can also be used to repair or modify tool inserts quickly and efficiently.

Paul Wightman, managing director of OGM, explains: "By taking this hybrid approach to the challenge of mould tool production, we are able to help customers compress lead times and produce a new generation of high quality, complex inserts that give them increased design freedom."

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# Platinum goes live in a week, sees PO raising time drop from hours to minutes

Platinum Precision Engineering, based in County Down, Northern Ireland manufactures precision machined components for sectors such as aerospace and automotive. The company was founded in 2014 and, after using spreadsheets and paper for two years, decided it needed a more comprehensive system.

Managing director, Ross Fleming, noted that the time to process orders was growing faster than the orders themselves: "As the business started to grow, purchase orders were getting bigger, going from one or two lines to maybe twenty. We're a manufacturing company, so we are constantly timing machines and people. The process of getting everything on a spreadsheet, getting prices, copying/pasting between spreadsheets, printing a PDF and then checking it, with a 20-line purchase order could easily have taken two hours to make sure that everything is perfect. That's even before you have to start printing out works orders and plan production."

They reviewed the market and initially discovered 123insight at an ADS SC21 aerospace event. Ultimately, at that time, the company decided to write its own system. Ross Fleming says: "At that stage I believed that what we do is quite simplistic, so I employed a local software engineer to develop an MRP system. It took about a year to realise that we had no chance of achieving this, it's more complex than it looks on paper."

Ross Fleming then made the decision to



contact Drew McCoubrey, MD and founder of QMS Insight, the local dealer for 123insight, attending an evaluation workshop in the summer of 2017. This provides a complete overview of the system in 2 1/2 hours, answering any technical questions. He was also already aware that two of his customers used 123insight, one of which is a major supplier to the aerospace industry.

Ross Fleming continues: "I thought that if it's good enough for a company that's buying and manufacturing a large number of components and assemblies, then it's good enough for us."

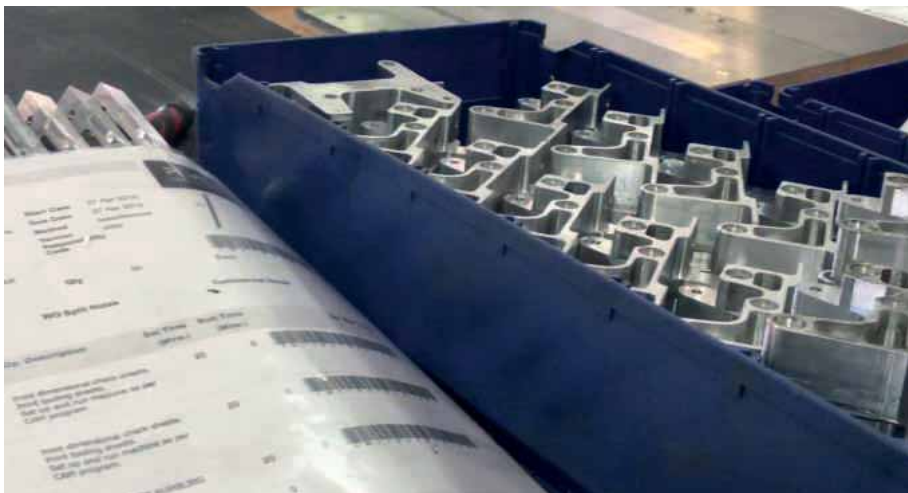
Platinum Precision registered to receive a 123insight licence on 9th August 2017, with training scheduled for early September, provided by QMS Insight. Ross Fleming was able to get to grips with the system quickly.

The company also took advantage of 123insight's remote installation, at just £295, whereby 123 Insight staff connected to Platinum's server remotely, installed the 123insight system and connected and configured it to Platinum's SQL Server database.

Implementation took just a week, with Ross Fleming noting that it was far from the challenging experience that he was anticipating: "It was like a new toy that I wanted to get up and running. It was actually good fun processing our first purchase order, seeing everything at the click of a button, creating purchase orders for material, and printing works orders."

Instantly, the day-to-day pressures were drastically reduced. Processes that previously proved extremely time-consuming were now reduced to a few mouse-clicks, with Ross Fleming remembering the hours he previously had to spend on raising purchase orders: "We went from that long process to realising that once you get your parts set up, your structures right, your billet prices and subcontracting set up, you can take that process down to literally minutes."

As a company that holds ISO9001 accreditation and is moving towards AS9100, Platinum needed a system that would provide it with the end-to-end traceability required for both materials and treatments. Ross Fleming adds: "123insight ties everything all together. I don't have to go looking for anything as it's all stored in



the system. We can also drag and drop attachments, which is a foolproof feature for the ISO9001 and AS9100 accreditations."

Platinum also rolled Shop Floor Data Collection (SFDC) onto the shop floor, which not only provided him with accurate data about job runtimes, but also allowed other staff to quickly answer customer queries.

Ross Fleming says: "We now have a professional look on all our documents, whether it's orders going to suppliers or sales acknowledgements to customers. Being able to put your own logo on reports gives that professional approach."

One of Platinum Precision's largest customers is also a 123insight user. The two companies use this to their benefit by employing electronic data exchange (EDI) to ensure that orders and work in progress match seamlessly, with a 100 percent success rate to date.

Ross Fleming adds: "We get an open order report sent through to us on a twice-weekly basis. We can then export that same information from 123 in terms of our sales orders, and then through Excel we can match each record off to make sure that what our customer thinks we are making is the same as what we think we're making and

that no orders have been missed. It hasn't found an error yet, as our own internal processing is good."

He noted that despite considerable growth forecast in 2018, they have not had to expand on administration resources overall. A part-time administrator has been hired, with Ross Fleming now able to spend much more time on the shop floor instead: "Our turnover should double this year over last, and the resource needed to push those orders through has stayed around the same."

Local support has been excellent, with Ross Fleming noting that the 123insight help desk has also been useful: "Here in Northern Ireland we've got the personal touch with Drew, who will always answer our call or get back to us. However, the 123insight help desk is great as well for answering any issues if I can't get in contact with Drew."

In comparison to the alternative systems that Ross Fleming looked at, he prefers 123insight's business model, with 123insight's monthly subscription costing little more than the maintenance of other systems alone: "I think it offers great value for money; you know where you are, it's a

fixed fee and you can cater for it. It doesn't take many hours of my time on the shop floor to pay the monthly subscription. It's well priced in the market."

Platinum Precision is in the process of significantly extending its factory space, with new CNC equipment being added once complete. Ross Fleming is confident that he can continue to grow the business without worrying about the administration infrastructure.

Ross Fleming concludes: "After going live we haven't looked back. It runs and does the job and doesn't need much support or input. 123insight is a fantastic system."

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## Geo Kingsbury offers wider range of metal additive manufacturing solutions

AddUp, a French manufacturer of metal additive manufacturing (AM) machines and production lines, has acquired another French AM machine producer, BeAM. The Strasbourg firm is a leader in directed energy deposition technology, which is dedicated to the production of large and highly complex parts, feature addition, and component refurbishment including the repair of aero engine parts.

As AddUp is represented in the UK, Ireland and the Middle East by sole sales and service agent Geo Kingsbury, the latter is now able to offer a considerably increased AM equipment portfolio in those markets.

Based in Clermont-Ferrand, AddUp was formed as a joint-venture company by Fives Group and Michelin on 1st April 2016. With a US subsidiary, it employs over 180 people worldwide, including 100 engineers working on the development of new AM solutions.

BeAM was created four years earlier, has subsidiaries in Cincinnati and Singapore and employs more than 45 staff. It has a broad range of customers in France and other countries, particularly in the aerospace, defence and energy sectors.

BeAM and AddUp share the same ambition to support customers in the development of metal additive manufacturing solutions which take into account industrial robustness as well as health and safety certification.

Vincent Ferreiro, AddUp's CEO, emphasises: "Together, BeAM and AddUp will be uniquely positioned in the 3D printing market by offering customers a comprehensive range of metal additive manufacturing solutions, with a particular focus on training and consulting and the production of parts for proof of concept."

Vincent Gillet, BeAM's CEO, concludes: "BeAM was at a key stage in its development with the broadening of its product line and geographical expansion. The arrival of AddUp and its shareholders, Fives and Michelin, enables us to secure BeAM's future development and benefit from their industrial expertise and the pooling of our respective resources."

For over sixty years Kingsbury has supplied the UK's most advanced manufacturing sectors with high quality German machine tools. From its facilities in



Gosport, Hampshire, the company offers a nationwide service, providing manufacturers with innovative machining solutions and comprehensive support, now with an expanded portfolio that also includes grinding machines.

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# VERICUT 8.2 redefines CNC simulation

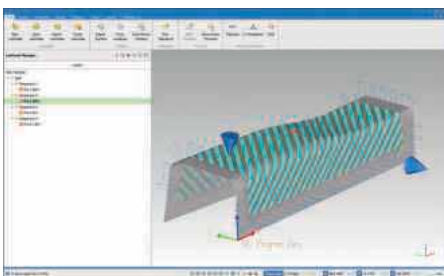
CGTech has announced the latest release of VERICUT CNC Simulation Software, Version 8.2. With input from thousands of users worldwide from every industry, the focus of VERICUT 8.2 has been to provide features that improve simulation visibility, speed workflow, and streamline each user's verification process.

Tony Shrewsbury, managing director of CGTech Ltd, says: "CGTech has a strong commitment towards helping customers improve their competitive stance through NC toolpath and process optimisation."

VERICUT is at the heart of the CNC manufacturing process for many of the world's leading engineering businesses in all industry sectors. Machine simulation with VERICUT detects collisions, close calls and detects over-travel errors. Machine movements can even be simulated while stepping or playing backwards in VERICUT's Review Mode.

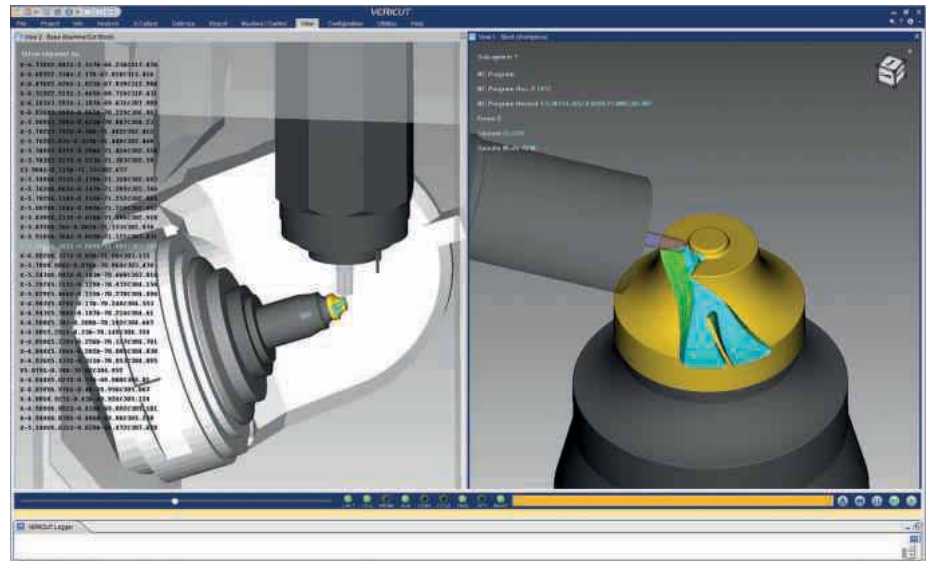
## Modernised user interface

A Right-Mouse-Button Ribbon puts favourite VERICUT functions just one click away and provides convenient access to external applications that programmers find useful. The configurable Head-Up Display (HUD) improves simulation monitoring and visibility by showing the NC program, or machining and cutting status information, overlaid on top of VERICUT's graphical views. HUD provides constant access to important details about the machining process, while keeping simulation views as large as possible for optimal viewing. NC Program Alert symbols and colours highlight errors and warnings found in NC programs, making it faster and easier to identify problem sources.



## Force turning

Force is a physics-based NC program optimisation module that analyses and optimises cutting conditions to achieve ideal chip thicknesses, while managing the



cutting forces and spindle power required. VERICUT 8.2 adds Force Turning to optimise lathe turning, and mill-turn operations, when combined with Force Milling. Force Turning makes it easy for anyone to create NC programs for optimal cutting of inside/outside diameters, shoulders, as well as in corners and tight spaces, without the worry of encountering excessive cutting forces or high spindle power demands.

## Advancements for additive manufacturing

VERICUT 8.2 adds even more realism to additive simulation and detects many common error conditions programmers face when creating parts additively. Additive material can be applied "as programmed" via the additive path or projected to the part surface for a more "natural" deposition behaviour. With projection, material build rates vary based on changes in bead overlap, acute corner motions, and starting/stopping at the same location, all of which can cause unpredictable material build-up. Users can verify that laser focal distance stays within the tolerance range required for proper cladding, and that excessive material "overhang" conditions do not exist, which can lead to improper adherence. Warnings are given for non-conforming additive conditions to help programmers determine when additive strategies are likely to fail, or when it may be beneficial to make a milling cut.

## New VERICUT version on display at Advanced Engineering 2018

CGTech will demonstrate the new version of

VERICUT CNC machine simulation and optimisation software at Advanced Engineering 2018.

Machine simulation with VERICUT detects collisions, close calls and detects over-travel errors. With input from thousands of users worldwide from every industry, the focus of VERICUT 8.2 has been to provide features that improve simulation visibility, speed workflow, and streamline each user's verification process.

CGTech will also demonstrate Composites 8.1 release of VCP and VCS, which features a completely redefined Graphical User Interface (GUI), enhanced suite of programming and analysis tools and redefined methodology through the use of the powerful new Laminate Manager. The Laminate Manager helps users easily manage files, processes, and batch actions for the entire composite laminate. Internal refinements ensure that large projects are now able to be programmed and simulated in a fraction of the previous time.

VERICUT software is used by companies of different sizes in all industries. Established in 1988, and headquartered in Irvine, California; CGTech has an extensive network of offices and resellers throughout the world. When you invest in VERICUT, you're not just buying a software program, you're teaming up with a manufacturing partner with CNC machining experts.

