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<b>TABLE</b> 580 x 400 mm	<b>TABLE</b> 830 x 410 mm	<b>TABLE</b> 1,060 x 500 mm	<b>TABLE</b> 1,600 x 660 mm
<b>TRAVEL</b> 510 x 400 x 450 mm	<b>TRAVEL</b> 750 x 440 x 500 mm	<b>TRAVEL</b> 1,000 x 500 x 500 mm	<b>TRAVEL</b> 1,600 x 660 x 635 mm
<b>SPINDLE</b> 8,000 RPM	<b>SPINDLE</b> 8,000 RPM	<b>SPINDLE</b> 8,000 RPM	<b>SPINDLE</b> 8,000 RPM
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## Best-selling machining centre range continues to expand at XYZ Machine Tools

The XYZ range of Linear Rail (LR) vertical machining centres has proved to be extremely popular with customers, who recognise the value and performance benefits provided by the latest developments in linear rail technology. They provide a cost-effective alternative to the familiar heavy-duty box slideway machines, while retaining the high performance and excellent rigidity expected of XYZ Machine Tools.

The four-machine range starts with the extremely compact, but well specified XYZ 500 LR. With a footprint of only 1,660 mm x 1,860 with travels of 510 mm x 400 mm x 450 mm in X Y & Z, it can be located in any machine shop. Although compact, it is highly efficient featuring a solid cast iron construction with linear bearings in all axes that allows maximum use of the 8,000 revs/min, 18HP/13 kW BT 40 spindle, with the option of an upgrade to 12,000 revs/min. An automatic carousel-type toolchanger also enhances productivity.



The other machines completing the range are the 750LR, the 1000LR and the giant 1600LR, with the number referencing the size of the x-axis. The most recent addition is the XYZ 1600LR, which opens up many more machining opportunities, thanks to its 1600 x 660 x 635 mm XYZ axis movements along with increased spindle power of 20hp/15 kW. The XYZ 1600 LR also benefits from a 24 position arm-type toolchanger with tool-to-tool changover in 2.5 seconds. As with all of the machines in the XYZ LR range, it is constructed from solid cast components and control is provided by the ever popular Siemens 828D control, with optimised servo motors to maximise the 20 m/min feed rate capability.

While the standard machines are highly specified as standard, a range of practical options can enhance the machine capability. These include the 12,000 revs/min spindle, through spindle coolant, 4th axis capability and tool and workpiece probing.

Demonstrations of the capabilities of the XYZ LR machines, or any other machine available from XYZ Machine Tools, can be arranged at one of the company's technical centres around the UK or at its headquarters and factory in Devon.

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# Advanced Engineering is back for 2021

Providing a platform for the reunion of the supply chain and a launchpad for the future of manufacturing and engineering

The UK's largest annual gathering of manufacturing, design, and test and production engineering professionals, Advanced Engineering, will return to the NEC, Birmingham on November 3rd and 4th. Here, the UK's talented and vast engineering industry can meet again for the first time in almost two years to do business, make new connections and discover innovation.

Over the last twelve years, Advanced Engineering has earned the support of some of the world's key industry associations, such as The Institution of Engineering and Technology (IET), Composites UK, JEC, ADS, The Society of Motor Manufacturers (SMMT), The Society for the Advancement of Material and Process Engineering (SAMPE), GTMA, The Aluminium Federation (ALFED), The Surface Engineering Association (SEA), The Confederation of British Metalforming (CBM), Make UK, the Institution of Mechanical Engineers (IMECHE), GAMBICA, The UK Space Agency, The Department of International Trade, KTN and Innovate UK. The show also has support from the leading industry media across all sectors following twelve long-established successful years.

Advanced Engineering offers a great opportunity for the whole UK manufacturing supply chain to source innovation and technology spanning across multiple



sectors, including but not limited to aerospace, automotive, rail, marine, space & satellite, medical, renewables, and more. In 2019, over 10,000 professionals from the manufacturing sector attended Advanced Engineering.

"This year's Advanced Engineering will be a great opportunity to catch up with contacts, both existing and new," says Daniel Martin, manager of BIW & Enclosures at Aston Martin Lagonda. "I'm particularly looking forward to the chance where myself and colleagues can enjoy the first big event

all year to source technologies and products that will be vital for the bounce-back and future resilience of the British automotive sector."

Advanced Engineering is the go-to show for anyone wanting to meet the world's leading engineering and manufacturing companies, plus the UK's most innovative start-ups, thanks to the return of the show's Enabling Innovation zone, supported by Innovate UK. Here, ten chosen start-ups will have the opportunity to showcase their ground-breaking product or technology, before presenting it to a panel of esteemed judges to be crowned the Advanced Engineering innovator of 2021.

This year, there will be a new Space and Satellite zone, supported by UK Space Agency, ADS, GTMA, Skyrora, Surrey Satellite Technologies Ltd and Airbus Space & Defence, with a particularly special product feature due to be announced in the coming weeks.

As always, Advanced Engineering will host four open forums with speakers from Make UK, Volkswagen, Ford, IBM, BAE Systems, TFL, Toray Advanced Composites, the UK Space Agency, Vortex Engineering Group and Swiss CMT already confirmed. Forum topics include urban air mobility, 3D printing of composites, electrification in the automotive industry, AI and cyber security, cementing the show's position as the home



of everything that anyone working across the engineering and manufacturing supply chains could need.

"This year, Advanced Engineering returns to the NEC for its 12th edition to continue supporting the manufacturing and engineering supply chain," comments Alison Willis, director at Easyfairs, the organiser of Advanced Engineering. "At the show, visitors can access the latest innovation and technology from across various sectors all under one roof.

"Advanced Engineering is looking forward to welcoming back its OEM visitors including Airbus, Jaguar Land Rover, Dyson, Boeing, Tata, Rolls Royce. Again, this year's VIP hosts will be the Silverstone Technology Cluster. As ever we are proud to be supported by our loyal industry and media associations, without which the show wouldn't be possible. AE Connect will also be available to allow exhibitors to arrange meetings ahead of the two-day event. On top of this, there will be various networking sessions taking place allowing visitors to make new connections, which so many of us are looking forward to after the last 18 months."

"As we're the voice of manufacturing,

Advanced Engineering is a perfect fit for us," explains Roxanne Bennett from Make UK. "One of the questions we get the most is how we can support manufacturers and this show gives us the opportunity to answer that for companies across different sectors."

"Innovation cycles are so short now," states Simon Keogh, general manager at Siemens. "If you don't come to events like Advanced Engineering UK, you stand the risk of falling behind the times with the speed of innovation."

The presence of so many different sectors ensures cross-industry collaboration and allows attendees to meet professionals from all tiers of the supply chain, see the most innovative tech and set their business up for a successful start in 2022.

Moreover, with more than 200 hours of free CPD certified content, visitors will have the chance to learn from leading OEMs through case studies and presentations on key issues such as the skills gap, regulations and market forecasts.

"In periods of uncertainty, those who have the courage to innovate will stay afloat and keep ahead of their competitors," adds Aleiya Lonsdale, head of marketing at Advanced Engineering UK. "Now is the time

to learn new ways, innovate your business and network with people who can help you in this process. That's exactly what visitors will be able to do at Advanced Engineering."

Now, more than ever, it's important for the engineering and manufacturing industry to look to the future, whether in R&D, design, test & measurement, advanced materials, manufacturing, production or assembly. Advanced Engineering provides the perfect place to do just this, enabling the entire manufacturing and engineering supply chain to forge new relationships and build on existing ones, while discovering all the very latest innovative technology. Those interested in attending should visit the Advanced Engineering website to register and be the first to receive updates.

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## Matsuura Machinery Ltd becomes authorised reseller of desktop metal

Matsuura Machinery Ltd has announced a reseller partnership with leading 3D printer manufacturer, Desktop Metal. This development further cements Matsuura's position as one of the UK's technical centres of excellence for additive manufacturing technology, its industrial applications and profitable deployment with UK manufacturers.

Studio System™ 2 is designed for the office based production of metal components in just two steps: print and sinter. Fiber™ is a machine for the 3D printing of complex composite fibre shapes in a wide range of aerospace, motorsport and industrial grade materials. EnvisionTEC Extreme 8K™ is the largest capacity production-grade DLP 3D-printer in the world, printing at very fast speeds without sacrificing surface quality and part accuracy.

Roger Howkins, managing director at Matsuura UK, comments: "Our partnership with Desktop Metal further enhances and complements our existing 3D printer product range, giving customers an even

greater choice. Our experience and knowledge in the additive manufacturing sector spans many years, so customers looking to explore this market can expect to receive high levels of support from our additive team."

Paul Gately, regional sales manager for Desktop Metal, says: "We are delighted to enter into this reseller partnership with Matsuura UK. By combining the power of the Desktop Metal's portfolio of additive manufacturing solutions, with Matsuura's expertise in CNC machining, 3D printing and hybrid products such as the LUMEX Series, this partnership affords Desktop Metal superb visibility in the UK & Ireland markets. Partnering with Matsuura delivers Desktop Metal products direct access to premier CNC machining companies that could benefit enormously by diversifying their manufacturing to include Desktop Metal products in their production armoury."

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# Subcontractor goes barmier over new Dugard machine

Located near the major automotive OEMs in Warwickshire, 2G Tooling Ltd has rapidly built a prestigious reputation for manufacturing everything from fly press tooling through to large drawn tools. To expand the scope of its toolmaking capabilities, the Southam-based subcontractor has recently purchased a large bed 5-axis Ibarmia machining centre from Dugard.

Offering a complete service from subcontract machining through design and manufacture, the specialisation in precision press tooling, jigs and fixtures has carved a niche for 2G Tooling. To expand the flexibility and capacity of the business, the company has just acquired an Ibarmia ZVH45 L3000 Star 5-axis machining centre that has a 3 m bed, a travelling column, +/-105-degree B-axis, a rotary table and a capacity for up to 6-tonne workpieces on the bed.

Chris Peters, managing director of 2G Tooling, says: "The main reason we bought this machine was to give us extra flexibility, extra capacity and size. It is a much bigger machine than what we previously had, which we part exchanged for the Ibarmia. What sold this machine to us was a Zoom meeting with the factory in Spain where the machines are manufactured. The difference between Ibarmia and what I have seen before from most mass-produced machine manufacturers is a bespoke setup and family ethos of the business. You could actually see each machine going through production with more time and care being spent on each machine that is bespoke to the individual customers."

When asked why the company specified the Ibarmia ZVH45 L3000 Star model, Chris Peters says: "This machine will not only give us extra capacity but much greater flexibility. Having the rotary table and the B-axis will allow us to machine components for sectors that were very difficult for us to do previously."

With a BT/CAT 50 spindle taper and 27/39 kW of spindle power, the high torque 12,000 rpm spindle also demonstrates an exceptionally stable and powerful platform for heavy material removal rates and extended cutting tool performance. Chris Peters states: "The flexibility and the reach of the machine will enable us to reduce the overhang of tools from 100-150 mm to 30 to 50 mm. This will



improve the stability of our tooling, the surface finishes and subsequently improve our tool life. It will also give us faster cycle times and reduce our costs on cutting tools. These are all improvements the machine will provide for us. We can see the potential savings and also an even better quality of product for our customers."

The machine installed at 2G Tooling incorporates the latest generation Heidenhain TNC640 HSCI CNC control system, on-machine probing, linear glass scale feedback on all axes with pre-loaded rolling shoes and a 40 position ATC. The new installation also provides 40 m/min rapid feed rates, through coolant spindle, swarf conveyors and much more.

Looking to the first parts that 2G Tooling will be putting on the Ibarmia machine, Chris Peters continues: "We are currently designing a tooling job for a customer and we are already designing the job in a way that will accommodate this machine. There will be certain features and things like holes in the sides that we can now undertake in a single setup, which would previously have been three or four setups." The ability to machine large parts in full 5-axis will significantly reduce secondary setups and lead times for 2G Tooling, while the



on-machine probing system will provide confidence that every part coming off the machine will be machined to impeccable precision levels without secondary setups.

The Ibarmia provides a spacious 3 m by 800 mm by 800 mm in the X-, Y- and Z-axis with an 800 mm diameter integrated rotary table that has a 1.1 m swing. This not only enhances flexibility for the company, but the integrated table also demonstrates astounding rigidity and stability for 5-axis machining.

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# Where innovation meets design

Bespoke luxury product design and manufacturing specialist strengthens its 5-axis machining capabilities with its latest Mikron machining centre investment

GF Machining Solutions, the 3- and 5-axis milling, EDM, laser texturing and Additive Manufacturing (AM) machine tool specialist and automation systems' solutions provider, recently supplied Luzzo Bespoke Ltd, a well-known and highly regarded design and manufacturing specialist of innovative bespoke products, with a new Mikron MILL E 700U 5-axis machining centre.

The rigidly built and ergonomically designed machine, which features an integrated 7-station Automatic Pallet Changer (APC), was installed at the company's 10,000+ sq ft facility in Brackley in April 2021 and is being used to machine, in low volumes, a range of high-precision and often complex-shaped components that go into the bespoke products manufactured by Luzzo Bespoke for its growing number of high-end automotive, motorsport, and lifestyle customers.

These components, made from a diverse range of materials are machined to high accuracy, typically +/- 0.1 mm and to exacting surface finishes. The MILL E 700U is also being used to machine special and innovative workholding and fixtures, as well as numerous prototypes and pre-production parts integral to the company's Design for Manufacturing (DfM) services.

The machine joins another Mikron 5-axis machining centre, a HEM 500U, acquired by the company in 2016. Together, these two

high-performance 5-axis machining centres provide Luzzo Bespoke with fast, efficient and reliable milling capabilities and proven machine tool technology designed to improve part accuracies and repeatability's and increase productivity.

### Investment rationale

Like many other manufacturers, Luzzo Bespoke felt the impact and effects of the pandemic. Staff were furloughed and several orders and contracts were postponed with some cancelled altogether. However, during the summer of 2020, business began to pick up and has been on an upward trajectory ever since.

Brian Challenger, Luzzo Bespoke's managing director, says: "Since the beginning of 2021, things have improved considerably. So much so in fact that we could see that if we didn't strengthen our existing milling capacity and capabilities, sooner rather than later, production 'pinch points' would occur that would detrimentally affect our operational efficiencies and productivity. As a result of these deliberations we decided to invest in a new machining centre"

### Got to be 5-axis

Luzzo Bespoke is a keen advocate of 5-axis machining and of automation. Brian Challenger explains: "Over the past 12 years

our machine shop has changed and improved dramatically from having no CNC machine tools to one that boasts high-performance CNC multi-tasking lathes and 3- and 5-axis machining centres.

"We believe that 5-axis machining is the way to go. The technology makes us more flexible and enables us to machine parts in fewer setups, often in one hit. This makes us more efficient and productive."

The same is true of automation. Brian Challenger continues: "Machines with integrated automation have the ability to run 'lights out' overnight and over the weekends. A machine with integrated pallet change capabilities can give us up to 14 hours additional machining time per day, a massive boost to our productivity."

### Got to be Mikron

Luzzo Bespoke has invested in a number of Mikron 3- and 5-axis machining centres over the years and, prior to the arrival of the new MILL E 500U, had two 3-axis machining centres, VCE 800 Pro and one 5-axis machine, HEM 500U, at its disposal.

"We approached GF Machining Solutions and other companies with our requirements," recalls Brian Challenger. "Taking the machine cost, its availability and its technical specifications into account, as well as the applications and service back up of GF Machining Solutions, we invested in the Mikron MILL E 700U."

The new Mikron MILL E 700U machining centre is helping Luzzo Bespoke improve its productivity and performance. Since being installed, the MILL E 700U's full simultaneous 5-axis machining capabilities have been put to full use machining complex features and details that could only be achieved previously by using a multitude of special fixtures or multiple setups.

Brian Challenger concludes: "The future is 5-axis machining and over the next few months, we intend to make further investments in this technology."

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# Improved Heller 5-axis HMCs offer increased accuracy, productivity and versatility

Heller has introduced a second generation of its HF-series of 5-axis, horizontal-spindle machining centres which it is marketing under the slogan 'Be A Performer'. The HF 3500 and HF 5500 incorporate a multitude of improvements that may be examined via the company's website landing page:

[www.heller.biz/performance/en](http://www.heller.biz/performance/en). The recently introduced fourth generation of Heller H-Series 4-axis HMCs also shares this page. All machines are available in the UK and Ireland through the German firm's subsidiary in Redditch where both of the HF machines are assembled as well as many of the H-series models.

Since their launch in 2016, the robust, dynamic, 5-axis models have been available with a fixed table or an automatic pallet changer. The working volume of the HF 3500 remains 710 x 750 x 710 mm, but the larger model has gained 30 mm in the Z-axis, so travels are now 900 x 950 x 930 mm. Both machines are available with either an HSK-A63 or HSK-A100 tool interface and in three versions, POWER, SPEED and the new option of PRO. The latter is intended for long periods of simultaneous 5-axis machining.

Designed to raise cutting performance, innovations in the second generation include an approximate halving of the minimum distance between the spindle nose and the centreline of the 225-degree swivelling trunnion; the availability of twin motors and ballscrew drives for moving the trunnion/rotary table assembly in the Z-axis, with position feedback via linear scales and the offer of six new spindles produced in an automated facility at Heller's headquarters



in Nürtingen. As before, a column travelling over the bed executes the X-axis motion, while Y-axis movement is performed by the spindle head moving up and down the column.

Other notable improvements in Gen2 machines include increased stiffness of key components, shorter chips-to-chip times and faster tool change from a chain-type magazine with up to 240 pockets or a rack-type magazine with up to 405 positions. The high-end PRO package additionally offers 10 m/s<sup>2</sup> acceleration in X, Y and Z. The guideways employ linear roller bearings, enabling high dynamics and rapids up to 90 m/min, while the rotary axes have direct drives and stable YRT bearings. There is also increased feed force in the Z-axis, dynamic motors driving the rotary axes and the option of adding a turning function using a high-speed rotary torque table.

Maximum table load has been increased on the HF 3500. It is 650 kg on the PRO and up from 400 kg to 550 kg on the SPEED to match the standard POWER model. Information on the mass of each pallet and fixtured component can be entered into the pallet management software. This is especially beneficial when configuring a flexible manufacturing system linked by multi-pallet storage from Fastems or Erowa. It enables automatic monitoring of load weight so that rapid traverse in the Z-axis can automatically be reduced for heavier

loads. The dynamics of the rotary axes may be similarly adjusted when the pallet weight is high. An integrated, five-point media interface with 80 bar or 200 bar hydraulic pressure is provided to actuate fixtures in the work area and feed data back to the control.

The use of stainless steel in the machine construction, notably in the working area and the tool and workpiece setting stations, enhances durability. Steep side walls promote efficient evacuation of swarf. LED lighting has been improved in all operator areas and a camera can be integrated above the tool change door. Easy access to the working area, a short distance from the front of the machine to the spindle and a low component loading height ensure ergonomic machine operation.

As regards to the spindles, newly availability are a pair of Dynmaic Cutting (DC) universal direct-drive motor spindles, HSK-A63/16,000 rpm/56 kW/180 Nm and HSK-A100/12,000 rpm/45 kW/400 Nm. There is also a Power Cutting (PC) spindle rated at HSK-A100/10,000 rpm/45 kW/360 Nm and an HSK-A100/13,000 rpm/45 kW/228 Nm Speed Cutting (SC) spindle. Two further spindles with an HSK-A63 interface are rated at 12,000 rpm/45 kW/228 Nm (PC) and 18,000 rpm/45 kW/103 Nm (SC). To minimise non-productive times, Heller has succeeded in achieving a big reduction in run-up times for the new

spindles with maximum revs now reached in 1.4 seconds for the HSK-A63 variants and 1.8 seconds for HSK-A100.

All feature Heller's Zero-Spindle system for rapid interchangeability, leading to maximum machine availability coupled with low service costs. It is noteworthy that all of the manufacturer's compact spindles feature ease of servicing and integrated leakage checking to prevent damage. A facing slide system for internal boring and external turning is available, with control of the requisite U-axis already integrated into the machine's Siemens Sinumerik 840D SL control.

Heller4Industry functions are very much in evidence for enhancing production



efficiency and for machine monitoring. The optional software suite is universally applicable from a single machine with or without a network connection, through multi-machine sites, to multi-site operations with cloud-base communication. The standard umati interface, universal machine technology interface, enables machine and production data acquisition. Monitoring of potential collisions, energy consumption,

axis wear, spindle condition and tool overload and breakage are all application options.

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# DMG MORI automates 5-axis machining in the smallest of spaces

The DMP 35 sets new standards in highly productive machining from aluminum to titanium with minimal footprint and compact automation

DMG MORI is complementing its offering of high-speed compact machining centres with the new DMP 35. It is based on the same proven quality components as the DMP 70, enabling DMG MORI to produce complex workpieces from a wide range of materials from aluminum to titanium highly efficiently, reliably, precisely and in the smallest possible space. With a footprint of 3.15 m<sup>2</sup> and a minimum dismantling height of 2,280 mm, the DMP 35 makes optimum use of even tightly dimensioned production areas.

It provides the most compact milling on a footprint of only 3.15 m<sup>2</sup> and a width of only 1,285 mm. Optional 5-axis simultaneous machining provides the highest milling performance and free chip fall due to the swivelled A-axis with optimum accessibility to the work area without restrictions. It comes with quality components from DMG MORI: In-line spindle with 15,000 min<sup>-1</sup>, optionally 24,000 min<sup>-1</sup>; Tool magazine with 15 places, optionally 25 places.

"In particular, users in competitive industries such as manufacturing and medical technology benefit from the added spatial value of the DMP 35," emphasises Fabian Suckert, managing director of DECKEL MAHO Seebach. Traverse paths of 350 x 420 x 380 mm are more than impressive on a width of only 1,285 mm. At the same time, DMG MORI has equipped the DMP 35 so uncompromisingly already in the standard version that it meets the requirements of demanding production



at all times with an in-line spindle with 15,000 rpm, direct absolute path measuring systems in all axes and the tool magazine with 15 places for tools up to 150 mm long. Optionally, 25 tool places are possible, which only marginally increases the width of the DMP 35 to 1,410 mm. The modular system also includes a spindle with 24,000 min<sup>-1</sup> and an HSK-A40 or SK 30 interface.

### Highly flexible thanks to optional 5-axis simultaneous machining

The equipment of the DMP 35 includes an in-line spindle with 15,000 min<sup>-1</sup>, direct absolute path measuring systems in all axes and the tool magazine with 15 places for tools up to 150 mm long.

The DMP 35 becomes a true all-rounder with the integrated table for 5-axis simultaneous machining, which is also available. The highly stable design of the compact machining centre ensures vibration-free and highly accurate milling in applications with the highest quality requirements with free chip fall. DMG MORI also offers an internal coolant supply with 40 bar and a chip conveyor with a capacity of up to 1,000 cm<sup>3</sup>/min. This and the internal doors ensure high process reliability in production.

### Compact automation for even more productivity

The DMP 35 allows highly efficient, reliable

and precise production of complex workpieces made of a wide range of materials from aluminum to titanium.

With only 1.15 m<sup>2</sup> of additional floor space, the WH 3 on the DMP 35 is the most compact automation solution from DMG MORI. Users can therefore increase their productivity many times over. The DMP 35 autonomously produces fully automated components with short changeover times in top quality. DMG MORI customers now benefit from innovative programming. With the new input programming on the WH 3, the setup process can be enormously simplified and shortened. In this way, even inexperienced programmers can set up components quickly and easily. Combined with the WH 3 and the right technology, the DMP 35 becomes the right manufacturing solution.

Digitisation is changing our world both quickly and radically. The switch to digitisation requires fundamental further development which can only be achieved globally and jointly, in strong partnerships and on an equal footing. DMG MORI continues to develop positively, technologically, structurally and culturally.

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# Hurco machining centres support subcontractor's rapid growth

Installation of one Hurco Vertical Machining Centre (VMC) per year between 2013 and 2017, plus the addition of a sixth in May 2021, partly to take advantage of the UK government's 130 percent capital allowance, has coincided with a sustained improvement in the level of business at subcontract machining firm Kelvin Precision Products. Disregarding the first year, when the start-up firm's income was relatively low and therefore unrepresentative, turnover has increased five-fold compared with the second year of trading.

Like many employees working at subcontracting firms, James Staniford dreamt of branching out on his own. After an eight-year stint at a company in nearby Horsham, he took the plunge in 2013 and started Kelvin Precision Products with Claire McGrath, now the business director, who invested capital and owned a suitable 4,000 sq ft unit within the Kelvin Business Centre in Crawley.

The enterprise had the help of James' friend and mentor Alan Lamberth, who used his turning experience to help out at evenings and weekends. It boosted this side of the business at the time and allowed Kelvin to take on much more complex manual turning than would otherwise have been possible.

However, it was prismatic machining that quickly took precedence and it now accounts for around 85 percent of turnover. An online auction on eBay secured the first contract to machine a range of small laboratory components from acetal and aluminium for a customer in the scientific industry, which was also a start-up. Soon afterwards a manufacturer of broadcasting equipment, another new company, discovered Kelvin via its website and placed an order for a range of milled components. Both companies are still regular customers, along with about a dozen others.

The contracts were fulfilled on a Hurco VM10 3-axis VMC, which was purchased new along with a manual lathe, a knee-type mill and a finisher when James started the business. A Hurco machine was chosen for the first major purchase due to the Windows-based conversational programming capability in the machine's WinMax control.



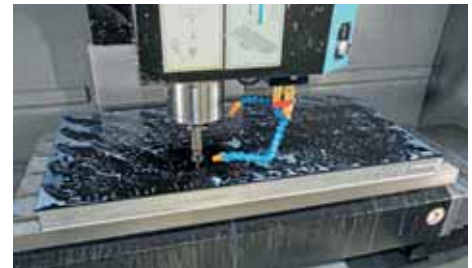
James Staniford says: "At the outset we didn't have a CAM system, so relied on WinMax and its menu-driven 3D graphics interface to prepare cycles for machining our customers' components, some of which were quite complex.

"At that time, the other shortlisted machine had a G-code control and 2D graphics, so we regarded the Hurco offering as superior.

"As time went on and parts became even more complicated, we invested in Autodesk FeatureCAM Ultimate CAD/CAM software, but WinMax is quicker for programming simple components and we still use it about one-third of the time."

Following the success of the first VMC, one year later another 3-axis machine was installed: a VM10i with more advanced control technology and diagnostics. Then the first 5-axis machine arrived, a VM10Ui, followed by a second in 2016. A larger VM20i 3-axis VMC with a 1,168 x 508 mm table was delivered a year later and then a third 5-axis VM10Ui in early 2021. Interspersed among these purchases were a sliding-head lathe in 2014 and a fixed-head lathe in 2018.