**CGTech Ltd**

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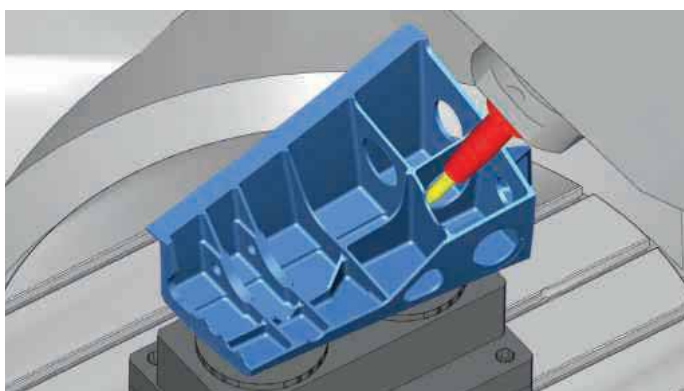
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## Getting the most out of machines with hyperMILL

At AMB, in Stuttgart last month, OPEN MIND Technologies AG presented the latest version of its hyperMILL® CAD/CAM suite. The company's presence at the trade fair focussed on the hyperMILL MAXX Machining performance package. This brings together highly efficient machining strategies that make the most out of the options for the respective machine tool. Visitors to the OPEN MIND booth at AMB were able to see for themselves exactly how this plans out the workspace, thanks to a virtual reality simulation. hyperMILL MAXX Machining incorporates innovative methods for roughing, finishing and drilling. OPEN MIND has also been instrumental in developing the cutting tool for the 5-axis tangent plane machining strategy. The increasingly popular conical barrel cutter has a large radii that enables correspondingly wide distances between tool paths. With regards to roughing strategies, OPEN MIND has also lived up to its reputation as a pioneer in 5-axis machining with the 5-axis trochoidal roughing strategy that is a unique machining task for quickly milling curved surfaces in a way that is very tool-friendly.



OPEN MIND also provided some sneak peeks at pending expansions to its performance package at AMB. For instance, in the future, hyperMILL MAXX Machining will be available for 3D-optimised roughing as well as for turning. Meanwhile, 5-axis tangent machining is available for corner filleting. This function guarantees simple radius programming at surface boundaries.

The highly developed hyperMILL simulation functions made for a special experience at OPEN MIND's AMB booth. Visitors were able to delve into the machining area through a 3D machine simulation on the booth's virtual reality station. Visitors could also view the clamps, holders, tools, toolpaths and even view simulations from any desired perspective. End users were able to observe complex processes via virtual machining. Hidden processes were made visible and it will be easier to detect collision risks. It was even possible for visitors to closely observe the machining of deep cavities with precision.

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# Highest technical solution for QDM specialist

A Quick Delivery Mould (QDM) specialist says Draft Analysis is an important time saver for its business and has played a major contribution towards meeting customers' increasingly faster turnaround demands.

Based in Incheon, South Korea, Polyhitech Co. Ltd uses VISI as its CAD system for designing a variety of plastic injection mould tools for medical, automotive and IT products, and say it has slashed surface editing time by up to half.

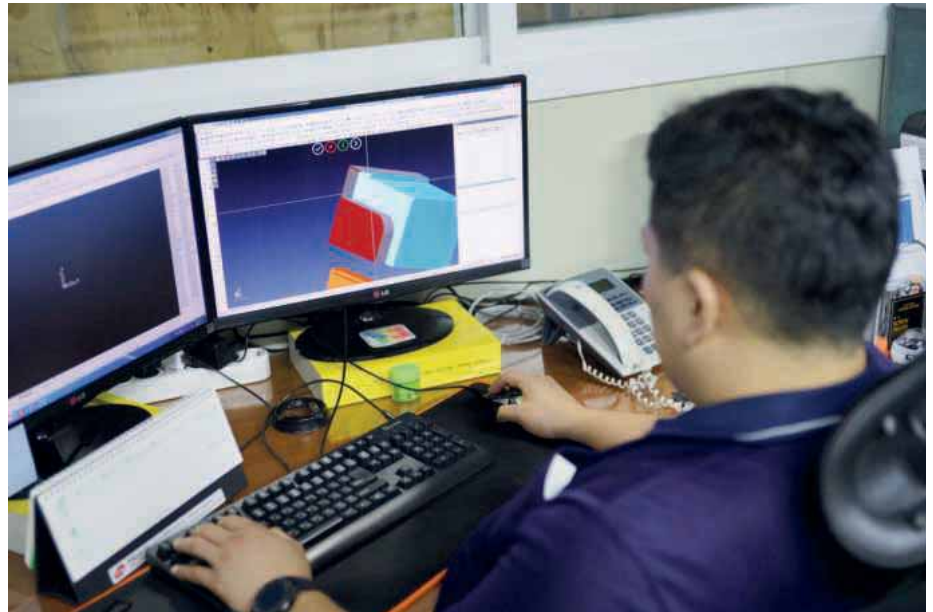
They are not just ordinary mould tools. Polyhitech focuses on QDM, which is a manufacturing system for injection parts using 3D CAD data that shortens delivery time by assembling machined cores and cavities into a standard mould base. The system is used primarily for trial moulds for new product development.

It costs 40 percent less than normal production, while reducing delivery time to between three and eight days, and is used largely for prototyping, verifying the mould at the pre-production stage, and small quantity batch production.

Since Polyhitech was established in 2007, the company has always looked to develop leading technology and has invested in 19 machine tools covering the entire manufacturing process.

Jisung Li, mould design manager for Polyhitech's, says: "The main reason we invested in VISI was that our previous CAD system couldn't fully deliver our customers' needs for shorter delivery times. When we received data from them we used to edit the surface before starting the mould design process.

"But we found it difficult to meet deadlines, because we were spending a lot of time editing where surfaces were corrupt or missing and working on complex geometry where a high graphic performance was required. We decided that the software was no longer viable for us to meet the standards of mould design and



production that we required, so we invested in VISI to provide us with the solution."

Amongst the many benefits it saw immediately, he was particularly pleased with efficiency improvements in reduced work time.

Jisung Li confirms: "Thanks to VISI we were able to reduce the time spent on editing surfaces by between 30 and 50 percent.

"I often use Draft Analysis after finishing the design. It's so easy to check if there are any undercut areas. Our previous CAD system didn't fully support that function, so I had to enlarge each part and check them one by one.

"Now, using VISI, I can quickly find any undercut areas through the colour display by draft angle, and it's possible to split the parting line according to that."

Although he and his colleagues were apprehensive about changing software at first, he says their fears that it may be difficult to learn were quickly proven to be unfounded.

Jisung Li explains: "It was so easy to learn and given the continuing trend towards small batch quantity production, if demand for products using non-standard mould bases continues to rise we're likely to invest in another VISI Advanced Mould Tool module."

Polyhitech also work with two other Vero brands in its overall production process. WorkNC creates reliable and efficient tool paths to cut moulds on CNC mills. And the

WorkXplore high-speed collaborative communication viewer is used for inter-departmental communication and producing accurate financial quotes for the customers' mould tools. Before starting the design WorkXplore thoroughly reviews the existing CAD data for the product, using annotation and the Analysis function for curvature radii, draft angles, section and thickness. It's also used for detailed communication between the design team and customer.

Yong Duk Kim, sales director for PoliHitech, concludes: "The QDM market has been changing rapidly, in particular the rise of smart phones means demand for traditional mobile phone components is decreasing. In accordance with these changes, we've invested aggressively in our facilities, and improved technology through VISI, WorkNC and WorkXplore.

"As a result, we have the highest technical solution in the QDM industry, enabling us to produce moulds of up to 450 mm, giving us a clear competitive advantage. We're now looking for the software to be an integral part of promoting QDM to new business sectors."

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## CNC Software, Inc. releases Mastercam 2019

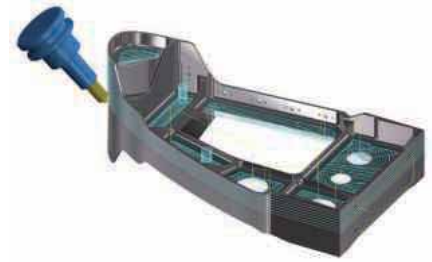
CNC Software, Inc., developer of Mastercam CAD/CAM software, has announced the release of Mastercam 2019. Mastercam 2019 was developed to streamline the manufacturing process from job setup to job completion. Mastercam 2019 increases machining productivity and reduces overall production costs with new 2D through multi-axis milling automation features, CAD and model preparation improvements, expanded 3D tooling, Accelerated Finishing™, and powerful turning and Mill-Turn enhancements.

Mastercam 2019 continues to increase productivity and programming efficiency, while reducing overall production costs, with a series of automated 2D through 5-axis toolpath improvements. Re-engineered chamfering and holmaking strategies, plus the new Multi-axis deburring, provide new levels of time-saving automation and simplicity. New milling toolpath strategies, like the high-speed Equal Scallop toolpath, offer both machining performance and surface finish improvements. The new release includes

additional support for the Sandvik Coromant PrimeTurning™ method, enhanced grooving, bar feed, and other features for turning and mill-turn applications, plus new lathe and Swiss-style machine support.

Mastercam 2019 increases efficiency and reduces job setup time and the preparation needed for part machining and programming. This includes enhanced CAD functionality and 3D model import support, improved part preparation and fixture setup tools, additional PowerSurface capabilities, and expanded support for Model-Based Definition (MBD).

Mastercam 2019's expanded digital tool library capability delivers accurate, 3D tool assembly models, with access to the latest cutting tool technology and updates for Sandvik Coromant CoroPlus® and MachiningCloud™ platforms. Mastercam 2019 also expands Accelerated Finishing with support for taper and lens style tools aimed at 75 percent cycle time improvement for finishing operations with superior surface finish quality.



With improvements to toolpath and machine simulation, toolpath graphics, and other verification and analysis tools, Mastercam 2019 provides greater programming assurance and allows for better, more informed decisions before a job is run. These improvements include support for block drilling multiple holes simultaneously and better axis control in simulation, allowing you to easily check machine limits or collision checking.

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## PTC chooses ModuleWorks high-speed machining

ModuleWorks has announced that PTC has integrated the ModuleWorks High Speed Machining (HSM) kernel into its Creo® Mold Machining Extension to offer dedicated high-speed machining for the cost-effective production of moulds and prototypes.

Objects such as moulds, tools, electrodes and dies only need to be produced occasionally, which makes them traditionally time consuming and expensive to manufacture. Specially designed to accelerate 3-axis and 3+2 axis machining, ModuleWorks HSM enables PTC to offer Creo users a solution to reduce development and manufacturing costs for one-off and low volume designs.

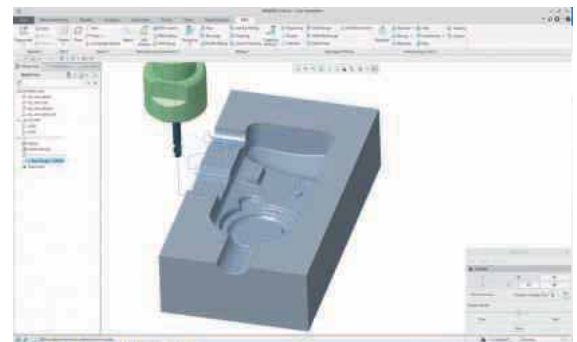
ModuleWorks HSM is based on the industry-proven ModuleWorks 3-axis technology that uses mesh or triangle geometry to generate gouge-free toolpaths for 3D components. Multi-threaded for fast computation, ModuleWorks HSM offers the full range of flexible roughing and finishing strategies including intelligent adaptive roughing, rest roughing, flatlands and rest finishing. ModuleWorks 3-axis adaptive

roughing comes with state-of-the-art features such as automatic start point detection and maintains a consistent tool load and smooth toolpath to significantly increase material removal rates, lower the cycle time and extend tool life.

PTC already uses the ModuleWorks component for material removal simulation and this latest integration extends the ongoing and already successful collaboration to open up new opportunities in the high-speed machining market.

David Plater, technical director at ModuleWorks, says: "It's very rewarding to see how the ongoing close cooperation between our companies helps PTC to continuously advance the PTC Creo technology and expand market opportunities. We look forward to a continued successful collaboration that further advances the technologies of both companies."

Jose Coronado, product management



director for PTC Creo, says: "ModuleWorks HSM integrates seamlessly into our application and takes PTC Creo to the next level of development. Excellent collaboration between the development teams ensured rapid integration and fast time-to-market for our high-speed Creo Mold Machining Extension."

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**www.moduleworks.com**

# EMP marks ongoing success with new laser purchase

Lasers have been a mainstay of the manufacturing processes within EMP Tooling Services for a number of years, with the company previously investing in five laser welding systems and two laser markers. A growing demand for high precision laser marking, across a diverse range of components, was the catalyst for the company's most recent purchase, a new FOBA Laser marking system, this time with the latest "Point & Shoot" technology.

The quality, durability and flexibility of laser marking are just a few of the attributes which continue to drive the growth of this technology. Another is the ability of the laser to produce small yet legible marks on a diverse range of materials. EMP has seen a continued trend for both laser marking on smaller parts and also an increasing numbers of requests to produce miniature laser marking content, sometimes as small as just 0.5 mm in height.



Although the laser is more than capable of achieving this demanding specification, manually positioning and aligning the component for marking becomes more challenging as the parts and laser mark become smaller. This is where FOBA Laser's Point & Shoot™ concept comes into its own, making it easy for the user to position the marking contents on the products to be marked.

The Point & Shoot camera system views through the lens on the marking field, creating an image of the component and displaying it in the user interface. The user then simply creates the marking information



required and positions it, via 'drag & drop', at the exact position on the product where it needs to be applied. This WYSIWYG camera-guided laser marking process leads to a reduction in the number of defective products, higher efficiency and productivity, as the marks, even tiny ones, are always applied at the desired location and in the specified manner. There is also a verify function prior to and following laser marking. Additional benefits of this system are the fact that no expensive fixturing is required and there is no trial and error process, saving both time and cost.