Having half of its prismatic metalcutting capacity able to produce components efficiently in fewer setups using three - plus two-axis cycles, with the rotary axes positioned and clamped, sets Kelvin apart from many of its competitors of similar size.



It enables high quality work typically to tolerances of  $\pm 0.05$  mm to 0.10 mm to be turned around in short time scales. Normally, components are put on a 5-axis machine at Crawley for Op 1 and a 3-axis machine for Op 2 if it is relatively simple. Fully interpolative 5-axis milling and drilling on the Hurcos is available if suitable jobs come along.

Based close to Gatwick Airport, the subcontractor offers machining services with delivery to the south-east of England and to the rest of the UK and Europe via a mail order service, with customers emailing a drawing or CAD file. A regular part of the company's activity is working for other contract machining firms that require more capacity to get an important job out on time.

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## Arcot Engineering upgrades with new 5-axis machine investment

Northumberland-based Arcot Engineering has upgraded its capabilities by investing in new cutting-edge machining technology. The company has invested in a Yamazaki Mazak CV5-500 5-axis machining centre, a machine ideally suited for engineering companies looking to make their first move into 5-axis work.



Kevin Graham, machine shop manager at Arcot Engineering, says that the investment will help the company break into new sectors requiring more complex machining work and also help to make Arcot much more productive: "The company has a long history of working with vertical machining centres, but we've had ambitions to move into more complex and lucrative 5-axis work for some time.

"The CV5-500 is priced at a very competitive level for subcontract manufacturers like ourselves but still has the usual Mazak build quality. The machine will help take on more complex work and get more jobs through the machine shop."

Arcot Engineering was established in 1986 by the Graham and Mason families, who continue to be involved in the business that now employs 13 people at its Cramlington site in Northumberland. The company has developed a strong reputation manufacturing parts for a variety of industries, with particular strength in oil and gas, torque tension tools and hydraulics.

"Our new 5-axis capabilities mean we can perform multiple tasks on one machine, which in turn reduces setup times," says Steve Mason, machine shop floor manager at Arcot Engineering. "We're now doing three, four or five phases of a job in one setup and also reducing cycle-times by a minimum of 30 percent thanks to the 12,000 rpm main spindle. This machine is going to make us much more competitive."

The move into more complex 5-axis work was aided by Mazak, one of the world's leading manufacturers of machine tools, who provided a full week of off-site training. "The CV5-500 is programmed using Mazak's own SmoothX control. I've never run a Mazak before but I've found the programming to be really easy and very user-friendly," adds Steve Mason.

Alan Mucklow, UK managing director for sales and service at Mazak comments: "One of the main reasons for developing the CV5-500 in the UK was the need to help subcontract manufacturers make the move into 5-axis work at an affordable price, while retaining the quality of machine that people expect from Mazak."

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# GM CNC introduces latest addition to turning line-up

As part of its growing portfolio of machine tools, GM CNC has now introduced the impressive Victor Vturn-A20Y turning centre. Available from GM CNC, the Victor Vturn-A20Y demonstrates unparalleled stability and rigidity that sets the platform for exceptional machining performance.

The Victor Vturn A-Series of turning centres that are available from GM CNC has now been upgraded with increased structural rigidity on the headstock, box slideways, turret and carriages making the next generation Vturn A-Series more formidable than ever before. With the latest technology, such as Direct Drive Spindle (DDS) built-in as standard, the A-series lathes demonstrate the utmost in component surface finish quality and the highest angular accuracy through Victor's in-house designed and built turret.

The Victor Vturn-A20Y offers a swing over the bed of 700 mm with a 550 mm swing over the carriage. The compact footprint machine offers a turning capacity of 630 mm between centres with a maximum turning diameter of 390 mm and a bar capacity of 52 mm with 66 or 75 mm being an optional choice for manufacturers bar feeding larger components. The YSCM option machine has an X-axis of 150+35 mm on and a Z-axis of 600 mm, the spacious work envelope provides flexibility and capacity to suit every machine shop.

The remarkably rigid machine base has an equally robust Victor servo driven VDI or BMT tooling turret option with 12 tool positions that can accommodate tool shanks up to 20 mm. The power of the Victor spindle motor is class leading for a turning centre of this size, demonstrating an 11/18.5 kW continuous spindle motor with a maximum spindle speed of 5,000 rpm that has exceptional torque levels throughout the speed range. The combination of the powerful high-torque spindle, robust machine structure and stable tooling turret permits unfathomable material removal rates and surface finishes regardless of the materials being processed.

The exciting Victor Vturn-A20Y turning centre is available with a multitude of optional extras to meet the diverse demands of the marketplace. At present, GM CNC has stock models available with the AICC-2 for FANUC 0i-T (10.4") CNC, an upgraded Kitagawa chuck, the Grundfos SPK4-8 or MTH4-40/4 high pressure coolant system, the Renishaw manual tool pre-setter, a barfeed interface, a swing type parts catcher, four addition 'M' codes and also an oil skimmer. For customers that wish

electrical cabinet, fully enclosed splash guarding, hand wheel with remote MPG, toolholders, coolant flush on Z-axis cover, 3-step warning light and the FANUC CNC control e-books. The Victor brand is well recognised for its build quality, longevity, reliability and heavy-duty build quality that sets Victor apart from its competitors.

If you would like to find out more about the Victor Vturn-A20Y turning centre or any other class leading machines from Victor, contact GM CNC for more information.



to tailor the Victor Vturn-A20Y turning centre to their specific production needs, the machine can be supplied with either manual or automatic Renishaw tool pre-setter, part catcher, auto door opening, bar feed interface, air blast system, high-pressure coolant, oil skimmer, larger spindle bore, 66 or 75 mm, gantry loading robot, independent tailstock, bolt mounted turret, gear hobbing interface and of course the option of a sub-spindle for the ultimate in highly productive and robust turning.

While all these options can be accommodated to create the perfect long-term solution for your machine shop, it should not be overlooked that the base model of the Victor Vturn-A20Y turning centre from GM CNC is supplied with an impressive list of standard accessories. These include a hydraulic chuck with soft jaws, programmable tailstock, chip conveyor with cart, air conditioner for the

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

By incorporating the Victor brand into the highly dynamic GM CNC business model, manufacturers now have the opportunity to invest in industry-leading technology that is backed by decades of machine tool expertise.

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## Ground-breaking sub-spindle lathe now available

The addition of the XYZ SS 65 twin/sub-spindle turning centre to XYZ Machine Tools' range breaks new ground as it is the company's first foray into multi-spindle turning centres. The machine has been introduced due to demand from customers looking for increased productivity and reduced spindle downtime.

The XYZ SS 65 is a very well specified machine, built to the highest standards, that will help dramatically reduce cycle times and keep spindles operating at maximum efficiency. The 16.5 kW, 4,000 revs/min, main spindle has a 65 mm bar capacity, with 200 mm diameter chuck as standard and this is complemented by the 150 mm chuck on the 11 kW, 5,000 revs/min, sub-spindle, which has a 52 mm bore. The German-built Sauter 12-position turret has live tooling at every station, with 100 mm (+/- 50 mm) Y-axis travel. Contouring is facilitated by the C-axis on both spindles which are equipped with a brake to allow substantial milling cuts to take place. Maximum turned diameter is 380 mm and the Z-axis travel is 520 mm, providing a significant working envelope.

Control is provided by the Siemens 828D ShopTurn 15-inch touchscreen control, which can be enhanced with the optional Siemens offline programming and CAD reader software if required. All this is built around a 30-degree slant-bed design with linear ways for faster positioning speeds. It is a solid cast construction meaning the XYZ SS 65 weighs in at 5,000 kg, a solid base from which to maximise performance.

"This twin/sub-spindle turning centre with live tooling and Y-axis arrives at a time when companies are bouncing back from the restraints of the COVID pandemic, but a time when finding skilled labour is challenging. The ability to machine parts in one-hit, thereby reducing part handling and idle time, will enable machine shops to maximise productivity and spindle up-time while making use of available labour. At around £120,000, the high specification is on offer at a tempting price point for either existing sub-spindle users looking to upgrade or those looking to take their first



steps into benefiting from the technology," says Nigel Atherton, managing director of XYZ Machine Tools.

The XYZ SS 65 is available for demonstration at XYZ Machine Tools Devon headquarters with a limited number of machines available ex-stock for those with urgent requirements.

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# Racing certainties

Leading precision subcontractor, with strong and well-established relationships with the motorsport sector, invests in three new Doosan machining centres from Mills CNC

Mills CNC, the exclusive distributor of Doosan machine tools in the UK and Ireland, has recently supplied precision subcontract specialist SRD Engineering Ltd with three new Doosan machining centres.

The machines, two DNM 4500, 3-axis, vertical machining centres supplied with Nikken 4th-axis units and a best-selling DVF 5000 simultaneous 5-axis machining centre, were installed at the company's 18,000 sq.ft. facility in June 2021.

Since their arrival, the new Doosans are being used to machine a range of high-precision and often complex components for customers operating in the F1 and motorsport, automotive, electronics, medical devices, power generation and aerospace sectors to name a few.

These components are machined in small-to-medium batches and are made from a diverse range of materials that include inconel, titanium, stainless, steels, aluminium, plastics and nylon.

Typical components machined by SRD Engineering are characterised by their tight tolerances and exacting surface requirements. Part cycle times vary considerably, from a few minutes at one end of the spectrum through to over nine hours at the other end.

The parts machined by SRD Engineering are also required, in many instances, in double-quick time with very short lead times especially where the F1 and motorsport sectors are concerned. This helps explain why the company operates 24/5 and why it is committed to investing in technologies that are designed to improve productivity and efficiency levels.

SRD Engineering was established in 1989 by Steve Bonham, Mark and Paul's father and two other business partners. As is the case with many new start-up businesses, the company had humble beginnings operating, in the first instance, from small and cramped rented premises in Bicester using second-hand machine tools.

"It was actually a cowshed," recalls director Mark Bonham, "but it served its purpose and got the fledgling company off the ground."

Despite the modest beginnings, the company, built on the principles of



delivering high-quality and competitively priced machined components to customers on time every time, thrived. Surviving some bumps along the way, that included the 2008/09 recession and the recent Covid-19 outbreak, SRD Engineering's fortunes have been on an upward trajectory. Over the last 32 years the company has changed dramatically and grown exponentially.

It has expanded its operations considerably and has relocated twice since the early 'cowshed' days, the first occurring in 1995 when it moved to a more spacious 2,500 sq.ft. facility and the second in 2014, when the move to the larger, modern and well-apportioned 18,000 sq.ft. facility, its current location, took place. The company now employs 85 members of staff and has almost 40 CNC machine tools at its disposal.

### Machine tool investment history and strategy

A significant percentage are Doosan machine tools supplied by Mills CNC. Even a

quick and cursory look at the Doosan lathes, turning centres and machining centres acquired by SRD Engineering reveals the company's commitment, evident over many years, to investing in multi-tasking and multi-axis machines.

The majority of the 13 Doosan Lynx and Puma lathes at the company's facility have sub-spindles, Y-axes and driven tools and its Doosan DNM machining centres have integrated 4th-axis units.

Mark Bonham explains: "We are always looking to increase our machining capabilities and not just our capacity. Multi-tasking and multi-axis machine tools help increase our productivity and operational efficiencies. Being able to machine components in one hit and reduce part cycle times enable us to better meet customer deadlines.

"Furthermore, reducing the number of job setups required to complete a job and avoiding the need to transfer jobs from one machine to another ensures that part accuracies and repeatability's are not compromised."

The company's commitment to investing in multi-tasking machines is matched by its commitment to Doosan machine tools and to Mills CNC.

Mark Bonham states: "Doosan lathes and machining centres are good machines and, from a price: performance perspective, are difficult to beat. The fact that over 50 percent of the CNC machines we have in our

facility are Doosan machines is testament to their consistently high performance and reliability.

"We are similarly impressed with Mills CNC. The company is proactive, knows our business inside-out and has, what we consider to be, 'industry-leading' and 'best-in-class' after-sales service and support.

"We had previously invested in Doosan DNM machining centres with 4th-axis units some years earlier and, owing to the machines' reliability and performance, decided to replace two of our older milling machines with two new DNM 4500 machining centres."



The two DNM 4500 machines supplied to SRD Engineering are equipped with the latest FANUC 0iMP control, 12,000 rpm directly coupled spindles, integrated thermal compensation, LM roller guideways, 30 tool position quick-change ATCs and Filtermist extraction systems. To increase the productivity of the machines, both were also supplied with Nikken CNC202 rotary tables.

SRD Engineering is no stranger to 5-axis machining and has a dedicated 5-axis milling section in its facility. Mark Bonham explains: "We are keen advocates of 5-axis machine tools and of 5-axis machining and the way that both can dramatically improve company productivity and performance.

"In discussing our future milling requirements and production strategies with Mills CNC's sales and application engineers, we decided that the third machine we would acquire would be a high-performance, simultaneous 5-axis machining centre capable of processing a range of parts."

The machine identified was the best-selling Doosan DVF 5000, a compact, simultaneous 5-axis machining centre equipped with a 12,000 rpm direct-drive spindle, 60 tool position ATC, linear guides, an efficient swarf conveyor system, Filtermist extraction and the FANUC 31iB5 control.

Mark Bonham concludes: "Although SRD Engineering is a very different company to the one that was established 32 years ago, not everything has changed. We still operate on the same quality, lead time fulfilment and cost down principles that we did when first established and our commitment to continuous improvement, as evidenced by our recent investment in three new Doosan machining centres, remains a priority."

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# Secure machining for tough surfaces

Sandvik Coromant has launched two new turning grades specifically designed for the machining of Heat Resistant Super Alloy (HRSA) materials. The S205 turning grade for finishing and semi-finishing and the Ceramic CC6165 grade for roughing to semi-finishing applications are designed for machining difficult surfaces in HRSA.

HRSA materials are typically used for aircraft parts that face extreme performance demands. Their high strength at elevated temperatures means the materials can retain their hardness when facing intense heat. The demand for lower emissions, higher fuel efficiency and power density in the transport and energy makes HRSA materials particularly valuable in these applications.

As HRSA materials are metallurgically composed to have high strength at temperatures up to 1,000 degrees Celsius, the stresses generated when machining them are high. The unique capability of these nickel, iron and cobalt-based super alloys to perform close to the melting point of their basic metal gives them generally poor machinability.

Sandvik Coromant's new turning grades are optimised with these machining challenges in mind. Developed for last stage machining applications in aerospace engine components, the S205 is a Chemical Vapour Deposition (CVD) grade that offers increased productivity through higher cutting speeds in semi finishing and finishing applications.

Coated with second generation Inveio® coating for high wear resistance and long tool life, post treatment technology strengthens the S205 insert by modifying its mechanical properties. The Inveio technology forms tightly packed uni-directional crystals around the insert to create a strong protective barrier, while delivering maximum thermal protection to improve crater wear and flank wear resistance.

Ideal for use with aged nickel-based materials and pre-machined surfaces, for machining components such as aircraft engine turbine discs, rings and shafts, the S205 boasts 30 to 50 percent higher cutting speeds than competing HRSA turning grades without compromising tool life.

The qualities of the CC6165 turning grade also offer superior resistance. Made from SiAlON ceramic, a specialist class of



high-temperature refractory materials with high strength at high temperature, the CC6165 is optimised for roughing and intermediate stage machining HRSA as well as for profile and general turning applications.

Similar to the S205, typical components machined with the CC6165 are turbine discs, casings rings and valves.

Following its predecessor, the CC6160 turning grade from Sandvik Coromant, the CC6165 has improved edge line toughness for secure machining of more demanding HRSA surfaces. It also allows for higher metal removal rates, helping to increase productivity and reduce the cost per component.

"While the CC6160 grade is the first choice for roughing to semi-finishing of pre-machined HRSA in stable conditions, the new CC6165 is able to meet the demands of more difficult to machine surfaces," explains Rolf Olofsson, product manager at Sandvik Coromant.

"The CC6165 and the S205 have been developed to help machinists overcome the difficulties of HRSA, so they can make the most out of the materials' unique benefits. In fact, analysis has demonstrated a 210 percent increase in tool life when using the S205 to machine an aged Inconel test bar, compared to results from a competing tool."

The introduction assortment of the S205 includes 36 items, with more to be added during spring 2021. The Ceramic CC6165



grade is also available in a range of assortments to meet the demands of varied industries and materials.

To learn more about Sandvik Coromant's turning grades for HRSA materials visit its website.

Part of global industrial engineering group Sandvik, Sandvik Coromant is at the forefront of manufacturing tools, machining solutions and knowledge that drive industry standards and innovations demanded by the metalworking industry now and into the next industrial era. Educational support, extensive R&D investment and strong customer partnerships ensure the development of machining technologies that change, lead and drive the future of manufacturing. Sandvik Coromant owns over 3,100 patents worldwide, employs over 7,900 staff, and is represented in 150 countries.

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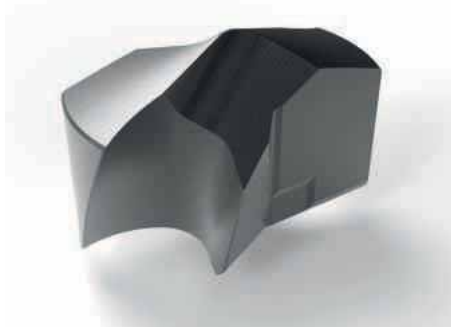


# ITC expands drilling range

The WIDIA range of solid carbide and indexable insert drills from Industrial Tooling Corporation (ITC) has now been expanded with a range of new indexable inserts added to the WIDIA TOP DRILL™ TDMX modular drilling line. The WIDIA TDMX Modular X drilling line is the ultimate choice for demanding drilling applications and the new MS geometry delivers stable modular drilling for general engineering and energy applications on steel and stainless steel. The new MS geometry insert for the WIDIA brand's best-selling TOP DRILL Modular X (TDMX) drill now sees the TDMX platform offer three material-specific inserts. This addition to the line-up broadens the platform's application capabilities to include inclined entry and exit, stacked plates and cross-hole drilling in steel, stainless steel, superalloys and cast iron.

"The launch of the MS geometry insert for our TDMX portfolio gives customers a versatile tool for multiple workpiece materials and applications," says Ashokkumar D, WIDIA global portfolio manager. "This new MS geometry is designed to perform in different types of stainless steels and superalloys, making it an ideal choice for customers looking for excellent stability and reliability in general engineering operations."

In a recent customer test, the TDMX body, paired with the new MS geometry insert, achieved a 60 percent increase in tool life when trialed against competing solutions while machining a 13-8 Hyper Chrome 110 KSI workpiece material at 3XD with a cutting speed of 75m/min. The drill has an 'X'-shaped pocket and a tapered seat that combine to provide stability in challenging applications. Added to the stability is an ease-of-use with the new design making it easy to change the insert without disassembling the body from the holder.



These key design features reduce unstable cutting conditions experienced with other drills. The TOP DRILL Modular X (TDMX) also achieves higher penetration rates and it reduces overall machine setup times and costs.

All three inserts can be reground to extend the life of the tool. The TDMX is available in both imperial and metric sizes in 1.5xD, 3xD, 5xD, 8xD and 12xD with a diameter that ranges from 16 to 40 mm. Orders for the TDMX and MS geometry insert as well as other WIDIA metal cutting tooling can be placed through the drilling experts at ITC.



### ITC introduces new WIDIA rough milling platform

ITC has also now announced the arrival of the latest WIDIA indexable milling platform for heavy-duty milling operations. The new M8065HD milling system for machining steel and cast-iron materials has been designed with eight cutting edges and extra-wide chip gashes. This makes the new M8065HD capable of achieving deep depths of cuts while producing high metal removal rates during face and shoulder milling applications. Furthermore, the new platform offers reduced setup times and inventory costs by utilising just one tool for multiple operations when milling steel and cast iron.

Now available from Tamworth cutting tool manufacturer, the new milling line is engineered with a 65-degree approach angle and a 6.35 mm thick insert. The exciting new M8065HD line is currently

available with one universal insert geometry in three versatile grades, the WP35CM, WK15CM and WU20PM. The WP35CM grade demonstrates exceptional performance levels on all types of steels, while the WK15CM grade is designed for cast iron materials and performs best in dry applications. However, it can also be used in wet conditions.



The universal WU20PM grade can be applied to the machining of steel, stainless steel and high-temperature alloys in both dry and wet applications. All insert grades are designed with a 2.37 mm wiper facet to provide superior reliability and surface finishes. These key design features coupled with the eight-cutting edge insert design enables customers to reduce overall machine setup times and inventory costs by utilising one tool for multiple operations.

The M8065HD indexable milling cutters are available in nine metric diameter ranges from 50 mm to 315 mm. Enquiries and orders for the M8065HD tool bodies and inserts as well as other WIDIA metal cutting tools can be placed through ITC.

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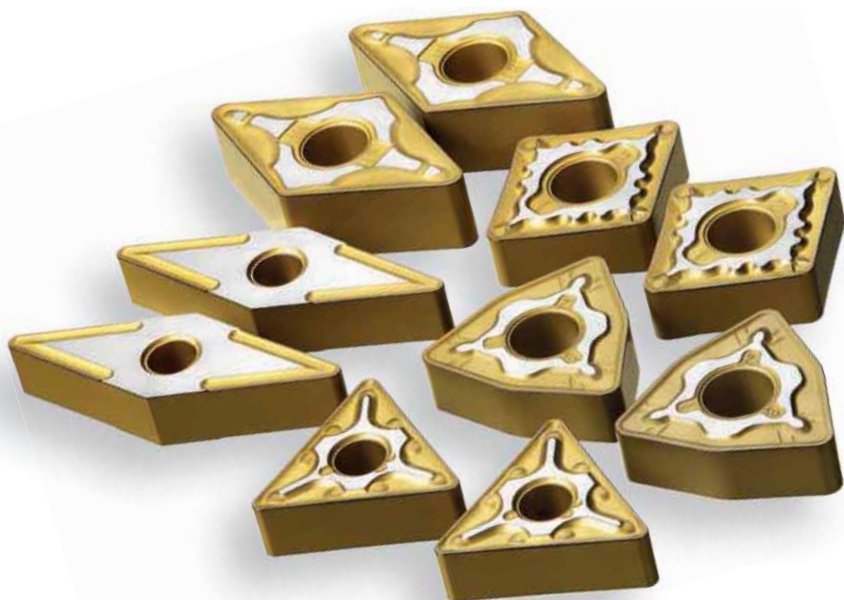


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 MITSUBISHI MATERIALS

# Less is more when it comes to tool vending at Motorsport Advanced Developments

Padiham-based Mini Sport Group has been supplying its customers with parts for the iconic classic Mini for over 50 years. Since 2005, many of these parts have been manufactured in-house by group company Motorsport Advanced Developments (MAD).

While initially MAD's focus was purely for the Groups' own requirements, its reputation for quality grew and the business now supplies parts to a wide range of customers from sectors including automotive, chemical, aerospace and defence with batch quantities ranging from one-off research parts through to 100,000 plus volume production. This broadening of its customer base has seen an increased demand for the latest machine tools, cutting tools, workholding and space in which to house them.

"In 2019 we broke ground on a new building that would double our available floorspace," says Daniel Harper, MAD's managing director. "That was completed in early 2020 and then came COVID and lockdown. From March to May 2020 things were challenging, then the mail order side of the Mini Sport business just took off and by August we were back to full staff and production just kept ramping up."

This situation was ideal as just before lockdown MAD had ordered a Mazak i600 with a multi-pallet system, which is now installed alongside a Mazak QuickTurn lathe, with a further QuickTurn 250MSY on order which will bring the total to 12 Mazak machines on-site. "Over the past 18 months,



we will have invested over £600,000 in machine tools in addition to the cost of the new building," explains Daniel Harper.

In order to support this increased machining demand and capacity, MAD turned to long-term tooling partner CERATIZIT UK & Ireland, with which it has worked with from the outset of the business. Already a user of CERATIZIT's vending systems, in the form of two Tom60 vending machines, the challenge was to supply an increased tool storage capacity without compromising floorspace. The solution was the installation of the latest TOM840 from CERATIZIT, which will replace the two existing units. This new TOM840 has a maximum capacity of 840 tools in compartments that can be adjusted to take a wide variety of shapes and sizes.

"In a typical scenario a TOM840 vendor will hold 5-times the number of tools compared to a TOM 60 unit in a similar amount of floorspace," says Tony Pennington, managing director of CERATIZIT UK & Ireland.

The CERATIZIT TOM vending system also provides users with detailed traceability with the ability to track the distribution of every tool, from time of vend, to which operator took it and also monitor costs. With its in-built SIM card communications, orders to replenish stock are automatically sent to the team of five dedicated vending support staff based at CERATIZIT's office in Sheffield. Stock within the machine is then replenished by a CERATIZIT tool service engineer. Once a month an invoice is raised and, as the stock



within the TOM840 is supplied on a consignment basis, only those tools vended are charged for. A further advantage of the consignment stock is that the user can never be left with obsolete tools as whenever an update is released, the tools are replaced. This latest vending installation brings the total number of machines in the market to 435 in total.

The improved service offered by the new TOM840 vending machine is just one part of the reason that Daniel Harper and his team at MAD have worked with CERATIZIT for so many years.

Daniel Harper concludes: "We have worked with CERATIZIT since 2005, in particular with Nigel Walls our local technical sales engineer who is always on-hand to offer advice on choice of tools and even manufacturing methods. We are a tight-knit family company and we like to deal with companies with the same philosophy as us, who will pull together to make things work. In that respect CERATIZIT gives us everything we need."

**CERATIZIT UK & IRELAND Ltd**

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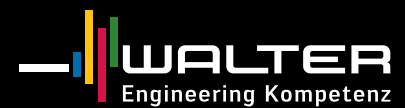
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# Walter presents Tiger·tec Gold for milling and drilling

Walter has set a new standard in cutting tool performance with the new Tiger·tec® Gold PVD grade WSP45G. The introduction of this new cutting tool material pushes the boundaries of coating technology in terms of the application, performance and the materials that customers can apply them to. In addition to the compatibility with Xtra·tec® XT, Walter BLAXX and M4000 milling cutters systems, the new Tiger·tec Gold PVD indexable inserts can also be used in Walter indexable insert drills such as the D4120. This now makes these tools not only suitable for ISO P steels but also difficult-to-cut materials from the ISO S and M material groups.

The multilayer coating system is the only one of its kind in the world. The new TiAlN-Al<sub>2</sub>O<sub>3</sub> multilayer coating makes the WSP45G hard with additional toughness and therefore tremendously resistant to abrasive wear and high temperatures. A special mechanical post-treatment process improves resistance to thermal cracks and fracture and protects the cutting edge from micro-spalling. The light gold-coloured ZrN



top-coat of the multilayer system makes it easier to detect wear and therefore, improves process reliability. Unused cutting edges are reliably identified and this makes it possible to exhaust the full potential of the indexable insert.