This latest addition to the company's portfolio of laser systems complements a comprehensive array of conventional machining technologies including: complex machining of 3D shapes, wire erosion, spark erosion, turning, surface grinding and cylindrical grinding, tig welding, 3D printing, grit blasting and mould polishing.

## Collaboration delivers success for Caerbont and TLM Laser

The Welsh Automotive Forum (WAF) was founded in 2001 to develop a common approach in achieving sustainable continuous improvement for the automotive industry in Wales.

As part of its promotional and networking activities, WAF host an annual AUTOLINK conference supported by the Welsh Government, and this event was the catalyst for a successful collaboration between the Welsh Government, WAF, automotive manufacturer Caerbont Automotive Instruments and TLM Laser.

Swansea based Caerbont Automotive Instruments Ltd (CAI) is an independent company specialising in the design and manufacture of discrete car instruments, instrument clusters, senders, electronic control and interface modules and wiring harnesses for the specialist automotive and industrial markets. The company was



seeking to introduce laser marking within its production processes as a way of expanding its manufacturing capabilities, improving productivity and increasing flexibility.

Through discussions at Autolink, the two parties developed a project and Caerbont was assisted by the Welsh Government SMARTInnovation operation with guidance and EU funding via SMARTCymru.

Following a series of laser marking trials by TLM Laser on various instrumentation products, Caerbont has since purchased a FOBA M2000-B marking system. This highly flexible and self-contained laser system features a programmable Z-axis, good size worktable, an electrically operated access door and is ideal for almost any direct part marking application for the automotive, aerospace, medical, tools, metal, plastic processing and mechanical engineering sectors.

The introduction of the latest in laser marking technology brings a new dimension to the company's manufacturing processes and provides a highly accurate method of generating graphics, logo's, graduations and text on instrument dials and bezels etc. The laser is an inherently clean and fast



process, allowing rapid changeover between part types, which is ideal for small batches or a high mix production environment.

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# PRYOR

Pryor is a world leader in industrial identification. As well as a full range of engraving and laser marking tools and machines, Pryor offers software for traceability.

[pryormarking.com](http://pryormarking.com)



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# See your name in steel with Pryor

Yorkshire-based Pryor Marking Technology is proud to be using its portable laser marking machine to engrave 150,000 names on the 'Heart of Steel' which is set to become part of a widely anticipated Yorkshire landmark sculpture called 'The Steel Man'.

Thousands of people have already signed up to add their own names, the names of relatives, or loved ones, to the Heart. Each name costs £20 and part of every donation will support the British Heart Foundation's lifesaving heart research programme. To add a name to the Heart, simply visit:

**[www.thesteelman.co.uk/heart-of-steel](http://www.thesteelman.co.uk/heart-of-steel)**.

'The Heart of Steel' will eventually sit inside 'The Steel Man', a 32-metre stainless steel sculpture which will act as a beacon for the Yorkshire region and become a landmark visitor attraction in an area that is steeped in industrial history.

The Heart is 2.4 m high and weighs 1,138 kg. It will be home to 150,000 names, all of which will be laser engraved using Pryor's Portable Laser Marker. The Portable Laser product was the ideal choice to carry out such a project as it provides ultra-precise, high speed, permanent laser engraving on large, immobile metal objects.

The Portable Laser will engrave 90 names in 50 seconds with each letter measuring 0.8 mm in height. At this size, clarity is key and the Portable Laser Marker marks with abundant detail. Laser marking is non-contact which means the engraving

does not create any stress points or deformation to the material; an extremely important point in the case of the Heart of Steel.

Future names will be engraved in front of the public at Meadowhall, a shopping centre in Sheffield, from October 2018. The heart is made of 136 curved panels and is a complex shape. Therefore, Pryor had to develop a custom mask, specifically for the heart, that enables the machine to mark on the heart in a safe and secure way.

The company also modified its standard software to enable complete traceability of up to 150,000 names. The software records the panel and column location of every name marked, so that each individual can locate the exact position of their inscription.

Andy Hales, project sales engineer at Pryor, says: "The Heart of Steel project is one that fits Pryor perfectly. We were approached by the sculptor, Steve Mehdi, to laser engrave 150,000 names. As the only UK manufacturer of portable laser marking systems we are ideal to provide this service. In addition, as a Sheffield based company since 1849, we have a vested interest in the local area.

"We are proud to have developed bespoke product components and software to enable this project to come to fruition. We are also looking forward to seeing our team help facilitate the engraving at Meadowhall. We are honoured to help create a legacy for the Sheffield and

Yorkshire region, as well as supporting the vital work of the British Heart Foundation."

The project began as a simple idea to create a landmark for the Yorkshire region and Steve Medhi was keen to create a sculpture that would embrace the past, present and the future of the region.

Steve Medhi explains: "It's been a massive challenge to develop a landmark artwork that truly represents the Yorkshire region, and it seemed only right that the Steel Man should have a Heart of Steel. We felt there would be a lot of interest from the public and so we came up with the idea of adding names to the Heart. For that, we needed a company that could inscribe the names, with precision and clarity. Pryor Marking has helped me previously with the 'Tree of Life' at Rotherham Hospice so it seemed natural that I would turn to them to help with laser marking the heart. Pryor are a local company and one that clearly had the expertise we were looking for. From the first conversation with them, I knew we were on our way to creating the final piece of the jigsaw and one that is helping our endeavour to raise vital funds for The British Heart Foundation as well."

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# SIC Marking's success leads to expansion



SIC Marking's headquarters in France has recently completed a building expansion that has created a further 2,000 m<sup>2</sup> of production and office space in order to efficiently handle market demand. The building expansion has provided an additional space to accommodate increasing production rates and new staff, including a new customer service department, larger production workshop and expanded assembly space. The expansion was completed in March 2018 to provide further growth, the company's turnover has increased 10 percent every year, with operational excellence in mind.

## Expansion in major markets

SIC Marking Group acquired Global Network Marking in June 2017 in order to increase revenue in Italy to €3 million by 2020 and strengthen its position in the European industrial marking market in the automotive, aerospace, oil & gas and mechanical sectors. Global Network Marking, a company based in Bologna, Italy, has been distributing SIC products in Italy since the year 2000. Fabio di Pardo, president and founder of Global Network Marking, is now the president of SIC Marking Italia. The launch of SIC Marking Italia will consolidate the company's presence in the area and is part of the new strategy led by managing director Jean Manuel PAUCHET and CEO Gérard Barraud.

The agreements for SIC Marking's new subsidiaries in the UK and in Mexico have been signed during the last quarter of 2017. The group now officially counts eight subsidiaries worldwide with SIC Marking Limited (UK) and SIC Marking Mexico. These new locations have reinforced SIC Marking's desire to increase its international footprint and through this expansion, enable its customers to work with its local subsidiary and to adapt to local conditions. The UK offices are located in Warwick and lead by Paul Sidwell, who has been working in the traceability and marking industry for many years. As for its Mexican offices, they will be located in Mexico City and managed by Oscar Watty who was previously with the company Generatrix, a distributor in Mexico.

## UK subsidiary

In the UK, the new SIC Subsidiary is now fully operational. The new team has found most of the customers of SIC Marking but is aware that there are more out there that they currently are not aware of. Its offices in Warwick has a service bay and demonstration area, it holds most spares for existing markers and has new machines in

stock. The SIC Marking UK team will also soon be able to service in the field with a new field service technician joining the company. It is a goal of SIC Marking Ltd to give a first-rate customer service, so it prides itself on service and support, being right first time and providing an excellent experience for its customers.

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[www.sic-marking.com](http://www.sic-marking.com)

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Our high precision marking systems coupled with over 55 years' experience ensure you receive the best equipment to meet your exact needs, be it from a simple hand held operated system right through to a fully integrated solution

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**UMS**  
MARKING SOLUTIONS

# Marking flexibility

The innovative Technomark Graphix fibre laser, supplied and supported by Universal Marking Systems, is a compact laser marking workstation built with high quality components and featuring built in electronics, making it space saving within the workshop environment.

It is the ideal solution for high speed, high contrast marks on a wide variety of materials. The robust and reliable Graphix Workstation features a door that opens in two positions allowing fast access for loading and unloading of components.

It can accommodate a maximum part size of 500 x 500 x 300 mm and has a standard marking window of 100 mm x 100 mm, although larger window sizes are available. It also has the option to have side access for the marking of long lengths of bar or other long components.

The software enables alphanumeric text, symbols, serial numbering, 1D and 2D barcodes as well as logos in a wide range of formats. It can also mark text on an arc and the software will project the radius on the bed. With a red laser pointer, the exact marking radius and location can be seen before marking. The software through its sequencing function allows flat and rotary marking within one marking cycle.

The software operates predominantly from a single layer making it very quick and easy to set up a marking file. It is also possible to save the optimum material settings in a materials database for easy retrieval, making it quick to change from one material to another.

A key benefit of the Graphix is easy switching between jobs, so multiple jobs can be open in a task bar and selected as required.

A useful feature is to be able to overlay the marking file on a 1:1 CAD drawing of the part or an image of the component within the marking file, which allows the exact marking position to be seen. It also has strong image editing capabilities enabling very fine adjustment and editing of logos etc.

Marking files can be saved directly into the laser memory, allowing it to be used in automatic mode, therefore saving time as the operator is only required to start the cycle with a push button for each component being marked.

The laser marking head can be



implemented in multiple positions in X and Y to ensure a working surface of 250 x 250 mm. Offering 3D marking, it boasts a motorised Z-axis as standard, with programmable positions to allow marking at different heights within the same program with a maximum stroke of 300 mm. The column and head can be repositioned if required to give a more flexible working area of four marking zones, with two positions in X and Y.

Optional extras include rotary axis for 360 degree marking around a diameter, reading capability, fume extractor and adapted lens for different marking window sizes. The fume extractor is controlled by the laser software so doesn't have to rely on the operator to turn it on and off. The Graphix also features an auto-diagnostic system which gives real time management of the laser operating state.

There is also integrated laser solution for automated production line marking. The Graphix Inline laser offers high speed marking for medium to large production runs. It is very simple to implement with its two positioning long life diodes. It has a compact light source, galvo head and lens that easily integrates in any position and can have up to 4 axes.

With over 55 years' experience designing, manufacturing and supplying industrial marking systems across the globe, UMS has



extensive knowledge of traceability requirements across a huge range of applications and industries. It has a great deal of application experience and so can ensure you get the right system to meet your exact requirements.

UMS will be demonstrating the Graphix at the Advanced Engineering Show on Stand L55.

For more information about the Graphix Laser, contact:

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## Brunel engraving upgrades its service to engineering industry

Specialist industrial engraving company, Brunel Engraving, is offering the highest standard of service to the engineering industry with the achievement of ISO 9001 2015. Brunel is one of only a few engravers in the UK to have attained the latest ISO accreditation. The company is a leading engraver and supplier of valve tags, switch covers, labelling, mould tool and component markings used throughout the engineering industry. It provides a wide range of skills from simple marking to complicated bespoke etching and engraving services.

The quality certification will enable Brunel to do business with an increasing number of organisations in the engineering sector where the latest ISO accreditation is considered essential.

Managing director, Martyn Wright, says: "ISO 9001 2015 accreditation demonstrates that Brunel Engraving Company has an efficient quality management system in place and that our work is completely traceable and of the highest standard.

"The standard is often a minimum requirement within the engineering industry

and it will enable us to do business with more companies, providing potential new customers with confidence and reassurance in the quality of our work."

Brunel Engraving supplies numerous engraving requirements for many engineering and tool making companies including Babcocks, BAM Ritchies and Eriks.

The company recently completed an extensive refit and expansion of its UK production facility near Bristol, increasing workshop space by 25 percent, to improve efficiency and to accommodate new technologically advanced laser and etching equipment.

The expansion and investment will enable Brunel to further extend its breadth of services on offer to the engineering industry, from simple engraving requirements to more complex and challenging procedures, providing bespoke solutions to suit specific needs.

Brunel Engraving Company is based in Clevedon, North Somerset, UK. Martyn Wright, who has over 40 years' experience in the commercial engraving industry, formed the company in 1989. BEC has



grown consistently over the years and is known for its custom engraving services, quality and competitive pricing.

Its engraving craftsmen are trained to the highest standards in the UK, using the very latest computer controlled engraving machines, including laser and glass, as well as sublimation, chemical etching, anodic print and wide format digital print operations.

**Brunel Engraving Company Ltd**

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## Dumb parts in a smart factory

In a smart factory, a workpiece can be as dumb as you like. All it takes is a data matrix code and the machine will know exactly what to do.

The goal of a smart factory is to get machines acting and reacting in harmony with the wealth of information flowing through the manufacturing environment. To achieve this, the machines need to be equipped with hardware and software interfaces, automated workflows and sensor systems. This may be challenging, but it is perfectly feasible. Nevertheless, things get trickier when you bring workpieces into the equation, because how are they supposed to communicate with the machines?

The first reaction is to say: "Let's give the workpiece a tiny brain in the form of an RFID chip that transmits and receives information." But that presents all kinds of problems. RFID chips are foreign objects that you somehow have to mount on the workpiece. They might fall off, and they're not robust enough to cope with all sorts of standard production processes.

**By Dr. Florian Kanal, product manager micro and marking lasers, TRUMPF GmbH**

So a better, more practical idea is to give the workpieces a laser-marked Data Matrix code from the outset. This means the workpieces can leave the thinking to the smart factory around them. By scanning the code, the machines get exactly the information required to execute its part of the process.

Once a machine has finished with the workpiece, a marking laser applies a new code and the process continues. Any conceivable information is accommodated in the space of just a few square millimetres. From the operations completed so far to traceability details, order numbers and quality control aspects, all the information is durably and permanently marked on the surface. Plus, if you are working in a laser machining environment, then 2D cutting machines can apply the marking themselves.

In all other environments, you can simply use a marking laser. The latest TRUMPF marking lasers are as quick and easy to add to a machine as a light and once they are installed you can sit back and let them do



their job. For a long time now, TRUMPF has been offering its marking-laser hardware as a self-contained and extremely compact system consisting of easy-to-install components.