Potential fields of application for the new Tiger·tec Gold PVD grade include demanding machining tasks such as the cutting of heat resistant alloys and materials with difficult cutting properties. The new Tiger·tec Gold PVD grade also excels in challenging conditions such as interrupted cutting. In the case of milling, the new Tiger·tec Gold PVD grade is also suitable for challenging applications such as long overhang machining or the machining of parts with delicate clamping arrangements. Indexable drilling, inclined entry and exit machining operations will benefit from the new grade.

Depending on the material and application, the new Tiger·tec Gold PVD grade achieves performance improvements of up to 75 percent in ISO P materials and average gains of 47 percent in ISO P, M and S materials. So, whether it is the machining of turbochargers in cast steel, fasteners and chassis parts in titanium or components in nickel-based alloys as encountered in the automotive, energy and aerospace

industries, the WSP45G grade is the ideal process improvement solution. For further details on how Walter can reduce your tool inventory while improving your machining performance, contact the company for further information.



Walter AG was founded in 1919 and is now one of the world's leading metalworking companies. As a provider of specialised machining solutions, it offers a wide range of precision tools for milling, turning, drilling and threading applications. Walter works together with its customers to develop custom solutions for fully machining components for use in the aviation and aerospace industries, as well as automotive, energy and general engineering. The company demonstrates its Engineering Kompetenz at every stage of the machining process. As an innovative partner capable of creating digital process solutions for optimal efficiency, Walter is pioneering.

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## First choice versatility saves inventory costs

Tooling engineers and CNC machine programmers face a huge choice of turning insert grades and chip-breakers in the modern marketplace. Mitsubishi Materials has designed and developed a new grade, MC6125, that is highly versatile and can perform at the highest level across an increased range of different applications. This enables an easy first choice start point when choosing an insert for turning steels and thereby reduces the inventory levels of inserts.

This new CVD coated grade for machining a wide range of steels provides both



excellent cutting-edge stability and long tool life. MC6125 has the combination of a tough base material and new multi-layers of Al<sub>2</sub>O<sub>3</sub> coating for improved wear resistance at high temperatures. It also has higher peeling resistance and cutting-edge stability achieved by super TOUGH-GRIP technology. This provides the ultimate enhancement of the adhesion between the Al<sub>2</sub>O<sub>3</sub> and TiCN base coating layers.

The outstanding crystal orientation of the Al<sub>2</sub>O<sub>3</sub> coating has been developed by improving the conventional Nano Texture Technology. These technological improvements increase both wear resistance and tool life.

Cracks that occur due to impact during unstable cutting are prevented by the relaxation of the tensile stress of the coating. The MC6125 grade decreases the tensile stress by 80 percent compared to conventional CVD inserts. When cracks are generated in the surface of coatings during machining, they propagate through into the substrate due to the large tensile stress in the coating structure. This creates one of the

main causes of sudden insert breakage. MC6125 has a much lower level of stress than conventional CVD coatings due to the surface treatment that spreads the force of impacts during machining and protects it from sudden fracturing.

The combination of the tough substrate and wear resistant coating enables high performance during both high speed continuous and interrupted cutting, thereby permitting a wider range of steel turning applications from medium through to high cutting speeds.

The inserts are finished in a gold colour for easy identification of used edges and are available in 6 negative geometries, CNMG, DNMG, SNMG, TNMG, VNMG and WNMG, with 11 different chip-breakers.

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Floyd Automatic Tooling Ltd are pleased to announce their participation at the forthcoming Open Houses

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## Floyd focuses on precision with hydraulic tool clamping

If you demand the ultimate in precision machined parts on your sliding head turning centres, Floyd Automatic Tooling has now introduced the new Hydro-Swiss Turn range of compact hydraulic clamping toolholders for cylindrical tools. Capable of maintaining precision and run-out levels of less than 1 micron, 'ultra-precise' is now possible for your sliding head CNC turning centres. Regardless of whether you have a Star, Citizen, Tornos, Hanwha or Tsugami turning centre, the new Hydro-Swiss Turn holders are compatible with all leading sliding head machine brands. The Hydro-Swiss Turn holders are available as a standard or as an ultra-precise (UP) variant that can achieve a run-out of 0.003 and 0.001TIR respectively. The easy clamping hydraulic holders incorporate an innovative clamping system that also provides vibration damping to maximise performance and concentricity.

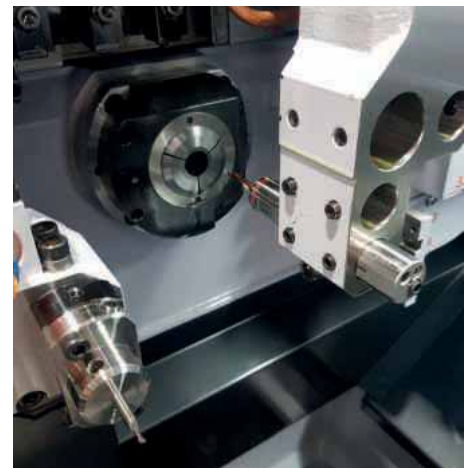
The Hydro-Swiss Turn holder has a through coolant facility and an easy-clamping bolt that permits easy and free axial length adjustment. The hydraulic holders are available in a multitude of variants to suit every application from drilling and milling to PCD tool machining and boring. For Citizen machines, the Hydro-Swiss Turn is available in ST19.05, ST25 and ST 25.4 configurations to clamp tools with 3, 4, 6, 8, 10 and 12 mm shanks. For Star sliding head machines, the system is offered in ST16, ST22 and ST32 variants. It is also available in all recognised dimensions for Tornos, Tsugami and Hanwha machines.

To ensure optimal precision and run-out levels, the Hydro-Swiss Turn holder must be used with H6 shank tools. The system is also supplied with a positioning pin kit and a 3.0Nm torque T-wrench is also available upon request. For more information on how you can maximise your precision and run out, or if you have critical parts that demand the utmost in precision, please contact



Floyd Automatic Tooling regarding this exceptional new system.

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



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## AAG expands range of special-purpose routing/cutting tools

Two new additions have been added to the range of special-purpose routing/cutting tools supplied by AAG via its CNCShop E-commerce Division. The additions are comprised of different versions of the latest solid carbide '0' series of single-flute spiral tools manufactured by Amana. As with other special-purpose tools, they have been designed to accommodate applications for which standard spiral tools would be less effective in terms of cut quality and tool life expectancy. Available in multiple sizes, configurations and routing/cutting depth options, the '0' series incorporates a proprietary carbide coating system that provides enhanced protection against tool deterioration caused by abrasion, erosion, galling and fretting. This ensures constant razor-sharp cut edges and a superior mirror surface finish to the materials being processed, while minimising problems frequently encountered when standard spiral tools are employed.

The Amana '0' series of tools will process a wide range of disparate materials. Typically, these include aluminium and aluminium composites, non-ferrous metals such as stainless steel, alloys like brass, bronze and copper and foamed and corrugated board. These latest Amana additions complement other special-purpose tools available through AAG's CNCShop Division.



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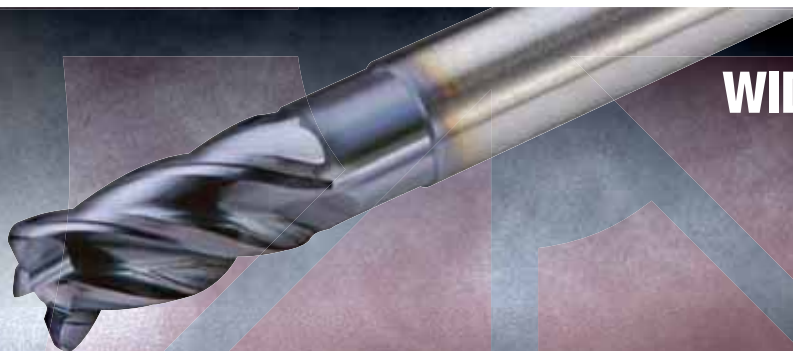


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# Motorcycle accessory manufacturer automates prismatic machining as well as turning

Automated machining cells are the route to high production output in a small footprint with minimum operator attendance and in hot pursuit of this goal is Alford, Lincolnshire-based Drury Precision Engineering. The firm carries out a small amount of subcontract machining, its main business being the production of its own globally-recognised motorcycle accessories for road and racing bikes, which it markets under the Evotech Performance brand name.

Between March 2020 and February 2021, the company installed three automated, Japanese-built Brother machining centres from sole UK and Ireland agent Whitehouse Machine Tools. Supplied with two of the machines were the same manufacturer's Feedio vision-based, robotic systems for component load/unload, while a System 3R WorkPartner pallet storage and handling system was integrated with the other machining centre.

In the area of turn-milling, Drury has long used a bar fed, single-turret lathe and there has been a succession of different makes on the shop floor. This lathe has been swapped for a much more efficient Biglia B438-Y2 twin-spindle turn-mill centre with two Y-axis turrets, also supplied by Whitehouse Machine Tools, sole agent in the same markets for the Italian turning machine manufacturer.

The company decided in early 2015 to



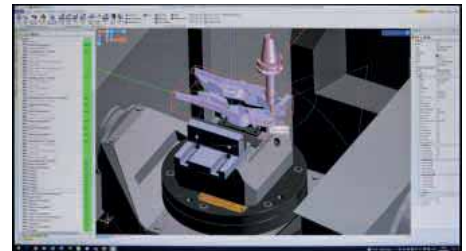
transition from conventional 40-taper machining centres to 30-taper models to raise production efficiency to meet rapidly increasing demand for its Evotech products, which are mainly produced by taking light cuts from aluminium billets of rectangular cross section.

First to be delivered was a Brother Speedio R450X1 twin-pallet, 22-tool, 30-taper machine for 3-axis work. Output from the machine equalled that of two 40-taper machining centres. A typical crash



protector, for example, took 20 minutes to machine instead of 40 minutes. The dramatic improvement was due to minimisation of idle times through linear rapids, tool change and pallet change all taking place simultaneously coupled with fast ATC and APC, a 16,000 rpm spindle and 200-block look-ahead in the Brother control.

The tool change in particular is so fast, delivering a chip-to-chip time of typically two seconds, that Drury has not only boosted production output but additionally been able to allow its designers more flexibility in SolidWorks.



The doubling of throughput and the extra design flexibility were a revelation for Drury. Unsurprisingly there are no longer any 40-taper machines on site and the R450X1 was followed by four further 30-taper Speedios. The company's first R650X1 arrived soon after, equipped with a Nikken 2-axis table to provide 5-axis machining capability.

Next to be delivered was another 3-axis R450X2, a 3-axis R650X1 and at the end of 2019, a 5-axis S700X1 with Nikken table to provide a larger working volume. This machine was originally to have been reserved for prototyping but was quickly co-opted into production due to ever increasing demand. All five machines are positioned in a line on the shop floor and are manually operated.



In early 2020, the three engineers who jointly ran the company, Dan Rack, Chris Vines and Nick Cooper, recognised that prismatic machining capacity needed to be increased further, but space on the shop floor was tight. So in March that year, having had good experience with the other Brother machines, they purchased a Speedio M140X2, another 5-axis machine and decided to automate it with a Feedio component storage and robotic handling system developed jointly by Brother and ABB.

Chris Vines says: "It is not always just about the machine, but perhaps even more importantly about service backup. Since 2015 Whitehouse has provided exemplary service and are always on site within 24 hours on the rare occasion that something goes wrong. We saw no reason to gamble on involving another company in the supply of an automated cell."

The Feedio is designed specifically for Brother machines, rather than being a generic solution provided by a third party, although a couple of other potential automation suppliers were briefly considered at the outset. The unit communicates with the machining centre control via a Profibus interface and a smart ABB teach pendant incorporating a customised Speedio page is provided for programming the 6-axis robot.

The Feedio version supplied with this machine at the outset had a pair of standard, two-metre long conveyors, which are positioned one above the other. However, Drury soon realised that insufficient components could be accommodated to last for the whole of the ghost shift. So to avoid losing night-time hours, the company asked Whitehouse to extend the conveyors to four metres in a simple exercise that took less than a day. The extra capacity also had the effect of allowing the entire weekend to



be utilised for production. In fact, when machining certain parts, up to three days' uninterrupted production can be obtained without manual intervention.

A camera and PC built into the Feedio unit allow the robot to detect where on the upper input conveyor billets have been placed. After machining, components are returned to the output conveyor below. This particular cell has been configured for Op 1 work on parts weighing up to 10 kg in batches of from 100- to 2,000-off, completion of Op 2 being carried out on the manually-loaded Speedios.

Careful attention is paid at the component design stage to maximise Op 1 time and thereby minimise the amount of Op 2 metal cutting. In one instance Nick Cooper, who manages the machining department at Alford, achieved a 9.5-minute Op 1 and a 22-second Op 2. So far, around 50 different component types have been produced in the cell within the machine's working volume of 200 x 440 x 305 mm.

Nearly one year later the two other automated Speedio cells were delivered. One was a larger, 3-axis S700X2 with a 700 x 400 x 300 mm working volume, a Schunk pneumatic centric vice and a four-metre Feedio system capable of handling heavier components up to 20 kg, again for Op 1 work. The other was another 5-axis M140X2 but this time fitted with a System 3R WorkPartner 108-pallet storage and handling system.

The latter, supplied as a turnkey installation by Whitehouse, is a closed cell whose purchase was specifically intended to target Op 2 inefficiencies within the factory. Six motorbike parts required in left- and right-hand versions were identified as ideal for production in this cell. They are set up permanently so that both Op 1 and Op 2 are completed automatically, unattended for up to 20 hours.

Chris Vines added that automated machining of aluminium requires special attention to be paid to management of the swarf produced, which is approximately 10

times the volume of the solid. When the first Speedio was installed, Whitehouse recommended the installation of a briquetting system for swarf compaction, which went on to serve the subsequently installed machining centres. A second such compactor was added with the arrival of the Brother/System 3R cell.

Dan Rack, who heads the turning section explains: "We knew we wanted a twin-turret machine to raise productivity by being able to carry out Op 1 at the main spindle and simultaneously complete Op 2 at the counter spindle.

"We considered two alternatives but decided in favour of the Biglia B438-Y2 due to the high level of service we receive from Whitehouse on the prismatic machining side. The supplier does not put any limit on future back-up, whether or not it involves an engineer's visit, even though it is free of charge.

"It is especially welcome considering this is our first twin-turret lathe, on which it is possible to have three tools in cut simultaneously. Although we have not done this to date, it is reassuring to know help will be there when it is needed."

Other points in favour of the Biglia were the ready availability of a post processor and the machine's ability in its standard configuration to extract up to 150 mm long components without the need for special handling equipment, which would have introduced delay at the end of some cycles.



The machine is the most recent to be installed by Whitehouse at the Alford factory. It has proved to be highly efficient at producing spacers for bar ends and crash protection brackets, for example, in a cycle time of around one minute compared with the three minutes previously needed.

**Whitehouse Machine Tools Ltd**

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# Premium chuck with 5 $\mu\text{m}$ accuracy

With a new development in its hexagonal chuck series, Hainbuch, the German clamping device manufacturer, is now taking precision to a new level. In 2006, the first Toplus chuck with hexagonal clamping geometry entered the market and just one year later, the Toplus IQ with integrated measuring technology followed. A few years later and the impressive product line was expanded with the mini version that offers a smaller interference contour and lower weight. Now, Hainbuch presents its latest development with the highest precision available. The new Toplus Premium Chuck is now available and it introduces a host of additional advantages.

### High precision without alignment

The Hainbuch portfolio of chucks has always been very precise and once the chucks are aligned, the runout is near to zero for repeat clamping. If the various chuck heads are then changed, the runout is usually between 3 to 7  $\mu\text{m}$  without alignment. With the new Toplus premium chuck, Hainbuch guarantees a runout of  $\leq 5\mu\text{m}$  without alignment, regardless of which clamping head is used.

Until now, this was only possible with an expensive hydraulic expansion or a diaphragm chuck. These systems have limitations entailed by their design. In many cases, a runout of  $\leq 10\mu\text{m}$  is perfectly sufficient. However, components or machining processes that demand a runout of  $\leq 5\mu\text{m}$  are increasingly commonplace within the industry. By utilising the new Toplus Premium Chuck with the associated premium clamping heads and by clamping against the workpiece stop, this level of accuracy is always achieved. This means that



manufacturers no longer have to lose time, making alignments for small batch sizes. This simplifies setups and allows manufacturers to be highly flexible as the new Toplus Premium Chuck is just as accurate as a chuck that is aligned for series production.

### Easier automatic loading

To reduce setup times, improve machine utilisation and reduce costs, a robot is often used to load the workpieces in the machine. This can become a problem if the clamping stroke is too small. With the Toplus Premium Chuck combined with a clamping head, the stroke is increased to make loading easier, even if the robot works somewhat imprecisely. In addition, the Toplus Premium Chuck is very robust and not as sensitive as some other clamping devices. A slight contact with the workpiece during loading has no impact upon the chuck and its ability to perform at the highest levels of precision.

The Toplus Premium Chuck is also sealed against contamination and vibration. With the Toplus Premium Chuck, both thin-walled and solid parts can be clamped securely with no loss of centrifugal forces. This makes the new addition to the Toplus series extremely secure for machining all types of components. Furthermore, like all chucks in the Hainbuch

system, the exciting new Toplus Premium Chuck enables end users to change from external to internal workholding or even jaw clamping with changeover times taking just a couple of minutes.

### More than the inventor of the clamping head

More than 70 years ago Hainbuch started in a small garage in Germany. A few years after the beginning, the idea was to invent a clamping head that would achieve both precision workholding and quick-change capability. From the start, it was clear that the realisation of that vision in steel required the highest degree of craftsmanship.

Today, it remains a family-owned company and that same tradition of German engineering, pride and craftsmanship continues to guide it. Over the years, in response to its customers needs, it has widened its product line, invented new and better ways of workholding and responded to unique applications and challenges.

The customer family has grown to include manufacturers in industries as diverse as automotive, aerospace, medical tools and appliances, energy, and pure research. What they and Hainbuch has in common is a dedication to producing the components, the systems, and the techniques on which the future will be built.

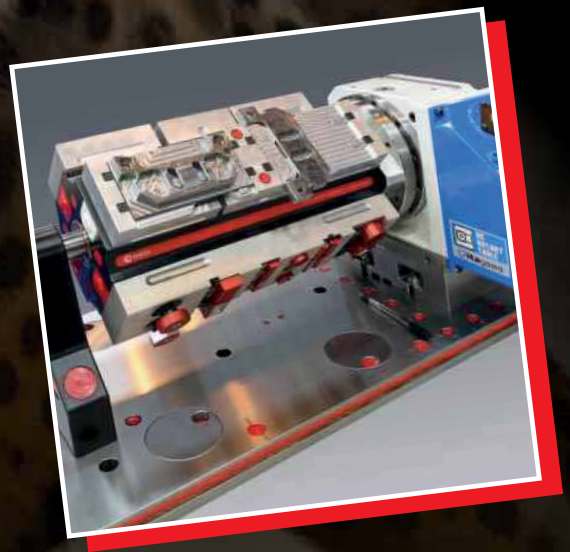
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# Quick-change chuck for small and medium-sized lot sizes sealed against dirt

If you want to manufacture turned parts more efficiently, low-maintenance and fail-safe precision clamping devices are required that can be quickly and easily converted and, if necessary, can be automatically loaded. The SCHUNK ROTA THW3 jaw quick-change chuck with its patented sealing of the chuck mechanism has been designed with this in mind. Users benefit from a permanently high process stability, constant clamping forces and long maintenance intervals.

### The all-rounder for a wide range of applications

Equipped with a jaw quick-change system, the ROTA THW3 can be quickly converted for a new range of parts on CNC lathes, pick-up lathes and turn/mill centres and has an excellent jaw repeat accuracy of up to < 0.02 mm. This means that previously turned-out sets of jaws can be repeatedly used, even for applications where the tolerances are challenging. The jaw stroke of the straight-serrated base jaws amounts to 6.7 mm to 10.5 mm depending on the jaw size. A ring piston transmits the force directly and therefore ensures a high degree of efficiency

The clamping force of the smallest 200

size is 64 kN. From size 400 on, the chuck achieves a clamping force of 240 kN. The chuck's base body is hardened and extremely rigid and even in the case of heavy-duty machining, precise and reliable machining results can be achieved. Due to the optimised external contour, the chuck is perfectly designed for milling tasks and versatile use of the chuck is ensured. It has a large chuck bore of 52 mm, size 200, up to 165 mm, size 63, centre sleeve systems that can be exchanged from the front, and the option of I.D. and O.D. clamping. Furthermore, the power lathe chuck can also be complemented with an adjustable workpiece stop.

### Quickfinder for chuck jaws

Searching for the matching chuck jaws for the SCHUNK ROTA THW3 is child's play with the chuck jaw quickfinder: It takes just four clicks to get to chuck manufacturer, chuck type, chuck size and product details. Then, at the press of a button, the user receives a list of all matching chuck jaws from over 1,200 jaw types from the world's largest standard chuck jaw range from SCHUNK. The matching chuck jaws can be directly selected within the quickfinder and ordered in the SCHUNK online shop.

**Finger change at the press of a button**  
SCHUNK is expanding its range for the rapid change of gripper fingers. While an Allen key was still required for the proven SCHUNK BSWS jaw quick-change system, all that is needed with the new manual BSWS-M system is a push of a button to mechanically unlock the top jaw and pull it instantly off the gripper. Moreover, a new jaw is attached just as quickly and easily and connected to the gripper at the simple push of a button. This means that the tool-free jaw quick-change system reduces setup times to a minimum, while also increasing productivity and flexibility of the entire automated system. As an additional mounting aid, optionally available alignment pins and a corresponding alignment pin hole can now be used to ensure that the fingers can only be mounted in the correct position in the case of asymmetrical finger pairs, for example.

With the SCHUNK BSWS M jaw quick-change system, all you have to do is to press the unlocking button and the gripper finger can be removed. With frequent setup operations, the quick-change system pays for itself within a very short time.

### Three variants to choose from

Like the BSWS, the tool-free jaw quick-change system is available in three variants. In the BSWS-BM variant, seven standardised sizes from 50 to 200, the change mechanism is integrated into a base, which in turn is permanently mounted on the base jaw of the gripper. Only the gripper fingers are exchanged. With this variant, already existing SCHUNK gripper fingers equipped with adapter pins of the BSWS-A series can be used further. The second variant BSWS-URM, six sizes from 50 to 160, can be easily and modularly integrated into customised attachment fingers. Here, the locking mechanism is supplied as a kit for direct installation in the gripper fingers. This allows the entire length of the finger to be used for clamping, as the base is eliminated. The third variant BSWS-ABRM, six sizes from 50 to 160, comprises finger blanks with integrated change mechanism, which can be individually adapted by the customer to the respective clamping contour. All three





variants can be used universally on all SCHUNK premium grippers as well as on numerous other gripping modules with SCHUNK PGN-plus finger interface.

#### Can also be used as a stationary change system

The SCHUNK BSWS-M jaw quick-change system not only pays off

when it comes to the rapid changing of gripper fingers but can also demonstrate its strengths in other applications. For example, in stationary applications or when used on a transport system, workpieces can be quickly removed at the touch of a button and replaced with another variant. The self-explanatory system can be used reliably in any application without technical training.

SCHUNK GmbH & Co. KG of Lauffen/Neckar is a German family-owned company and global player in one. The company was founded in 1945 by Friedrich Schunk as a mechanical workshop and has developed under the leadership of Heinz-Dieter Schunk to a leader for gripping systems and clamping technology. Today, the company is run by third generation siblings Henrik A. Schunk and Kristina I. Schunk.

3,500 employees in nine plants and 34 directly owned subsidiaries and distribution partners in more than 50 countries throughout the world ensure an intensive market presence. With 11,000 standard components, SCHUNK offers the world's largest assortment of gripping systems and clamping technology from one source and, with 2,550 SCHUNK grippers, the largest product range of standard gripping components on the market. The complete program of gripping systems comprises more than 4,000 components. SCHUNK has pushed digitalisation of its portfolio forward for years now, ensuring that users can plan their processes efficiently, transparently and economically.

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## Over 80 years of workholding expertise

Brown and Holmes specialises in the design and manufacture of superior quality workholding solutions, producing 3D printed prototypes and delivering both precision machining and subcontract machining solutions.

Founded in 1939, when two draughtsmen from Coventry went into business together, the company is now celebrating over 80 years in business and is based across two sites in Tamworth, UK.

Its first site on Apollo Park contains a wide range of traditional machinery offering high-quality workholding, automation, mechanical handling and precision machining services. Its capacity list includes 5-axis machines, CNC machines, horizontals, verticals, EDMs and lathes. It works in a wide range of materials including aluminium, mild steel and titanium.

The second site, on Anders, has a robot demonstration area, a dedicated assembly, test and inspection facility plus equipment to provide specialist 10 tonne lifting capabilities. It also houses the company's own apprenticeship training centre and 3D



printers. 3D printed prototypes can also be made in different materials including carbon fibre, polyurethane, thermoplastics, acrylics and polymers.

Brown and Holmes has a range of internationally renowned products that offer complementary technology to its workholding, handling and automation solutions. These include Techman robots, Swisschucks precision power chucks, Fresmak ARNOLD high pressure vices and MistBuster mist and smoke extraction units.

It supplies its solutions and products to

many different sectors including companies from automotive, aerospace, power generation, nuclear, defence construction, medical, pharmaceutical and machine tool industries. It has a wide range of end users and subcontractors who are based nationally within the UK and Ireland in addition to its exports across Asia, the Middle East, Europe, Africa and America.

A great deal of its success can be attributed to its commitment to training. Many employees have been with the company since starting work and it trains new apprentices every year in its own apprenticeship school.

It is also proud to be a partner in the Manufacturing Technology Centre (MTC) and works with them to bridge the gap between university-based research and the development of innovative manufacturing solutions.

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# Software investment and collaboration brings all round rewards for Mach-Tech

Machining Technology (Mach-Tech) Ltd has more than doubled its turnover in the last couple of years and credits the continued application of PSL Datatrack production control software for helping to manage the growth of its customer base and the significantly higher number of quotations and orders now being processed on a daily basis. 2020 marked Mach-Tech's 10th year of using the system and PSL Datatrack has worked closely with them in that time to develop additional functionality of key modules of the software, which has been of great mutual benefit.

Based in Oxfordshire, Mach-Tech's high precision CNC engineering services are utilised by many different customers developing technology for nuclear, scientific and space satellite applications as well as for motor racing, fusion energy and general engineering. Utilising a range of metals, exotic materials and plastics, components are produced in a range of sizes and tolerances in small and medium batch sizes as well as one-off assemblies.