Its marking-system software is compatible with a wide range of interfaces.

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# ACE Technology invests to keep the upper hand

In 2004, three individuals with an extensive range of skills formed ACE Technology. Originally established to predominantly serve the motorsport industry, their goal was to offer "best in class" composite manufacturing services. Through a process of continued investment in skills and technology, ACE Technology now employs fifty skilled personnel across two factories located in Cambridgeshire.

Motorsport is a demanding sector, requiring fast manufacturing and the flexibility to implement frequent design changes in as short a time as possible. It is therefore vital for organisations to keep ahead in a highly competitive world, extending capabilities to offer complete solutions. ACE has done exactly that, by introducing capabilities that make it a Full-Service Supplier (FSS), including the design and manufacture of products such as pattern and mould tools, jigs & fixtures, etc. These capabilities are complemented by four autoclaves and a focus on quality control processes to drive excellence during composites production.

### Diversity is the key to success

As experienced by all engineering companies in this sector, customer demand has its highs and lows. ACE experienced exactly that during the economic crash in 2009 with the major automotive OEM's retracting investment in the British Touring Car Championship. Fortunately, due to its unique blend of competencies, ACE was able to diversify and soon won contracts within the aerospace, defence and communications industries. One significant contract in the communications sector involved the manufacture of satellite reflectors. Due to the high-accuracy requirements of a reflector shape and the demand for specific RMS value measurements, ACE was convinced to make its first investment in advanced metrology equipment through the acquisition of a portable measuring arm, "which at the time was the only portable solution available as an alternative to a fixed and expensive CMM," comments director Paul Skinner.

Since 2009, ACE has maintained and developed client relationships across several sectors, with the implementation of advanced metrology becoming a fundamental part of its business. Combined



with this was a desire to offer customers additional services, particularly in the early stages of a design project. That often involves 3D laser scanning, a good example being a project where ACE Technology was contracted to 'composite engineer' a complete LMP sports racing car. This required ACE to use its experience in geometric optimisation of composite materials, while working to stringent mass targets and crash testing requirements.

Optimising geometry involves first digitising and capturing the existing design or the existing shapes to re-design within.

Paul Skinner says: "It was during such applications that we realised the portable arm solution is really not so portable. Our services often require us to travel across the UK to visit customer facilities, and immediately a large heavy tripod becomes a concern both logistically and from a health and safety consideration. In addition, mounting an arm inside a vehicle offers two problems; access, and more importantly the vehicle moves as you enter, hence any datums set are immediately lost and subsequently all data is useless."

ACE therefore decided to evaluate developments in 3D scanning and also consider new portable technology. The brief was simple; portability, an ability to scan a variety of materials including carbon fibre, epoxy tooling material, virtual mirror surfaces and polished aluminium, and easy-to-use software that would improve their current workflows. The project was

handed over to Edward Smith, an engineering intern within ACE Technology.

### Measurement technology to suit specific requirements

After assessing two of the major portable arm suppliers and their respective laser line scanners, Edward Smith quickly realised that such solutions still had the same limitations as before, namely, a lack of portability and manoeuvrability around the scan subject. As an alternative, trials were carried out using an optical solution based on the Creaform MetraSCAN and HandyPROBE Elite from Measurement Solutions, and it soon became obvious that this new technology was able to solve the problems previously associated with a measuring arm.

Edward Smith says: "Having used an early version of the MetraSCAN at a previous company, I was familiar with the concepts and benefits of the Creaform system compared to traditional measurement arms, such as superior scan speed, manoeuvrability around the subject, and consistent accuracy. With the latest developments in the MetraSCAN, the scan quality of mirror-like surfaces and carbon parts were exceptional.

"We actually had Measurement Solutions come back to visit us twice as we simply couldn't believe how this system was two or three times faster than everything else we had witnessed. As a result of the trials, it didn't take long to make a decision to acquire a system."

As a growing company, with fifty employees, resource allocation and personnel training were also important in the decision-making process.

Edward Smith explains: "We didn't want to dedicate a specialist to this equipment. Design and manufacture is the main priority for us. Therefore, we were seeking a product with a relatively friendly learning curve that several technicians could pick up and use intermittently, sometimes weeks apart."

The VXelements software suite supplied by Measurement Solutions meets these criteria. Previously during a reverse engineering process, data was exported and modelled within a SolidWorks plug-in or via another complex third-party point cloud software. With the introduction of VXmodel software, a live transfer enables surface ready data and section cuts to immediately appear in SolidWorks for final modelling or design updates.

A previous advantage of a measuring arm was that the design and manufacture of mould tools and fixtures would typically require tactile measurements of datum tooling holes and key critical feature measurements. The MetraSCAN was also supplied with the HandyPROBE, a hand-held and wireless probing system that enables users to probe features just like a measuring arm. Both systems work independently as handheld accessories and are tracked by an optical camera system called the C-Track, providing six degrees of freedom over a 16 m<sup>3</sup> volume. The HandyPROBE dynamically reports a cartesian coordinate of a component or tool datum, which can be used to build tools and set nominal positions or report surface deviations to a nominal CAD file.



Similar approaches used in F1 and aerospace tooling utilise either a portable arm and a laser tracker, or a laser tracker with a handheld probing and scanning solution. Both solutions present significant mobility limitations around the scan area. As with any large volume build or inspection during the measurement, 'line of sight' must always be maintained between the laser source, tracker, and the probing device. This will normally require a 'device move' at some stage, requiring the measurement of a network of targets both before the measuring device can be moved and again once relocated. This process adds complexity and therefore a high potential for operator error, plus it adds significantly to the measuring time. The C-Track solution automatically and dynamically re-aligns using the optical cameras, removing all of the complexity and significantly reducing the measuring time.

## New technologies bring continued growth

In the coming months ACE Technology will finalise a new accreditation and supplier compliance for further growth into the aerospace sector as composite components continue to expand in their application. In parallel, it has also recently invested in a high-end Markforged 3D printer to offer fibre reinforced nylon tooling and components.

Paul Skinner explains: "The MetraSCAN plays a fundamental role in enabling us to adopt this new technology, by capturing data from patterns, tooling or final parts that we can quickly convert into files suitable for 3D printing. While we can print end use parts, the technology will be used to print items for use on jigs, templates and fixtures, thereby reducing the time required when developing our various composite production processes."

Recent examples include jigs for up-issued hole locations on pattern surfaces and/or mould tools, scribing templates to assist the fitters in the trimming of awkward profiles, and fixtures for clamping parts while being three, four, or 5-axis milled or during the bonding process.

Paul Skinner concludes: "The MetraSCAN is a key investment to support our Scan2CAD initiative over the coming years, and with support from the Measurement Solutions team we are confident that this will play a vital role in our continued and aggressive expansion."

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# Trimos length measuring machine

Bowers Group has supplied Bromford Industries with a Trimos Horizon 'H' Series length measuring machine to aid in the manufacture of critical components for the global aerospace, industrial gas turbine and nuclear industries. With a number of major OEM's amongst its customer base and strict NADCAP approvals, accurate, precise, and repeatable measurement equipment is a must.

Bowers Group supplied Bromford Industries with the machine to measure critical components. The Trimos length measuring machine successfully reduces the risks of manual measuring systems with its non-contact measurement capabilities, making it the perfect solution for a variety of Bromford Industries' measurement needs.

Customers typically require strict tolerances for a wide range of high performance critical components, making high accuracy measurement equipment a must. Due to the criticality of parts and the demanding industries in which they are used, the company must meet exceptionally high tolerances. To do so, measurements must be accurate and repeatable to within 10 percent of actual tolerances to ensure quality.

With such a variety of components to machine and fabricate, Bromford Industries' metrology needs are complex. Integrated quality systems and NADCAP approvals, in addition to requirements to work to a wide range of demanding bespoke OEM quality standards, mean that the company needed a variety of metrology solutions to ensure accurate, repeatable measurements every time.

The Trimos Horizon 'H' Series length measuring is very simple to use and ideal for use in the workshop area, which is exactly where Bromford Industries use it. The length measuring machine has also allowed the



company to achieve accurate measurements to an extra decimal point, therefore offering extra levels of assurance and quality to its customers.

Bromford Industries specialises in the manufacture of performance critical components and assemblies for aero and marine gas turbines, aircraft landing gear, static gas generators, nuclear and specialist engineering applications. The company employs over 300 people across the five sites, with a proficiency in high precision, complex component machining and fabrication, matched with full supply chain management. All five of its facilities is accredited to the latest AS9100 rev D aerospace standards in addition to ISO 9001:2000, ISO 14001 and comprehensive NADCAP approvals.

With headquarters in Birmingham, facilities in Leicester and Alcester, and sites in the USA and India, Bromford Industries has a number of major OEM's amongst its customer base, including Snecma, Rolls Royce, Siemens, Messier-Bugatti-Dowty, GE

Power & Water and Alstom. Typical manufactured components include engine rings and casings, and critical parts for aircraft landing gear. The company has recently invested in five new state-of-the-art 5-axis Okuma machining centres, making the manufacturing operation at Bromford Industries a true 'smart factory'.

In addition to the measurement of high performance critical components, Bromford Industries also uses the Trimos Horizon 'H' Series length measuring machine to calibrate analogue universal gauges from Bowers Group as a digital back up. This added level of trust and assurance enables operators to be confident that the Universal Gauges are calibrated to the highest level of accuracy in a digital format, therefore ensuring accurate and repeatable measurement.

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focus on productivity

## High resolution colour scanning capabilities for 3D design professionals

FARO has announced the first arm-based solution to include high resolution, 3D colour scanning capability. This exciting introduction includes full colour 3D scanning as standard, out-of-the-box functionality in the new FARO Design ScanArm® 2.5C, DSA 2.5C.

The Design ScanArm 2.5C is compatible with the FARO 8-Axis FaroArm® system, which effectively doubles the arm reach and substantively improves the ease-of-use. It is specifically designed to address design challenges across a range of industries including computer graphics, industrial machinery, auto manufacturing and engineering services. A colour 3D representation is the perfect baseline for product visualisations and special effects.

This innovative leap forward enables parts and objects to be reconstructed and visualised as vividly as they appear in the real world. The true-to-life functionality not only allows design professionals to proceed with an even higher level of confidence but also, as a result, accelerates the completion of important projects. Faster end to end project cycle time is also supported and

enhanced by rapid scanning colour capability of up to 240,000 points per second.

Consistent with the FARO commitment to optimising ease-of-use through advanced ergonomics, the Design ScanArm 2.5C, like its predecessor the Design ScanArm 2.0, is available in three highly maneuverable arm lengths of 2.5 m, 3.5 m and 4 m. This ensures that end users can select the option that optimally fits with the specific design objectives for their projects. Furthermore, hot swappable batteries ensure that the user can bring the scan to the project rather than needing to bring the project to the scan.

The DSA 2.5C significantly exceeds the baseline expectations that FARO documented from prospective users during an exhaustive product development process. Not only do the vividness and sharpness deliver spot-on representation of the colour of the real-world object, but now finer details including texture, and even text, can be clearly extracted for product



visualisation, computer graphics or identification of key features during the product design or reverse engineering processes. Finally, greater efficiencies can be realised as full colour can be captured in a single scan, removing any need to take pictures or apply texture in the post scanning process.

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## Laser scanning halves inspection times

Czech company Lukov Plast, a producer of injection moulded plastic parts, electronic components and electrical sub-assemblies for the automotive industry, reports considerably faster inspection cycles and feature measurements following the purchase of a Nikon Metrology LC15Dx laser scanner.

Increasing customisation and complexity of the parts, which are used mainly in the vehicle interior, air conditioning system and control units, places a high demand on the inspection department and requires the use of diverse metrology equipment. Some components are safety critical, including those used in autonomously driven cars, and all need to be of the highest quality.

Miroslav Pavlu, measuring technician at Lukov Plast, explains: "To manufacture assemblies and components, that will withstand regular daily use, parts are subjected to various life cycle and climatic tests as well as quality assurance (QA) procedures and analysis to assess performance.

"Previously, QA involved using various

manual gauges and taking touch-probe measurements on a coordinate measuring machine. Larger plastic parts in particular were problematic to inspect using tactile techniques, as they were difficult to clamp without distortion."

To control the production of injection mould tools so that manufacturing processes could be steered correctly from the outset, as well as to measure the plastic parts produced, it was decided that inspection needed to be faster, more efficient and more accurate. The ability to check a part against the CAD model and highlight areas of concern using colour mapping was another reason to consider investing in newer technology.

An upgrade from Nikon Metrology was deemed to be the best solution due to its cost-effectiveness and the supplier's extensive experience of retrofitting to third-party systems. Additionally, its LC15Dx laser scanning technology, with Focus point cloud software, was considered best-in-class.

Introduction of the equipment has



exceeded the expectations of Lukov Plast in many ways. The colour map is a major benefit in both its speed and simplicity for sharing information with colleagues. The solution also provides greater efficiency in meeting measurement requirements.

Miroslav Pavlu concludes: "The laser scanner has accelerated measurement by about 50 percent and the creation of programs for new parts is about 40 percent quicker. Costs are also lower due to the use of less dedicated fixtures than are needed for traditional tactile inspection."

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**www.nikonmetrology.com**

# EuroBLECH 2018: Step into the digital reality

EuroBLECH 2018, the 25th International Sheet Metal Working Technology Exhibition, takes place from 23–26 October 2018 at the Hannover Exhibition Grounds in Germany. Around 1,400 exhibitors from 38 countries have already secured their stand space at the world's leading trade exhibition for the sheet metal working industry. Currently, major exhibitor countries are Germany, Italy, Turkey, China, the Netherlands, Spain, Switzerland, Austria and the USA. Exhibiting companies have secured almost the entire exhibition space from the previous event. EuroBLECH 2016 concluded with a record net exhibition space of 87,800 square metres.

Every two years, EuroBLECH is the must-attend event for design engineers, production managers, quality managers, buyers, manufacturers, technical directors and experts from associations and R&D to discover the latest trends and machinery in sheet metal working. Visitors to this year's show can expect the complete spectrum of intelligent solutions and innovative machinery for modern production in sheet metal working, which are presented in form of numerous live demonstrations at the exhibition stands.

Digital transformation is playing a major role in the industry, which enables an increased efficiency and thus a higher level of automation and predictive maintenance. These developments are reflected in this year's motto for EuroBLECH "Step into the digital reality", since Industry 4.0 and the relating Smart Factory have become major topics in sheet metal working. This has now become an important area for small and medium-sized companies planning to invest in these technologies in order to gain a competitive advantage in their market.

"The digital transformation is an important topic in the industry. This requires a close collaboration along the entire value chain, from production control to maintenance," says Evelyn Warwick, exhibition director of EuroBLECH, on behalf of the organiser Mack Brooks Exhibitions. "The biggest challenge for companies in the sheet metal working industry is to create an intelligent manufacturing environment which is based on the secure exchange of data and the networking of machines and processes.

"EuroBLECH 2018 offers its visitors the possibility to find solutions for these challenges and to connect with business partners to help them with the integration of these processes, machines and systems into their production."

EuroBLECH is the largest exhibition for the sheet metal working industry worldwide and is the marketplace for visitors to discover and source the latest innovative manufacturing solutions. Numerous live demonstrations at the exhibition stands offer trade visitors the opportunity to experience machines and systems from all areas of sheet metal working in action. The EuroBLECH exhibition profile covers fifteen technology sectors and therefore covers the entire sheet metal working technology chain: sheet metal, semi-finished and finished products, handling, separation, forming, flexible sheet metal working, tube/section processing, joining, welding, additive manufacturing, surface treatment, processing of hybrid structures, tools, quality control, CAD/CAM/CIM systems, factory and warehouse equipment as well as R&D.

The exhibitor list, available on the EuroBLECH website, is regularly updated

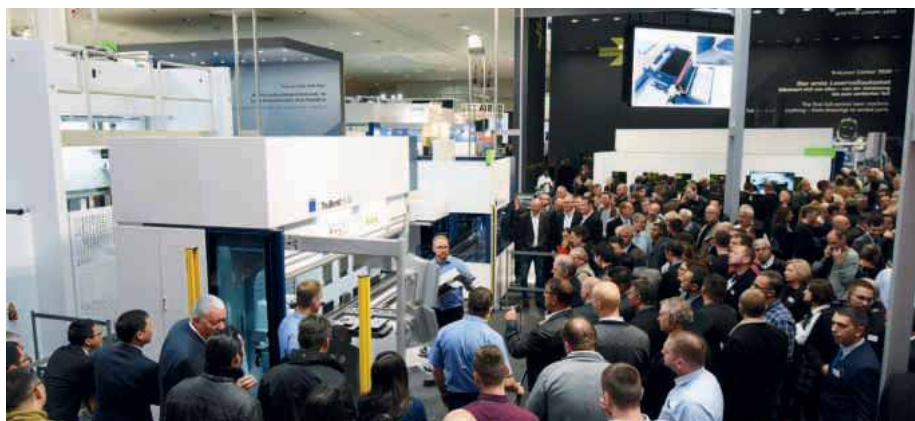


and provides plenty of information on exhibiting companies, such as exhibitor profiles, online press boxes, company videos and contact details. The EuroBLECH newsletter, which is sent out monthly ahead of the show, offers the latest news about the show, the exhibitors and the industry sector. The subscription form for EuroBLECH News is also available on the website [www.euroblech.com](http://www.euroblech.com). On Social Media, EuroBLECH can also be followed on Facebook, Twitter, LinkedIn and YouTube. EuroBLECH is now also available on Instagram. The official hashtag is #euroblech.

EuroBLECH 2018 will once again be held in halls 11, 12, 13, 14, 15, 16, 17 and 27 at the Hannover Exhibition Grounds in Germany. The opening times are from Tuesday, 23 October 2018 to Friday 26 October 2018, from 9:00 to 18:00. International flight connections, as well as the excellent local infrastructure, make the venue easily accessible by plane, car and public transport.

Further detailed information about the exhibition, as well as travel and accommodation, are available on the show website.

**Mack Brooks Exhibitions Ltd**  
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The Mazak logo is displayed in a bold, orange, sans-serif font.

Your Partner for Innovation

A close-up photograph of a laser cutting machine's nozzle cutting through a metal sheet. Bright orange sparks are being ejected from the cut, and the background shows a blurred industrial setting with various mechanical parts and tools.

**VISIT MAZAK AT  
EUROBLECH  
HALL 11 STAND D26  
23-26 OCTOBER 2018**



**Step into the light with Mazak at EuroBLECH.**

Yamazaki Mazak presents the ultimate combinations of best-in-class laser technology and state-of-the-art machine automation at EuroBLECH 2018 – including two new DDL machines and Mazak's own Industry 4.0 solution, iSMART Factory.

Visit [www.mazakeu.co.uk/euroblech](http://www.mazakeu.co.uk/euroblech) for more information.



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It's all about you 

## ProtoMAX is now available for broad global release

OMAX Corporation announces the ProtoMAX abrasive waterjet has achieved CE certification. The ProtoMAX brings all the versatility benefits of large abrasive waterjet cutters in a sleek and economic package that's perfect for small job shops, engineering classrooms, makerspaces, and personal use. With a compact footprint and comprehensive versatility, the ProtoMAX is an ideal abrasive waterjet for prototyping, educational applications, or as a complement to a larger machine shop. With the CE mark, the ProtoMAX will now be available worldwide.

Delivering 2,068 bar cutting power with a 3.7 kW pump, the ProtoMAX can cut metal, glass, plastic, wood, and virtually any other material under 25.4 mm thick with a 305 mm by 305 mm cutting area. The ProtoMAX cuts with no heat-affected zones and no change to the material properties. The waterjet uses a 240V AC outlet and does not require hardwiring. The pump and cutting table are on casters for easy relocation. Work material is submerged under water for clean, quiet cutting that won't disrupt a shared work space.

The programming of part files and the cutting operation are controlled by the OMAX Intelli-MAX<sup>®</sup> Proto software. This powerful software makes converting drawings to cutting paths easy. Setting the machine up to cut is quick and simple. Vice president of marketing at OMAX Corporation, Stephen Bruner comments, "It's easy to program even complex paths on the ProtoMAX. We've taken many of the same popular CAD/CAM software features that we use in our industrial waterjet systems and incorporated it into the compact ProtoMAX waterjet. Behind the scenes, the software uses sophisticated waterjet cutting



models that predict the jet's precise behaviour when cutting different materials, thicknesses and shapes. But the user interface is simple and straightforward, making it an ideal learning tool for computer-aided manufacturing."

OMAX has launched [www.protomax.com](http://www.protomax.com) to provide additional information about the ProtoMAX waterjet, including purchasing options.

OMAX Corporation is an international leading manufacturer of advanced abrasive waterjet systems. Owner of the OMAX, MAXIEM, GlobalMAX and ProtoMAX brands, the company designs and manufactures complete waterjet systems that feature intuitive software, efficient pump technology, and a wide range of accessories. The ISO 9001:2015 certified company designs, manufactures, assembles and tests components as a complete system to ensure optimum performance. The company also has the most comprehensive service and global support network in the

waterjet industry to keep its customers ahead of the manufacturing curve.

### 25 Years of leading waterjet technology

OMAX celebrated 25 years of leading waterjet technology at a special event at its Kent, Washington campus in July. The event featured the latest advancements in waterjet machining, live cutting demonstrations and tours of the company's manufacturing factory.

Dr. John Cheung and Dr. John Olsen founded OMAX in 1993, having found a way to revolutionise the waterjet machining method. A new type of motion control technology and proprietary software ushered the development of the first truly affordable waterjet system to offer fast, precise and consistent results. Today, OMAX Corporation shapes the future of waterjet machining with diverse, highly advanced product solutions that offer the broadest range of table sizes, pumps, accessories, and software on the market.

OMAX Corporation's 225,000 sq ft facility was on full display for the anniversary event. From research and development to bridge assembly, visitors toured the entire process of how a waterjet machine is created. They were able to see where OMAX's largest waterjet machines are assembled, in addition to how direct-drive pumps are built.

OMAX's abrasive waterjet technology provides a flexible and beneficial alternative to more conventional machining. Abrasive waterjet machines accurately cut simple to complex shapes from virtually any material and thickness significantly faster than traditional CNC machining techniques. Furthermore, the cold-cutting process of waterjet machining eliminates thermal stress in the workpiece material, preventing the hardening and warping that often occurs during conventional cutting processes.

For more information, connect with the company on Facebook, Twitter, LinkedIn and YouTube, or contact:

**UK Distributor:**  
**Aquajet Machining Systems Ltd**  
**Tel: 01244 409199**  
**Email: [sales@aquajet.co.uk](mailto:sales@aquajet.co.uk)**  
**[www.omax.com](http://www.omax.com)**

**Hall 12 - Stand H80**





# Grow with the perfect combination

An opportunity to **improve your business** by **combining technologies** into fully automated manufacturing systems: **3D and 2D fiber laser cutting, welding, punching, bending and software**. Come to the **most important event of the year** and experience firsthand everything new through **augmented reality**. You'll get to discover **all Prima Power's latest innovations** and all the news about **Industry 4.0** and the new concept of **smart factory**. A unique, engaging and **innovative experience combining real and virtual worlds**, at **Euroblech in Hannover**. Come visit us, **find your perfect solution**.



23 - 26 Oct

Hall 12

Stand B146



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



# New equipment for the rapid handling of tools

Systems for quick and safe changing of heavy tools will be unveiled by the Roemheld Group at Euroblech 2018. Four different configurations of transport cart, which are used to manoeuvre large loads such as heavy moulds and dies ergonomically, will be presented alongside carrying consoles that facilitate insertion into a press. Also featured will be ball bars and roller bars that allow dies to be smoothly guided and positioned over tables and other surfaces.

Serving further to minimise setup times in metalforming are Roemheld's extensive range of cost-effective die clamping and die changing products, as well as hydraulic, mechanical, electromechanical and magnetic clamping elements. Systems can be configured for efficient die handling using a combination of new wedge clamps and the appropriate hydraulic supply.

## Changing carts

Dies weighing in excess of 1.5 tonnes can be manoeuvred with the changing carts. The models exhibited will be the manually operated RW series designed to carry loads up to 500 kg or 1,000 kg, and the electrically-driven RWA cart for a maximum load of 1,600 kg.

All versions feature extensive safety equipment including an automatic docking station with slip protection. With the cart connected to the station, dies can be effortlessly guided and positioned on the changing table via ball inserts, which are lowered during docking to prevent slipping. Height of the changing table can be adjusted hydraulically.

Easy transportation of heavy dies is achieved with the Roemheld RW changing cart for die weights up to 500 kg (left) or 1,000 kg (centre) and the RWA cart (right) for loads of up to 1,600 kg



An optional auxiliary drive is available for the manual carts, allowing a travel speed of 2 km/h. Speed of the RWA cart for heavier dies can be steplessly adjusted up to a maximum of 5 km/h. Powerful and durable batteries supply the power.

## Carrying consoles

Heavy dies that have been transported by crane or forklift truck can be manoeuvred quickly onto the press table with Roemheld carrying consoles. The dies are placed onto the consoles and from there inserted via integrated transport bars. Versions with or without drive are available, depending on die weight.

Attachable carrying consoles that can be suspended from hooks are available for loads up to 250 kN, allowing versatility of

use and easy retrofitting. Swivelling consoles for loads up to 60 kN are recommended if space is restricted in front of the press. They are fixed securely onto the press table and can be folded flat against it when not in use.

Versions with additional electric drive and support feet are available for die weights up to 32 tonnes, further increasing versatility and stability. The height can be adjusted by  $\pm 60$  mm to compensate for any unevenness of the floor. An automated changing station is included to manoeuvre the new die onto the press table in a linear motion and push the existing die out of the machine to the rear, shortening set-up times further.

## Online configurator

Also promoted at Euroblech will be Roemheld's new, online configurator for simplifying the process of ordering roller and ball bars and ensuring short delivery times. Accessible via the company's website at [www.roemheld-gruppe.de/productconfigurator/?lang=en](http://www.roemheld-gruppe.de/productconfigurator/?lang=en), it is optimised for use on smartphones and tablets and an app is being developed for Android and Apple devices.

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[www.roemheld.co.uk](http://www.roemheld.co.uk)

Hall 27 - Stand H128



Carrying consoles with support feet and drive are suitable for loads up to 32 tonnes

# We have so much to show you...

Gain significant knowledge at any moment of the status of the entire factory and its processes. View status of orders, generated quotes and information on delivery dates, anytime, anywhere. Identify in real time the status of individual machines. React promptly to customer enquiries by quoting online immediately. Production planning, adjust schedules easily in the event of an unforeseen event. And much more.

Because technology alone isn't enough, the important thing is having the right software to get the most out of it.



**lantek**  
Metal Digital Transformation

EUROBLECH: 23-26 OCT. Hall 12 - Stand A118

CAD/CAM | MES | QUOTING | ADVANCED MANUFACTURING

# Lantek presents three new advanced manufacturing products at EuroBLECH

As part of its drive to increase efficiency, productivity and profitability through its Metal Digital Transformation technology, Lantek is introducing three new products at EuroBLECH specifically aimed towards the sheet metal and fabrication industries.

Lantek Analytics is part of Lantek's Synergy concept and analyses both customer and manufacturing KPIs (Key Performance Indicators). The modules come with a set of standard KPIs which have been developed by Lantek through consultation with companies in the industry to meet the vast majority of requirements. However, customers can still specify additional KPIs to suit their individual business needs, tailoring the software to their requirements where necessary.

For Lantek Customer Analytics, KPIs include the percentage of accepted quotes, the best customers by accepted quotes and margins, deviation from estimated costs and the history and location of quotes. Lantek Manufacturing Analytics KPIs include availability of equipment, OEE, parts produced and percentage of good parts over a specified period, percentage of remnants over total raw material, stock status and weight of parts produced. A virtual model of the workshop and working practices fit this information analysis exactly to each individual manufacturer.