Since its investment in PSL Datatrack, Mach-Tech has continually added new modules while at the same time investing in the latest CNC 3,4 and 5-axis machine tools. Extensive use is made of offline programming, with machines fully networked and equipped with lasers, probes and cameras for lights out manufacturing. Reinvestment in this technology has been core to the company's growth.

PSL Datatrack is fully integrated with Mach-Tech's manufacturing capabilities. The system schedules and tracks every item, from material sourcing through all machining, external and inspection processes up to delivery and final invoice. This ensures complete product traceability, adherence to customer specifications and the ability to supply essential certificates of conformity, material certifications and traceability reports. It also helps to ensure maximum productivity, the highest level of customer service and achievement of essential Key Performance Indicators (KPIs).

Mach-Tech has expanded its use of PSL Datatrack to take close control of component stocks, the allocation of



materials and cost centre processes as well as purchasing. Careful management of suppliers ensures the availability of all supplied materials and services to complete scheduled orders on time.

Shop Floor Data Collection (SFDC) and Process Layouts have provided essential feedback on machine capacity and work in progress, while visual Status Board displays have given the shop floor real time information on the status of any order. At management level, PSL Datatrack has been linked to the company's accounts system with invoicing, credit notes and purchase invoicing all handled.

Having used PSL Datatrack for many years, Mach-Tech's understanding of its functionality has grown and the experienced staff members responsible for using the system have learned how to get more out of it.

As a small subcontract precision engineering company, everyone's input is important to the success of Mach-Tech. The management team responsible for running PSL Datatrack looks continually at how to maximise the benefits of the investments made over the last ten years.

With increased business levels, Mach-Tech wanted to address the critical areas of raising quotations and works orders more effectively. One of the most time consuming tasks for many subcontract engineering companies is manually and

repeatedly entering information into spreadsheets. Mach-Tech solved this problem with its initial investment in PSL Datatrack but wanted to take this to another level and investigate how the system could be enhanced to further increase efficiency.

So in 2018, Mach-Tech approached the PSL Datatrack development team: "We put our ideas to PSL on how to customise the Quotations and Works Order modules to our needs. They were very responsive to our ideas and after a period of close collaboration our requirements were met," says Simon Fisher.

Mach-Tech's quotations have varying degrees of complexity depending on the quantities involved and the different machining and finishing processes that may be required. A quotation may include over 100 different items and was taking as long as four days to turn around. With the improvements that have been made to the software, this has halved.

Mach-Tech has further improved its efficiency recently through the addition of the Time And Attendance module, which gives them insight into hours worked and other data to decide which productivity improvements could be made.

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## BCN3D acquires 3D printing Cloud platform AstroPrint

BCN3D has acquired AstroPrint, a 3D printing software company known for its sophisticated Cloud solutions that allow users to manage printers with ease and efficiency. Both companies entered into an acquisition agreement last April and completed the transaction in July. This investment provides BCN3D with the opportunity to not only release a new cloud platform, but to also have an experienced software team dedicated to the future development of BCN3D's 3D printing solutions.

Founded in San Diego, California in 2013, AstroPrint is one of the most well established cloud software platforms with more than 200,000 registered users in 130 different countries, 60 percent of which being based in the US and with an average of 2,000 printers connected simultaneously. BCN3D will maintain AstroPrint as an independent platform and will continue to develop new functionalities for its user base.

Following this first acquisition, BCN3D will continue to explore inorganic growth opportunities to develop its long-term



vision of providing high-grade solutions that enable innovators to create the future. The integration of AstroPrint's technology in the BCN3D Cloud will undoubtedly bear benefits for both its clients and the development of Industry 4.0 in the near future and beyond. BCN3D will utilise the entire software engineering team of AstroPrint for future developments to create brand new products never seen before in the 3D printing industry. The fusion of these two software teams will be spearheaded by co-founder and CTO Daniel Arroyo, who will also now take up his role as chief software officer of BCN3D.

Xavier Martínez Faneca, CEO of BCN3D, says: "We see this as a new chapter in our quest for offering the absolute best possible solution to clients across both hardware and software. We are certain that this acquisition of a company with such expertise in this field will serve to boost our BCN3D printing profile to its full potential, and that the merging of our teams will undoubtedly entail countless benefits."

Daniel Arroyo adds: "Our collaboration with BCN3D brings us the challenge and pleasure of developing more advanced solutions for BCN3D clients. We are super excited to pair our software with BCN3D's hardware in order to unlock tremendous value via deep hardware and software integrations and innovations."

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## WFL connects

Connectivity across the entire production workflow is a major goal of industrial digitalisation. However, the greatest challenge lies in combining technological expertise from two different disciplines: IT and industrial production.

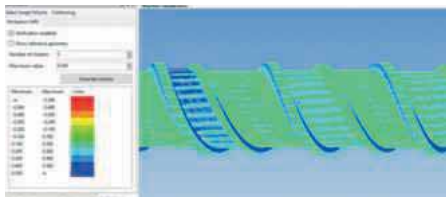
More and more manufacturers are turning to the use of a single, fully transparent system that incorporates all machine tools, other tools and robots: a trend which will only continue to rise. This is not simply a vision, it's happening every day. The key to success lies in the use of a phased approach, with the goal being to boost efficiency, productivity and sustainability.

### Testing machine functionality through simulation

Due to the increasing complexity of machine software and the progressive modularisation of modern production systems, there is an ever-increasing need for far-reaching simulations. The most effective way to test and optimise new or modified CNC programs is through the use of the 3D simulation software CrashGuard Studio. These tests can be carried out at an external programming station or directly on the machine control system itself. By optimising the machining process and ensuring faults are corrected early, users can expect a significant reduction in the risk of collisions and rejects, while also minimising unproductive downtimes. This unlocks new potential and offers clear competitive advantages.

The launch of major release 3 in mid-2019 saw new capabilities added to CrashGuard Studio, including material removal simulation and visualisation functions. As a result, simulations can be carried out more quickly with greater accuracy and increased visual quality. It was also specially optimised to utilise the benefits of multi-core CPUs and GPUs.

Version 3.2.4, which was released in June 2021, later introduced the newly developed functions for modelling and manufacturing plasticising screws for the plastics industry.



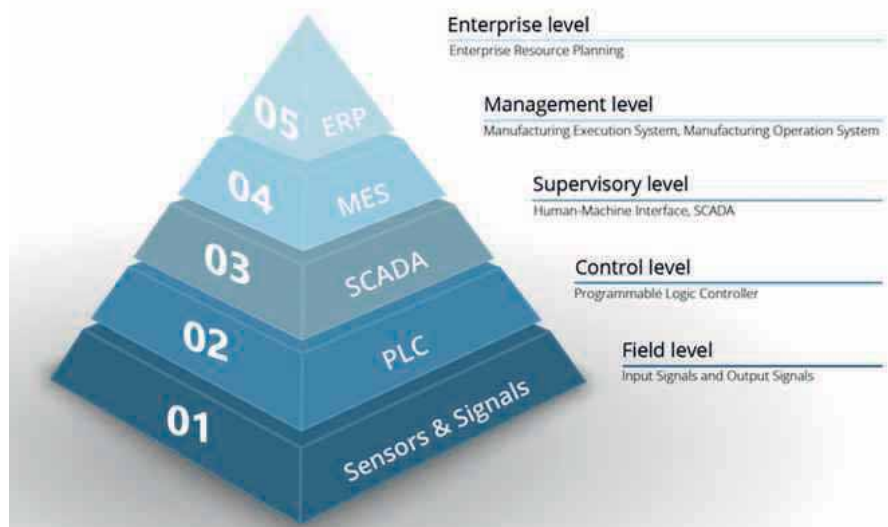
### The fusion of production hall and office

The IT sector is also set to undergo changes. For example, modular machines will be connected through standardised protocols, such as OPC UA TSN, or over wireless protocols like 5G, which will do away with the need for wired connections. Programs that run on industrial control systems and cloud systems will increasingly work in tandem with apps and dashboards. Ultimately, this will blur the lines between the production department and the office.

At WFL, everything is connected, from different production systems, to equipment, raw materials and finished products, all the way to procurement and distribution. This also includes the previously mentioned simulation, production and quick customer

support, in addition to the programming of workpieces. Where needed, MILLTURN machines can transmit operation, tool and process data to a higher-level software system for implementation. This data can be transferred by means of simple codes and over bus or network systems as required.

With the new "iControl" process monitoring system, WFL gives the future machine operator a whole bundle of functions to ensure reliable and economical production, particularly in series production. On the one hand, the machine and tools should be used with maximum productivity. On the other hand, the process should run as stably and reliably as possible. The software package that WFL provides for this is extremely diverse and offers a suitable



monitoring tool for practically every processing situation. The up to 16 process signals to be monitored are configured by WFL at the factory according to the machine equipment and displayed live on the control screen. Important process signals include the forces or torques of the NC axes and spindles in combination with the respective actual speed values, but also the signals from integrated sensors. These are built into machine components or tools and can be used for a wide variety of applications such as process control, optimisation or monitoring.

"iControl" provides essential services for automation and series production in particular. However, making the machining process fully transparent is also beneficial for complex internal machining tasks. As the saying goes, once you've tried it, there's no going back.

### Automated production with robots and autonomous systems

With automated and flexible systems now playing a crucial role in the production of workpieces, a mill-turn from WFL puts you in the best possible position to deal with the challenges of tomorrow. Those who aspire to a highly intelligent, automated production system can take a huge step towards reaching their goal, just by bringing in a solution from WFL. For example, the company implements turnkey solutions that connect multiple machine tools.

In addition to the classic handling solutions, WFL turnkey projects are fitted with a higher-level host computer system as standard. This "brain" takes over the entire logic and logistics from within the fully self-sufficient, flexible production cell. The interface is the ProfiNET system, which simultaneously functions as a protocol. This powerful network allows the machine(s) and robot(s) to communicate with each other. In addition to workpiece tracking and tool management, the system also transmits all operational data to the Manufacturing



Execution System (MES) provided by the customer. In these cases, ETHERNET is used as an additional interface.

### Servicing and predictive maintenance

Servicing and predictive maintenance are becoming increasingly important in production, which is why these are major focal points at WFL. The linking of technologies and their interaction delivers

an enormous data pool and enables reliable prognoses to avoid faults before they occur. WFL is particularly interested in the use of sensors in the machines and the way in which they record and process data. The more heavily sensor technology is used, the easier it is for machines and tools to communicate with each other. This results in a simplified workflow and lower costs all round.

The benefits are clear: the tools and machines communicate in real time, which then improves process monitoring, parameter optimisation and even the control of speed and feed rates. This allows tools to be used for longer, cuts costs and guarantees process stability. All in all, this fascinating research field is bringing us closer than ever to harnessing the true potential of "smart manufacturing".

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# SolidCAM UK launches new Technology Centre website

In line with SolidCAM UK's continuous investments into its 6,000 sq.ft Technology Centre which boasts office and shopfloor space, the South Yorkshire-based CAD/CAM reseller of SolidCAM and InventorCAM, has announced the recent launch of its recently redesigned informative, more Technology Centre focused, website at [www.solidcamuk.com](http://www.solidcamuk.com)

The new site features a streamlined, modern design which has improved functionality and easy access to essential intuitive Technology Centre focused information. It is responsive across all platforms and devices in order for engineers to access important information from not only their desks, but also their mobile phones. The website also uses recognised company branding and reflects the appearance of its social media platforms on Twitter, Facebook, LinkedIn and Instagram.

Since moving to the Technology Centre in 2018, having outgrown its previous premises, the company has experienced a massive boost to its business and anticipates a further growth spurt due to its continued investment in its advanced centre and specialised staff. The purpose of the new website is to provide user-centric and valuable support, alongside this continued growth, by providing a destination for customers and prospects to find practical information on all things SolidCAM software, SolidCAM UK and Technology Centre. Not only do engineers have access to a clear, comprehensive list of services that the Technology Centre provides, the site also presents detailed information on all software options available, upcoming Live events and webinars as well as the latest company and industry news. Essential customer testimonials and case studies back up SolidCAM UK's claim of them providing a 'Centre of Excellence'.

Gordon Drysdale, managing director of SolidCAM UK Ltd, says: "Following almost 20 years of continued sustained growth, we felt it was the right time to re-establish and promote our wealth of knowledge with the launch of our new website."

The core strategy of SolidCAM focuses on integration in the leading 3D CAD systems SolidWorks and Autodesk Inventor.



SolidCAM UK is the UK & Ireland reseller for SolidCAM. This strategy has created major growth for the brand and has established SolidCAM as a leader in integrated CAM, as well as one of the most powerful CAM systems available.

As well as providing SolidCAM software for advanced mill-turn and sliding head technology to the UK market, SolidCAM UK is also proud to announce the recent arrival of its new Star SR-38 Type B sliding head mill-turn centre which is as an integral asset in delivering unrivalled support to the engineering industry.

The company is excited to be showcasing this new CNC machine during one of its very successful "SolidCAM Live" events which encompass live cutting and demonstrations from themselves and industry leading partners. Recordings from previous SolidCAM Live events can be found on the new website, as well as upcoming dates for future events.

"With the addition of the Romi CNC DCM 620-5X 5 axis milling machine and the recently added Star SR38 sliding head machine, we want our customers to fully experience the benefits of our Technology Centre and how it can improve their productivity," adds Gordon Drysdale.