The Lantek Analytics software has been designed to be plug and play for the majority of companies, minimising



OEE, Sales map and Best customers

installation and disruption and ensuring a rapid learning curve so that engineers and managers can benefit from the information very quickly. To further simplify installation, security and maintenance of the software, it resides in the cloud. This offers some significant benefits as it removes the need for costly hardware and the know-how necessary to keep it secure and operational. All these aspects of the system are taken care of in the cloud with military grade data security, updates to the system automatically implemented and access possible from anywhere in the world.

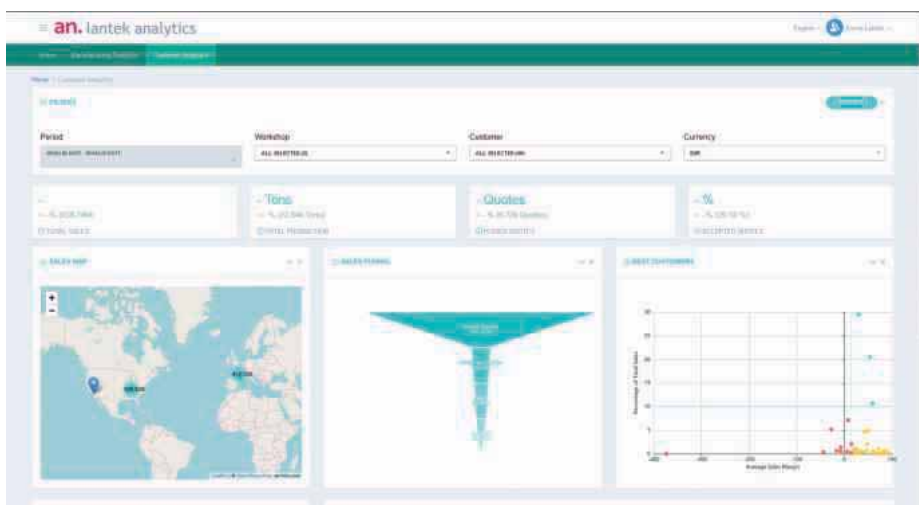
With Lantek Analytics, companies can keep track of performance as it happens and use the information to make decisions on

changes to sales strategies, production processes and investment in new equipment based on facts and therefore have the ability to predict future performance.

To bring customer and supplier closer, two new products Metalshop and iQuote make it possible for sheet metal companies to respond automatically to quotation requests online and for their sales teams to quickly prepare budget prices.

Metalshop is the web interface which enables customers to login and submit a request for quotation and place an order online, uploading all the information about material, quantities, required delivery dates, delivery methods and most importantly the geometry of the part itself. This request then sets in motion a series of automated queries within the Lantek software through the iQuote App, for example, the cutting times, the cost of material, stock levels and the margins to be applied. Queries to Lantek MES check the levels of work already going through the workshop and schedule cutting and other operations and outsourced operations to meet the required delivery date. As part of the process, the iQuote App checks for anomalies in the data such as bad CAD data and zero weight of part, creating an alert for user intervention so that an engineer can resolve the problem with the customer.

This technology automates all of the quotation and ordering process, delivering accurate quotations to the customer in a



Sales funnel

matter of minutes and then, with Metalshop, going on to automate order confirmation, release of the order to production, and finally, delivery and invoicing, all through a web interface. Where there is an anomaly in the information engineers will be alerted so that skilled intervention will only be required in exceptional circumstances.

The iQuote App is also designed to be used on its own as a rapid way for a manufacturer's sales team to get prices for their customers, making it ideal where large volumes of quotations are required. It uses

all the same mechanisms for cost queries as it does when combined with Metalshop, but it needs confirmation from the final client before the sales person accepts the order and transfers it to Lantek MES for manufacture.

With Lantek's software sheet metal manufacturers will be able to build up a much closer relationship with their clients by tailoring their responses for the optimum results while making it easy to do business and, at the same time, maximise production performance and profitability with minimum

effort. With Lantek, Metal Digital Transformation technology, Industry 4.0 is now a reality with substantial benefits for companies making the move.

Lantek is a multinational company which is leading the digital transformation of companies in the industrial sector of sheet metal and fabrication. It offers its own software solutions in business manufacturing intelligence, which enable connecting the plants thereby converting them into smart factories. It rounds off its range with the development of CAD/CAM/MES/ERP solutions for companies that manufacture metal parts from sheet metal, tubes and profiles, with any cutting technology: laser, plasma, oxycut, waterjet, shearing, and punching.

For more information, contact:

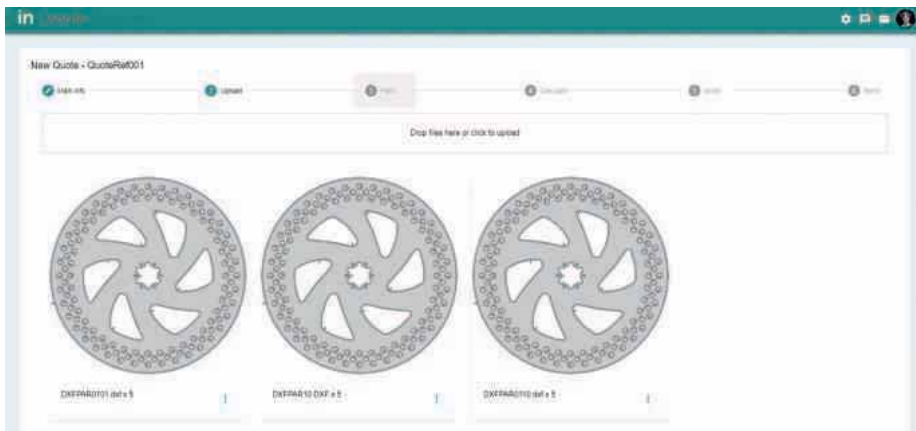
**Lantek Systems Ltd**

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**Hall 12 - Stand A118**



New quote



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SHEET METALWORKING, OUR PASSION, YOUR SOLUTION

INTEGRATE

BEND

PUNCH

LASER

# ESAB to focus on Industry 4.0 plus mechanised welding and cutting technologies

**Live demonstrations at EuroBLECH 2018**  
ESAB Welding & Cutting Products will showcase its complete portfolio of solutions for manual and automated welding and cutting products at EuroBLECH.

“We encourage visitors to meet with our multi-lingual technical experts to discuss how we can improve productivity and reduce waste in their metal fabrication operations,” says Marcel Stemvers, regional sales & marketing director Germanic Region, ESAB. “Our Industry 4.0 experts will provide demonstrations of ESAB’s Digital Solutions, which include the ESAB WeldCloud and ESAB CutCloud platforms. Coupled with our broad filler metal portfolio, which now includes the welding wire operations of Sandvik Materials Technology, ESAB offers a complete system solution for welding and cutting challenges.”

Visitors are invited to personally experience welding and cutting products as part of ESAB’s live demonstrations. Numerous systems and products will make their European and worldwide debuts, including those for mechanised welding and cutting, MIG/MAG welding, PPE, carbon-arc gouging and more.

## Industry 4.0

ESAB’s Digital Solutions platform provides several capabilities (ESAB WeldCloud, ESAB CutCloud and more to come) that connect digital ecosystems for welding and mechanised cutting, respectively. At EuroBlech, ESAB will showcase its new architecture, powered by Microsoft Azure IoT and utilising the ThingWorx® Industrial Innovation Platform from PTC, that allow for on-premise, hybrid and Cloud-based architectures.

“ESAB Digital Solutions help fabricators improve asset management, streamline documentation/traceability, increase quality and boost overall operation efficiency,” says Mike Pantaleano, VP Data Driven Advantage, ESAB. “No matter where you are in your digital

journey, ESAB is ready. We can connect your first machine or deliver at scale for an entire fleet. Once you harness the power of data, you can further increase uptime and lower operational costs by leveraging the process knowledge of our welding and cutting experts.”

## Plasma cutting and software

ESAB will demonstrate mechanised plasma cutting and bevelling, featuring its iSeries plasma cutters, Combirex cutting table and DMX Automated Plasma Beveller, a next-generation bevelling system delivering significant performance improvement through a simple, compact design. For mechanised cutting, ESAB will introduce its Columbus® III version 1.6 CAD/CAM software. The latest version simplifies programming various cutting processes, as well as marking and labelling processes. Intelligent wizards contribute to intuitive operation, so users can perform simple and highly complex cuts, labelling and nesting jobs quickly and easily. The 1.6 version now includes ability to calculate offers and orders for customers.

## Mechanised welding

ESAB will launch its new modularised system for SAW, GMAW and Gouging featuring the

Versotrac EWT 1000 tractor, Versoarc EWH 1000 welding head and EAC 10 controller. This tractor system recognises the portability needs of ship, barge, offshore, wind tower and structural steel applications with a no-tools disassembly/assembly design for easy transportation into confined area and remote spaces.

The new Railtrac B42V is a universal rail-mounted tractor for welding and cutting that operates in the flat, horizontal or vertical positions. Powered by 42v from the welding system or an optional 18v battery, the Railtrac B42V features the new W8000 remote weaving unit for making weave welds up to 60mm wide and for weld path tracking. Stepper motors for both the drive and weave functions ensure smooth operation and high precision. Operators can program weave patterns, travel speeds and control voltage and wire feed speed for five standard programs.

ESAB will also feature its new Miggytrac™ B5001, a battery-operated compact, programmable tractor for MIG/MAG welding using a standard torch. A colour TFT LCD display with an intuitive, modern interface separates the B5001 from the competition. It can be used with any wire feed system, however connecting it to an ESAB wire feeder enables adjustment of



weld parameters and arc start and stop. Operators can adjust multiple functions to improve weld quality, program weld patterns and weaves and even program a faster intermittent travel speed between stitch welds (up to 170 cm/min).

## Upgraded torches

ESAB will introduce two enhanced torches for manual MIG/MAG welding. The PSF™ series of premium torches now feature a more ergonomic handle with soft-grip areas and stronger water-cooled performance for high-heat applications. Knuckle joints and spring supports add improved flexibility to reduce wrist strain. ESAB boosted the duty cycle of its MXL industrial series and now offers a full range of gas- and water-cooled torches designed for industry-duty applications. A new handle offers better ergonomics, while the refreshed front-end design accepts the same standard ESAB consumables.

## Air PAPR

For heavy duty protection from welding fume and particulates when welding,

gouging and grinding, you can combine an ESAB welding helmet with the new ESAB PAPR (Powered Air Purifying Respirator) system. The ESAB PAPR features the latest control technology, allowing the operator to adjust air flow between 170 and 220 L/min to suit the environment and application. As an extra measure of safety, ESAB added visual and audible alarms to alert the operator in the event of a blocked filter or low battery. Other features include a P3 filter and pre-filter, and Li-Ion battery pack with up to 8-hr. duration @ 220L/min and LED airflow indicator.

## Gouging torch

Arcair®, an ESAB brand, has introduced the AirPro X4000 torch and cable for manual carbon arc gouging. Where previous torch models required 27 lbs. of grip pressure to open the torch, the AirPro X4000 uses the compressed air already flowing through the torch. When the operator pushes a rocker switch, the AirPro X4000 torch pneumatically opens the torch jaws so operators can insert, adjust and remove carbons without effort. The rocker switch

also controls the compressed air on/off function so that no air can flow through the torch or cable without the operator initiating flow through the rocker switch. A latch mechanism locks air flow on when in use to reduce hand fatigue.

ESAB Welding & Cutting is a recognised leader in the welding and cutting industry. From time-honoured processes in welding and cutting to revolutionary technologies in mechanised cutting and automation, ESAB's filler metals, equipment and accessories bring solutions to customers around the globe.

For more information, contact:

**ESAB Group (UK) Ltd**  
**Tel: 0800 3893152**  
**Email info@esab.co.uk**  
**www.esab.co.uk**

**Hall 13 - Stand E16**

## LVD unveils more automation choices for highly efficient sheet metalworking

At EuroBLECH, LVD will put the focus firmly on flexible automation solutions and cell manufacturing for increased production efficiency. LVD's Industry 4.0-ready laser cutting, bending, punching and software technology make for an easy and smooth transformation to a more competitive workshop. On display on the stand will be: World premiere: the ToolCell XT automated tool changing press brake with extended tool storage capacity. In response to having even more flexibility to tackle small batches, high part mix and increased part complexity in a wider variety of materials and thicknesses. The new ToolCell XT will provide users with greater flexibility and maximised throughput.

World premiere: the Dyna-Cell takes electric press brake automation to a new level for high-speed bending of small to medium size parts. Based upon LVD's field proven Dyna-Press, LVD's new compact robotised bending solution delivers faster art to part times, rapid change overs, increased throughput and lower cost per part.

The Ultra-high-speed Electra FL 3015 fibre laser cutting machine features a new 10

kW laser source to cut a wide range of ferrous and non-ferrous materials as fast as the thermal process allows without dynamic compromise. A 10-shelf Compact Tower (CT-L) keeps pace with the Electra to efficiently load, unload and store parts and material.

The Easy-Form 80/25 press brake is the ultimate smart bending machine. Equipped with the Easy-Form® Laser in-process angle monitoring and correction system, this press brake adapts in real-time the ram position to ensure the desired angle from the first bending operation. The bending process is not interrupted and therefore no production time is lost.

The Strippit PX-1530 punch press can punch, form, bend and tap to efficiently complete multiple processes, including complex, three-dimensional parts. A Flexible Automation system (FA-P) makes fast work of loading/unloading and part picking for uninterrupted production flow.

CADMAN® Suite is LVD's answer to full process integration and optimised process flow. CADMAN looks at the big picture and helps streamline the complete fabrication process, from production control,



communication, planning and management to punching, bending and laser cutting, through integrated, database-driven software. The complete CADMAN Suite will be demonstrated.

**LVD-Pullmax Ltd**  
**Tel: 01295 676800**  
**Email: sales@lvduk.com**  
**www.lvdgroup.com**

**Hall 12 - Stand F104**

# Prima Power at EuroBLECH 2018

Prima Power's presence at Euroblech 2018 is perfectly in line with the official motto of the exhibition: "Step into the digital reality". The Prima Power stand has been designed to let visitors live a new and engaging experience thanks to a unique mix of real and digital worlds. Highly realistic VR simulations complete the real demonstrations on exhibited products, allowing visitors to live an immersive journey to discover all capabilities and benefits of the most advanced laser and sheet metal technologies.

All Prima Power innovations showcased on the 1,400 m<sup>2</sup> stand in Hannover have been designed for digital manufacturing and are the perfect combination of technologies and software for the automated production.

The innovative robot bending cell, which includes the BCe Smart panel bender and eP-0520 press brake, will be presented as a world premiere. The solutions provided by new products from The Laser line will also be showcased for the first time at an exhibition: the new Laser Next 2141 3D fibre laser system, with its wide working envelope and its different configurations and the Laser Genius 15302D fibre laser cutting machine, with LST automatic stacking robot and Combo Tower storage. The Combi Genius 1530 punching / fibre laser cutting system will be shown with a new solution which simplifies the installation and the maintenance of the machine, with the Compact Express loading/unloading system. The PSBB – Punching, Shearing, Buffering, Bending flexible manufacturing line with the PCD (Picking & Centering Device) system processes blank sheets from an automatic storage into ready-bent, high-quality components automatically.

The perfect combination of technologies at the foundation of Prima Power solutions is made possible thanks to the smart software family which connects machines, monitors the entire production flow, and generates automatic processes from the order to the delivery. All products are Industry 4.0 Inside and set new industrial standards for efficiency and process reliability.

## New Integrated Robotic Bending System

Prima Power will present its new Integrated Robotic Bending System as a world premiere at the Euroblech. The high



effectiveness of this solution derives from the simple and fast offline programmability of machines and robot included in the cell.

The new integrated system is composed of a BCe Smart panel bender, a 7-axis anthropomorphic robot and an eP-0520 press brake. The configuration is completed by a sheet separator unit for raw sheet stacks, a centring table, and a reverser for the sheet to be bent or the bent components to be stacked.

In order to allow the highest efficiency of the investment, the system offers several operation modes:

Integrated processing with BCe Smart and eP, in which the robot performs continuous handling activities between the two machines

Automatic operation of the BCe Smart with part loading/unloading performed by the robot, and eP in stand-by mode

BCe Smart manually loaded while the eP operates as a robotic cell

BCe Smart and eP in manual mode, and robot in stand-by mode

The operation modes of the Integrated Robotic Bending System represent an outstanding breakthrough. They allow customers to receive the maximum benefits

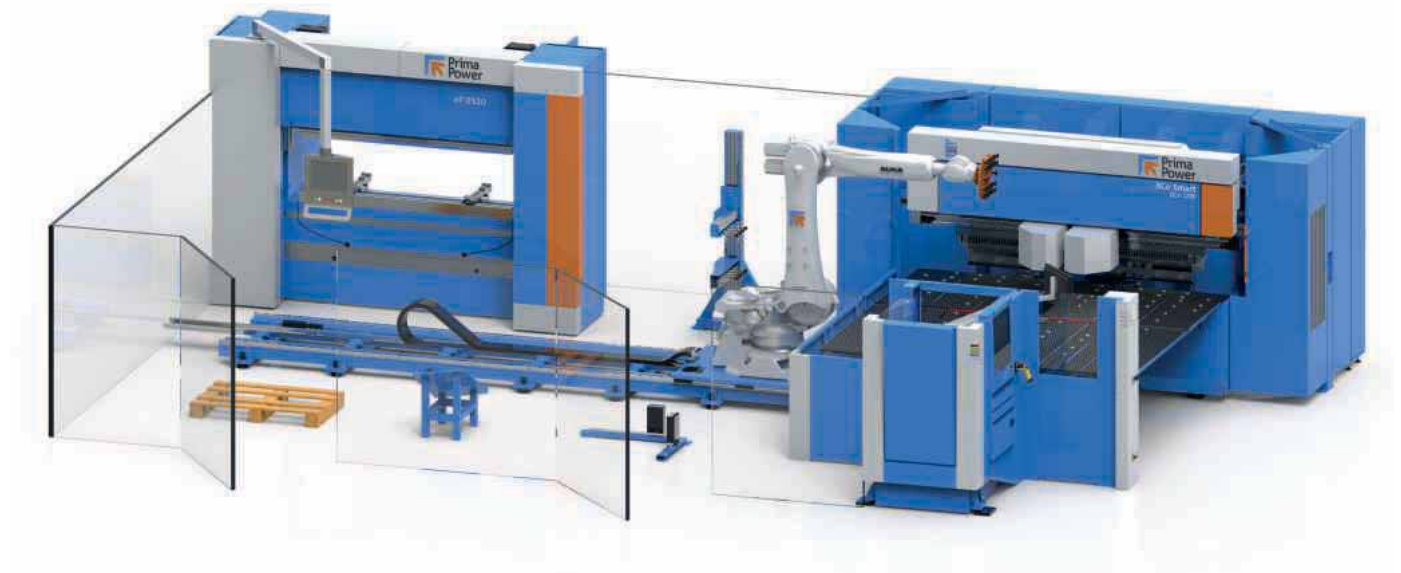


from the investment, as the system efficiency is granted for both small and large batch production. In fact, during the manned shift on the panel bender, the versatility of the manual mode is combined with the high productivity of the bending cell by operating in automatic mode.

Within the integrated bending system, the press brake is able to complete some components with dimensional or geometric features, which are unsuitable for the panel bender and could be only partially processed by this machine. The system is therefore incredibly versatile, suitable for a wide range of components and special applications, such as bends in internal windows or partial bends of outer edges that cannot be easily reached by the panel bender tools.

In the case of small batches, where the





BCe Smart is commonly used in manual mode, the availability of the robot allows the loading and the unloading of sheets with a maximum length of 2,850 mm, thickness of 2.5 mm and weight of about 85 kg, replacing one or more operators in this heavy and repetitive task.

Prima Power is a world-class supplier in the high-tech field of laser and sheet metal working machinery. Its product portfolio is

one of the most complete in the industry and includes: 2D and 3D laser machines for cutting, welding and drilling, punching machines, combined punching/laser and punching/shearing systems, press brakes, panel benders, bending centres and Flexible Manufacturing Systems (FMS).

Prima Power is the Prima Industrie Machinery Division, a group with more than 1,700 employees worldwide, manufacturing

facilities in Italy, Finland, USA and China and a sales and service network in over 80 countries.

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**Hall 12 - Stand B146**

## Hypertherm to showcase important innovations

Hypertherm will introduce a new member to its X-Definition™ plasma family and a complete new HyPrecision™ Waterjet pump with unique predictive maintenance capabilities at EuroBLECH.

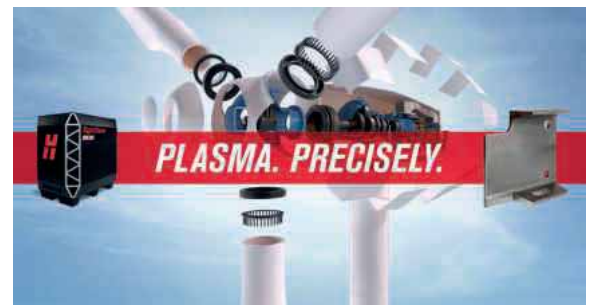
Hypertherm's X-Definition plasma is the newest form of plasma technology, building on high definition plasma and setting new standards for cut quality on mild steel, stainless steel, and aluminum. The result is squarer cut edges, markedly less angularity and excellent surface finish on non-ferrous metals like aluminum and stainless steel. Visitors will meet the newest member to the XPR® plasma product family and experience the impressive results in a unique way.

In addition to the company's new plasma technology products, a complete new HyPrecision Waterjet pump will get introduced at the show. One of the innovations in this pump is a seal maintenance technology that ensures the system continuously performs at peak level.

"EuroBLECH provides the ideal stage for us to meet our customers, fully understand

their needs and demonstrate our latest innovations. Whether plasma or waterjet technology is required for the cutting application, our mission is to provide the customer with the optimum cutting technology and experience," says Marco Mostert, regional director Hypertherm EMEA. "This year is a special one for us as we celebrate our 50th anniversary. We are very proud of everything we have achieved over the last five decades. We have grown from a local manufacturer of plasma systems to a global provider of cutting solutions and are focused on building long-term relationships with our customers, founded on technology and service leadership. Shaping Possibility is our company's vision that we will further build on together with our customers, partners and associates."

In addition to the new products and technologies, Hypertherm will feature its Powermax® line of light industrial plasma



cutters, CAM nesting software line, robotic software and automation products, as well as torch and consumable technologies and its Centricut® and AccuStream® brands.

Connect to the Hypertherm EMEA Facebook page for updates about the show and special activities.

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**Hall 13 - Stand E108**

# Digital focus on customised solutions

EuroBLECH 2018 is all about being “On the pulse of digitalisation.” In keeping with the theme, Fronius Perfect Welding will be putting digital solutions in the lime light at Hannover.

The WeldCube data management system assists with the collection and analysis of welding data. Fronius will also present the TPS/i, a system platform that is perfectly suited for the demands of modern production processes. Another focal point is Fronius’ new device series for manual welding. Welding carriages and orbital systems from Fronius Welding Automation as well as a range for resistance spot welding complete the exhibition portfolio.

Modern welding systems collect various information such as current, voltage, wire speed, and welding speed. With the help of a data management system, users can use this information to optimise processes. The Fronius WeldCube software processes the most important welding data and then provides it in a clear overview.

## Efficiency through transparency with data management

A WeldCube installation can connect up to 50 power sources. This network enables the documentation of data at a component level across multiple devices. Furthermore, users can, in combination with the TPS/i welding platform, create and edit tasks for all power source that are connected to the WeldCube.



The FlexTrack 45 Pro offers a constant travel speed for optimal, reproducible welding results

The user can configure his analyses individually and retrieve them by computer or on the go via tablet or smartphone. This way the WeldCube supports a modern production and helps optimise processes and reduce costs.

## TPS/i: the flexible system platform for high performance

The TPS/i system platform not only creates the basis for a network, it also has a high performance processor and a high speed bus so therefore offers increased arc control and higher precision welding processes. Thanks to the function packages, the welder

can use several processes such as LSC (Low Spatter Control), PMC (Pulse Multi Control), as well as CMT (Cold Metal Transfer) on the same TPS/i. Visitors can see the excellent welding characteristics of the power source for themselves during the live welding demonstration at EuroBLECH.

With the LaserHybrid welding process, Fronius meets the challenge of faster production processes and demands for higher quality. This process combines the advantages of GMAW and laser beam welding processes. Users can now also use LaserHybrid on the TPS/i and thus profit from the modular power source technology as well as the new characteristics and processes.

## Handy multi-purpose devices for manual welding

In 2018, Fronius launched a new manual TIG welding series. The power sources use the technological innovations of the TPS/i platform. This results in TIG devices with intuitive controls and improved ignition and welding properties. The new generation features the MagicWave 230i which visitors can view in action at live demonstrations during EuroBLECH.

Another of Fronius’ innovations is the TransSteel 2200. The hand-held welding torch masters MMA, MIG/MAG and TIG welding processes and is ideal for changing tasks. The compact multi-talented device only weighs 15.5 kg and is robust, reliable, and easy to operate.



Thanks to function packages the welder can use several processes on the TPS/i such as LSC (Low Spatter Control), PMC (Pulse Multi Control) as well as CMT (Cold Metal Transfer) on one device

## Welding automation: reproducible seam quality

Fronius offers solutions for mechanised welding with welding automation. The FlexTrack 45 Pro welding carriage has a rail system and a robust, light carriage. The constant travel speed provides optimal, reproducible welding results.



The Fronius TIG orbital welding systems with multiple functions enable the user to efficiently carry out a wide spectrum of high quality welding tasks

efficiently carry out a wide spectrum of high quality welding tasks.

## Modular gun for aluminum spot welding

It isn't just its arc technology that Fronius will present at EuroBLECH. With DeltaCon the company expands its product range for resistance spot welding. The new spot-welding gun has been optimised for aluminum applications and offers high productivity due to minimum downtime. DeltaCon has a modular structure allowing users to use the main component for guns with X

The requirements for pipe connections within the energy technology, biochemistry or food industries are especially high. Here, the Fronius TIG orbital welding systems are the best option. Multiple functions enable the user to



The modular DeltaCon pincers for spot welding are optimised for aluminum applications and offer high productivity due to minimal downtime

as well as C geometry. This increases flexibility and cost effectiveness.

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**Hall 13 - Stand F174**

## Timesavers highlights efficiency and new possibilities at EuroBlech

With more than 70 years of experience and a huge customer base worldwide, Timesavers recognises the need for and strength of constant development and innovation. At the world's largest trade fair for the sheet metal industry, EuroBlech, Timesavers will unveil several new innovations and productivity enhancing developments.

Central to the Timesavers display will be a combination of its state-of-the-art rotary brush machine, the 42 series WWRBW and an 'add-on' underside working machine. This new combination will bring added versatility to the recently upgraded 42 Series machine and lead to greatly reduced processing times for deburring and edge rounding of sheet material. The new additional unit sits at the front of the 42 Series machine on a dedicated conveyor belt zone. Here, the workpiece has its bottom face deburred and edges rounded prior to it being processed through the 42 Series machine. This has the benefit of completely eliminating the requirement for a second pass and saving considerable cycle time. This integration of additional

processes and integration, into fully automatic processing lines, is in line with the demands of the Industry 4.0 standard.

A further innovation from Timesavers is the Hammer Head™. The Hammer Head is a new aggregate that is designed to remove heavy slag on larger steel products. This new pre-treatment aggregate will lower tooling costs on Timesavers machines. Visitors to the stand can see The Hammer Head in action on a 42 series HWRB machine, which will also be used to highlight the functionality of this machine.

Timesavers programme of updates to its machines continues with the 12 series machine, which has gained a completely new look. It will be unveiled at the exhibition. The 12 series machines are a highly cost-effective route for metal finishing, deburring and edge rounding. Completing the display from Timesavers will be the 32 series WRBW, the 22 series WMDB and a 10 series manual grinder, the



latter providing a cost-saving entry in to grinding and deburring.

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**Timesavers:**  
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# Unattended sawing and sorting raises steel stockholder's productivity

To increase production throughput, steel stockholder Schmolz + Bickenbach Stahlcenter in Wil, in the Swiss canton of St. Gallen, has invested in a KASTOtec FC 4 automatic bandsawing centre. It replaced two obsolete saws that could no longer cope with the continuously increasing demand for cut parts.

Called Schmobi for short and employing about 100 staff, the steel centre is a leading supplier of material and fabrications to the manufacturing and construction sectors in Switzerland and Liechtenstein. It operates an extensive storage system with modern high-bay warehouses holding 20,000 tonnes of bright steel, mild and stainless steel and tube, tool steel, cast iron and some aluminium. In excess of 10,000 parts a day are cut on more than 30 bandsaws.

Thomas Plüss, communications officer at Schmobi, explains: "Our orders include large batches of more than 10,000 as well as single items. The demand on our saws is enormous. They are used continually throughout the day and some even run throughout the night.

"We therefore need machines that process workpieces of different diameters quickly, cleanly and economically and, above all, which work reliably and without errors."

Schmobi uses three KASTO bandsaws for processing steel, cast iron and aluminium bars. The latest is the automatic, high-performance KASTOtec FC 4, which cuts a wide range of material cross sections including round, square and flat as well as tubes and profiles. It is well suited to dealing with difficult materials such as stainless and tool steels. Capacity is 430 x 430 mm and the smallest section that can be cut is 10 x 10 mm.



The bandsaw uses carbide blades and was supplied to KASTO performance cutting (KPC) specification to suppress vibration. The blades have a long service life and allow precision sawing to within  $\pm 0.1$  mm per 100 mm of cut length at band speeds up to 180 m/min.



Kurt Thoma, sawmill group leader at Schmobi, says: "With the KASTOtec FC 4, we can saw different materials and diameters very economically. Minimum remnant length in automatic mode is about 35 mm, allowing us to use material efficiently and therefore economically."

The KASTOtec FC 4 is loaded via a multi-bar magazine that is replenished from the store via an overhead crane and magnetic handling system. The saw has an automatic arrangement for sorting cut parts onto a stacking table or into one of several containers according to purchase orders, enabling extended unattended operation.

Works manager, Robert Schönenberger, says: "Our staff fill the magazine with the appropriate material in the evening before they go home and program the saw according to customer requirements.

"Changeover to the next order takes place automatically and the saw runs continuously overnight. The following morning, items are ready cut and arranged

for delivery. It has enabled us to significantly improve our performance."

The KASTOtec FC 4 uses the proprietary EasyControl CNC system. Kurt Thoma particularly likes the clarity of the graphical user interface, which he says simplifies day-to-day working by enabling the required options to be accessed intuitively. The machine has a remote connection to Kasto headquarters so its engineers can make minor adjustments to the saw's parameters, if required, to optimise its performance.

## Expanded range of workshop saws

The KASTOmicut range of pivot-bow, metalcutting bandsaws from KASTO has been extended upwards and downwards from the three pre-existing, automatic and manually operated models, designated 2.6, for cutting 260 mm diameter round stock and 310 x 260 mm flat material.

The new KASTOmicut E 4.6 has the capacity to cut 335 mm diameter round and 460 x 335 mm flat material. It is designed for single-sided mitring at continuously adjustable angles from 0 to +60 degrees. Downfeed is hydraulically controlled and cutting speed can be continuously adjusted between 20 and 110 m/min.

With the KASTOmicut U 4.6, users can saw flat material up to 520 mm wide and cut mitres from -45 to +60 degrees, as can the smaller pivot-bow models. Band speed range is even wider at from 12 to 150 m/min for processing an extensive range of different materials cost-effectively.

A heavy, torsionally rigid, welded saw frame provides stable support for the blade and allows high band tension, ensuring a good quality cut even with hard-to-machine



materials. Various accessories are available including a rotary table to support the material.

For users who mainly saw smaller workpieces up to 180 mm diameter, KASTO has introduced the compact KASTOmicut P 1.8, which is capable of mitring between 0 and +45 degrees. Downfeed rate is determined by manually guiding the saw frame and the blade is driven by a 1.5 kW three-phase motor, ensuring high quality cutting. Shortest cut length is 6 mm.

As a large percentage of the parts used in the different bandsaw models is identical, KASTO is able to offer them at attractive prices. Availability in the UK and Ireland is through the company's subsidiary in Milton Keynes.

### Double mitre cutting bandsaw

KASTO has supplemented its bandsaw programme with the addition of a twin-column machine for cutting stock to length and mitring between -45 and +60 degrees to a high degree of precision. The KASTOmiwin saw is said to be ideal for use by steel stockholders due to its power and rigidity.

Available in semi-automatic and automatic versions, U 4.6 and A 4.6 respectively, the latter model has a rack-and-pinion drive to feed material by up to 3,000 mm in a single stroke. Blade downfeed is electrically actuated via a ballscrew drive.

Clamping range of the new bandsaw is up to 460 mm, depending on material profile. The smallest size that can be cut is 10 x 10 mm. For single straight cuts, the KASTOmiwin semi-automatic machine leaves a rest piece of 30 mm, increasing to 200 mm on the automatic model. The user can adjust the band speed steplessly



between 12 and 150 m/min. Installation length required by the KASTOmiwin is 3,950 mm or 5,450 mm for the version with material infeed. Positioning the saw head at an angle reduces the width to 2,980 mm, ideal for transportation in a container.

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# FEIN celebrates 30 years of pneumatic pipe saw action

FEIN Power Tools UK, is proud to have served British industrial workers for 30 years. While the manufacturer is the father of electric power tools and following a cordless evolution it now offers a large range of cordless tools to the industrial sector, one of its bestselling machines to this day remains a pneumatic pipe saw. Not only that, but the pipe saw remains relatively unchanged from the initial model sold some 30 years ago, with only the air motor receiving minor adjustments during the last generation of machine.

Paul Kitchin, national applications manager for FEIN UK, says: "The saw has multiple purposes. First and foremost, as you might expect, it is great for sawing pipes. With the right clamp and extension, it cuts pipes with a diameter of up to 440 mm. Another clamp allows for angled and straight cuts into lesser thicknesses, and the use of the girder clamp enables the user to cut into steel girders.

"We are seeing the most use within utility companies for pipe maintenance, generalist work on piping in sub-terrain areas, and even for workers who are on-site de-commissioning nuclear power centres. Due to stringent Health and Safety regulations, many of the guys coming to us for help need a pneumatic solution, over an electrical power or petrol powered one, and a solution they can trust. They need a machine of good enough quality and grunt to be worked hard and without pause and that is precisely what the FEIN pneumatic pipe saw is made to do.

"The level of trust for this machine is so high, that we have a network of hire companies that batch buy and hire out the machines regularly. They call on us to directly support and give guidance when needed on-site. Whilst the electric tools have evolved with brushless motor technology and protective measures for the components, the saw is a bit more 'exposed', needing some TLC for it to remain in good working order.

"We strongly advise that the saw, and in fact pneumatic tools of similar kinds, be taken care of and maintained. Owners should use dry air filters and moisture traps to ensure a film of oil is retained around the motor and innards of the machines. In humid, fluctuating weather and also within work vans themselves we notice over time



that machines can rust and wear out without this basic maintenance."

In 1867, Wilhelm Emil Fein founded a company to manufacture physical and electrical equipment where his son Emil Fein invented the first electric hand drill almost 30 years later in 1895. This invention paved the way for highly reliable power tools, which FEIN still manufactures at its site in Germany and for which the long-standing German company is known in industry and manual trades throughout the world to this day.

FEIN has been a leading power tool manufacturer for over 150 years and one of the main reasons for this is that FEIN

continues to meet its own standard of only developing durable power tools with every new product innovation it creates today.

FEIN is firmly committed to its home country of Germany. It's in Bargau, Schwäbisch Gmünd that the company continues to develop and manufacture new innovative product solutions using state-of-the-art production methods. Comprehensive quality management and extremely well-trained staff ensure that the only FEIN products that leave the company are those that meet its own high expectations in full. Only then can it be certain that its products satisfy the high requirements placed on them in tough everyday continuous use in manual trades and industry.

FEIN products are the benchmark for performance and reliability all over the world. It has a global presence thanks to 20 FEIN subsidiaries and 50 FEIN representations, so its customers can always find a competent contact. Everywhere that FEIN power tools are used, you'll find trained specialist staff, fast service and competent advice.

**FEIN Industrial Power Tools UK Ltd**

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# Metal sawing service



Splitting with horizontal cutting



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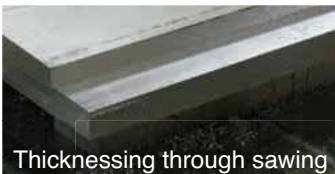
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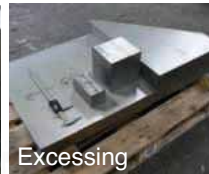
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# In a class of its own

The new HBE320-523G automatic mitre-cutting band sawing machine from Behringer

Opening up new fields of business, extending the performance spectrum or replacing an old machine: these are among the most frequent reasons given by users for investing in an up-to-date, more efficient mitre sawing machine. With the latest automatic machine from its HBE series, Behringer has created the perfect way of combining the benefits of modern high-performance machines for one-off sawing tasks with the solid, tried and tested characteristics of a classical mitre saw. Simon Smith, managing director of Behringer, says: "We deliberately integrated various features from our Behringer high-end models into this machine, raising the HBE320-523G into a class of its own with confidence."

Cutting output, simple handling and precise angular cuts are among the key attributes of the new Behringer mitre-cutting bandsaw HBE320-523G.

With its extensive application spectrum, it reliably covers the wide-ranging requirements of the steel construction sector and the steel trade. Potential users also include medium-sized operations in which the new semi-automatic HBE is required to run unmanned for part of the time.

Simon Smith continues: "Process reliability and speed play a decisive role here. The machine must be capable of sawing a wide range of different materials rapidly and accurately."

With a cutting range in rectangular materials of 520 x 320 mm, two-way mitre cuts of 45° right and up to 30° on the left,



this machine is the perfect all-rounder for all kinds of sawing operations."

Simon Smith adds: "For reasons of cost and flexibility, profiles are generally purchased in stock lengths of up to 12 m and then sawn to size."

The new mitre cutting bandsaw is easily able to cope with both structural and solid steel together with stainless steel profiles.

In design terms, the new mitre saw has many features in common with the HBE Dynamic series, which has already proved a resounding success. The guidance system in its torsionally rigid gantry design and the bilateral band wheel bearings ensure quiet running and precise cuts. The band guiding components are made of vibration-damping grey cast iron, which has a highly positive impact on the quality of the cut surface, but also makes for a longer blade life.

Electrically powered chip brushes clean the saw blade providing optimum cleaning/swarf removal from the blade.

A major benefit of this new generation machine is the saw bow down feed that is electronically controlled via a servo ball screw drive. As a result, constant chip load and shorter non-productive times produce faster cut times and improve blade life

The inclined position of the band wheels helps prolong the life of bandsaw blades by reducing fatigue due to cyclical bending. A fully automatic

height adjustment facility for the saw frame and lowering of the saw when in rapid traverse help cut non-productive time to a minimum.

The inclined position of the bandsaw blade allows components such as steel beams, angles and U profiles as well as hollow rectangular profiles to be sawn at higher speed and with minimal burr.

The sawing unit is mounted for easy turning in generously dimensioned axial roller bearings and can be swivelled with a simple manual action. The closed material table simplifies material handling directly at the cutting point. The machine comes with a microspraying system as standard.

The machine can be supplemented, as required, with infeed and discharge roller conveyors, measuring devices and cross conveying systems, as well as NC angular adjustment. The HBE320-523G can also be supplied as an automated sawing system as a GA version. Behringer GmbH supplies these highly process-reliable customised transport solutions from its own in-house steel production facilities.

Behringer Ltd is based in Pitstone, near Leighton Buzzard, Bedfordshire. The company invites you to visit its service centre to see the new HBE 320-523G series machines together with its extensive range of straight and mitre cutting machines.

**Behringer Ltd**

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## The fast and cost-effective solution for removing 3D printed parts from the base plate

Additive manufacturing is becoming increasingly important in metalworking. A part of this process is the separation of 3D printed parts from the base plate. Significantly before 3D sawing became a trend, MEBA developed a concept which offers faster processing times and excellent cutting results at a lower cost.

The MEBA concept is based on the straight cutting saws of the MEBAeco product family. They stand for the latest machine technology, high efficiency and best cutting results. The metal bandsaw is equipped with a special clamping device for taking up the mounting plates and can release the 3D printed workpieces exactly on customers own mounting plate.

The 3D parts are printed on a plate and the customer fixes the plate on the MEBA device, which is optionally moveable and therefore precisely alignable by the linear guidances.

Currently there are two different sizes of plates available, a small and a large dimension. As soon as the plate is adjusted, the sawing task starts.

MEBA3D band saws remove the 3D

printed workpieces with speed, and precision, from the plate. The part falls and can be removed for further processing if necessary.

At the end of the sawing process, the device plate will be disassembled and can be used for further prints only with little rework. With minimal effort and a quick sawing cut, the 3D parts can be gently removed from the plate.

Compared with conventional productions processes such as wire eroding, the MEBA 3D sawing concept is extremely uncomplicated with only a few operating steps. The acquisition and maintenance costs are significantly lower. The long service life of the sawblade keeps the cost effort low.

Utilisation and amortisation of the saw are additionally favored by the fact that MEBA3D saws can also be used for standard sawing tasks with low retrofitting effort.

MEBA bandsaws are one of the leading manufacturers in metal cutting which is why MEBA's high quality saws can be found



throughout the world. Winning many awards and having patented designs, for example the Europe patented mitre system, MEBA remains a pioneer. Since 1958, it has invested in technology, state of the art engineering designs and the latest production techniques.

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