In addition to SolidCAM running directly inside SolidWorks and Autodesk Inventor, with seamless integration and full tool-path associativity, it also provides the unmatched, revolutionary and patented



"iMachining" Technology for the fastest metal removal in the industry. Along with providing full support for ALL Milling and Turning functionality, SolidCAM UK therefore delivers a solution for all with the ultimate in programming flexibility and configurability. Customers can then standardise their CAM Systems with one solution for all, and each of these industry leading features can be explored in-depth on the new website.

SolidCAM is a leader in integrated CAM. SolidCAM's CAM software is fully integrated in SolidWorks. Its integrated CAD/CAM solution supports the complete range of major manufacturing applications including iMachining 2D & 3D, 2.5D Milling, High Speed Surface milling, 3D Milling/High-Speed Machining, Multi-sided Indexial 4/5 axes Milling, Simultaneous 5 axes Milling, Turning, Advanced Mill-Turn including Swiss-Type and Solid Probe.

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## Integrated digital twins technology for collision avoidance

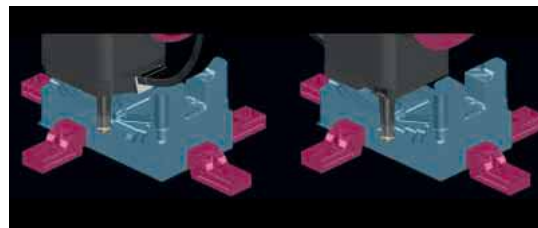
Tebis, the specialist CAD/CAM and MES solution provider, offers its customers a fully integrated solution that detects and resolves potential collisions using digital twins technology in the CAM environment. Tebis has added more features to this well-proven approach in Version 4.1: the option for machine head collision checking is now also fully integrated in the Tebis virtual machine model, along with new functions for 5-axis simultaneous avoidance milling.

“The earlier in the process chain that collisions are avoided, the better. Because detecting and avoiding potential collisions at later stage almost always results in unwanted downtime and unnecessary costs,” explains Fabian Jud, product manager at Tebis: “Tebis approach is proven and safe as it verifies toolpaths and avoids collisions within the CAM environment. This is achieved by using digital twins of the real manufacturing environment.”

The real-world machining environment is reproduced precisely in the virtual world by

Tebis to ensure that the integrated collision checking functions safely. This includes all geometries including machines, tool assemblies, clamping devices and limit switches. Tebis completely eliminates simplified substitute geometries. The basis for the NC calculation is usually the accepted machine model. This enables a digital twin of the real NC code to be generated in the CAM environment.

Collisions that can be detected while calculating the NC program can be immediately identified and avoided with the appropriate collision avoidance strategies. The most appropriate strategy depends primarily on the specific component geometry, the machining task and especially the available machine. This knowledge should be stored in NC templates. This means that the CAM programmer only needs to select the machine and machining elements. The appropriate collision avoidance strategy, with area reduction, simultaneous 5-axis avoidance milling or



indexed machining, is then automatically assigned in each case.

In the event of potential collisions with the machine head, milling areas are now automatically reduced or excluded from the machining operation in the NC calculation.

Automatic area reduction is generally used in 3-axis roughing. Milling areas that can't be machined with the tool in use because of a collision with the machine head, for example, are automatically deactivated.

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# Hexagon empowers mould & die manufacturers by providing 'manufacturing-aware' CAD for every customer

Hexagon's Manufacturing Intelligence division has provided all mould and die shops using its WORKNC Computer-Aided Manufacturing (CAM) software with immediate access to its powerful model preparation software. The software integrates production workflows from any Computer-Aided Design (CAD) model format to CAM so they can machine parts more efficiently and avoid costly errors.

The transition from engineering to production can be prolonged without the right tools to efficiently prepare solid models for manufacturing, impacting profitability. By providing WORKNC customers with access to its robust and fully featured CAD application, DESIGNER companion, Hexagon has made it easier to prepare any mould or die for machining while simplifying the challenge of working with a wide range of file types from different CAD tools used in the industry. Because the software provides specialist tools for mould-and-die engineering out of the box, the resulting workflow significantly simplifies the preparation of models that are both feasible and optimised for efficient production.

Introducing universal access to CAD preparation helps users to accelerate the process of healing missing faces, extending surfaces and capping holes and pockets in preparation for manufacturing. It also provides direct modelling functions that are easier, more intuitive and less limiting than traditional parametric modelling. Users can also employ a hybrid design approach that combines surface and solid entities through direct-modelling techniques. Once ready, users can send solid models directly from DESIGNER to WORKNC and the integrated workflow will save them time by ensuring accurate models are automatically assigned as stock and part.

"We are providing every shop with out-of-the-box access to powerful mould and die workflows, so industry professionals have everything they need to ensure that parts are not only manufacturable, but they are also machined to the designer's intent and produced as efficiently as possible," says market and product manager Miguel Johann. "Universal CAD access simplifies



the often-arduous process of preparing models for production while introducing a one-click transfer of completed designs directly to CAM software, which makes the entire process even faster."

Once a model is prepared, new advances in WORKNC's programming capabilities reduce the time spent calculating toolpaths and help to generate faster and more efficient code for reduced cycle times. Used with a spiral toolpath option, the software's 3-axis parallel finishing strategy supports compensation for any tool shape, including lens cutters, barrel cutters and any other circle-segment tools. On average, Z-level cutting toolpaths using this strategy can now be calculated four times faster than in previous versions of the software.

New strategies for machining with Advanced Toolform technology, which supports programming with any tool shape for greater efficiency, are central to new developments in WORKNC. New 5-axis offset, parallel finishing and curve-machining strategies can be used to generate fast, reliable toolpaths with barrel cutters, lens cutters and other user-defined shapes for improved surface finish and reduced cycle times.

Contour re-machining with Advanced Toolform makes rest finishing parts faster and more precise by enabling any tool shape to be selected. This re-machining strategy enables users to automatically machine material remaining after an initial roughing operation using increasingly smaller cutting tools for subsequent roughing and finishing operations. This

provides more accurate detection of remaining material even when previous processes used circle-segment tools, smoothing radius parameters, or were applied from a different angle. The calculation of the toolpath is now also three times faster than in the previous version of the software when using the updated 3D stock model as a reference.

WORKNC also offers the latest in curve-profiling technology for wireframe machining by providing robust tool-radius compensation capabilities. The curve-profiling strategy enables the management of tool-radius compensation parameters that can be used to adjust for tool wear at the machine-tool control without the need to return to the CAM department for reprogramming.

For enhanced simulation and verification capability, the latest release of WORKNC also enhances workflow integration with NCSIMUL, Hexagon's machine-simulation software. Numerical Control (NC) code and links for toolpaths generated by WORKNC can be easily imported into NCSIMUL to simulate the manufacturing process on a target machine type and validate it for optimal, risk-free production.

For more information, visit:  
<https://www.worknc.com>

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## SRD switches up its CAM System

For any established subcontract business to switch from one CAM system to another can be a daunting prospect. When you consider the training and skills invested in staff, the legacy programs and the prospect of having to re-program those historical parts many busy subcontract businesses will often stick to what they know. However, SRD Engineering Ltd, the change from a license to a subscription CAM system didn't fit with what the Oxfordshire company wanted, so they made the switch to hyperMILL® from OPEN MIND.



A subcontract machine shop founded in 1989, SRD Engineering is an innovative manufacturer that services clients in the motorsport and automotive sectors as well as the aerospace, oil & gas and medical industries among others. However, when its CAM software provider opted to change to a subscription-based model with its customers, the Bicester company started to investigate the alternatives. As SRD Engineering production manager, Chris Bryant



says: "One of the main reasons we invested in hyperMILL is because of the money. We were paying a subscription for our CAM software, and we wanted to pay a licence fee, we started looking around and we calculated that by switching from a subscription model to a licence we would save over £20,000 in three years."

The financial savings should be enough to turn the heads of any

subcontract business, but when the lower-cost alternative has a reputation like hyperMILL and its performance and innovation is industry-leading, why wouldn't you make a change? During the initial period of getting used to OPEN MIND Technologies hyperMILL, SRD Engineering felt the system was comparable to its previous system.

However, once the subcontractor started to get familiar with the features of hyperMILL, that perception changed. As Chris Bryant continues: "Now that the guys have got used to hyperMILL and gone through a transition period, it's definitely better."

Chris Bryant concludes: "Since we have been using hyperMILL, we have optimised our run cycles and there is a lot less 'air cutting'. Additionally, some of our finishing cycles are a lot faster. We have one job that we were previously running at 45 minutes per part and this is now down to 30 minutes. For this component, we produce around 60 parts a year and this gives us a saving of around 15 hours."

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# A new generation of wireless part marking systems

The brand-new Wireless Connect Series, introduced to the UK market by Universal Marking Systems, features the Easy handheld and the Easy Combo benchtop dotpeen marking systems. They are redefining the boundaries of permanent marking to give you complete marking freedom and access to data. This new design from Technomark, provides a completely wireless system that includes an ergonomic marking head design that makes the handheld system easy to use and orientate in any position. Its new design focuses on mobility and convenience with a large, intuitive, 10" colour touch screen tablet controller, making data setup quick and simple so anyone can use the marking system in a matter of minutes.

The Connect Easy handheld system is reshaping marking capabilities and eliminating boundaries by utilising built-in secure WIFI protocol, allowing operators to work at a 10 m range from the controller to give total marking freedom. The small OLED screen on the side of the marking head has a WIFI and battery indicator so you can keep track whilst you're marking. The OLED



screen demonstrates the smart linking of the head to controller and provides real-time information about the machine and the marking in progress.

Ready to pick up and use, the Connect Easy system is embedded with intelligence designed for Industry 4.0. The future of marking is more connectivity and a growing number of customers will need a marking system to communicate with their information systems. This has been an important consideration with the development of the Connect series range of equipment. CSV files can be imported directly to the controller and configured for marking while Ethernet connectivity comes as standard as well as USB. A fast charging lithium battery lasts nearly twice as long as standard rechargeable batteries to manage high volumes of marking. The built-in battery monitoring system will indicate when battery power is down to 10 percent, at which point a power cable can be plugged in to allow hybrid use so there is no interruption to marking and the battery will also start recharging.

The design for the marking head has been created with the operator in mind, making a durable and robust unit with new rubber

bumpers providing protection in case of a drop, yet lightweight and offering 360° use. This system supports new features such as the ability to switch between left and right handed use and now comes with four removable magnets on the marking foot to support for secure locating of the head when marking. The multifunctional non-slip support foot also features a V shaped foot to allow marking on curved surfaces as well as an optional support guide ideal for marking on bar end and the edge of sheet metal.

Connect Easy features marking capabilities that are more advanced than ever before and promises high quality, fast and easy to read marks. The software is intuitive and designed to enable you to start marking within three clicks. Visualisation of the marking area is shown on the screen making positioning of data easy.

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

Marking variable data is easy and can be input via a 1d barcode reader if required.





seconds so the operator can easily switch from marking large to small components easily. The need for flexible marking positions has been realised and accounted for by not only a durable but lightweight marking head, but also through the controller, which has multiple mounting options, consisting of the 'light support stand', 'advanced support stand' and 'premium support stand', each with different heights to fit in with the operator's working environment. The controller also has a VESA 100 mounting.

The handheld and combo options of the Easy come in two standard sizes, as defined by the marking window size, 60 x 120 mm or 60 x 30 mm. Universal Marking systems offer full support to help you find the best solution for your marking application.

To find out more about the new Connect Series and full range of Technomark dot peen and laser marking solutions, contact one of its technical sales team.

Create sequential data, date/timestamp, text on an arc, logos, symbols and datamatrix. An LED light illuminates the marking area to help with usability.

Deep marking is easily achieved utilising the multidot function which creates deep

marks without the need for additional power, ideal for applications which are painted after marking.

Available as a handheld unit or a smart 2 in 1 combo system, the connect series can switch from handheld mode to bench top in

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## Understanding options on metal laser marking platforms

Laser marking systems come in all shapes and sizes. However, the technology generally falls into two distinct configurations: those of a flat-bed system or a galvo-based system. This article from TLM Laser's Andy Toms explores the differences between these two configurations and highlights the benefits of each

Although both flat-bed and galvo-based laser systems are commonly used for marking applications, it is important to understand the differences between these two technologies. As the name suggests, flat-bed systems operate in the X and Y plane with the laser beam being deflected across mirrors into the focusing lens and from there vertically onto the workpiece.

Alternatively in galvo-systems, the laser beam is manipulated using mirrors mounted to two galvanometer scanners, one for the X-axis and another for the Y-axis, which allows the beam to cover the marking field at high speeds and at high levels of precision. In these systems, the marking field size is defined by the deflection angle of the mirrors and the focal length of the optics.

The decision on which of these types of systems to use is often determined by a combination of the marking requirements and the size of the part. In most cases, a flatbed laser will typically have a larger working area than a galvo-based laser

The larger work envelope of course makes it possible to mark larger workpieces or process multiple smaller items in a single setup. There are also options on some flat-bed systems, such as Universal Laser's



Universal Laser's new platforms ULTRA X5000 left and ULTRA X6000 right

ULTRA R500, where the unit can be fitted with options to allow the pass through of material, converting the normally Class 1 system into a Class 4 laser system.

Galvo-based laser marking systems can often be found in applications where the components are smaller and where the highest levels of precision are required. Further benefits of Galvo-based systems include speed of marking and the ability to operate over a larger focal depth.

In applications where graphics or other image style marking is required, the flat-bed laser system offers greater potential through the larger working area. However, if the marks required are smaller, more text and numerically based, then the Galvo-based laser system are often the most appropriate choice. It's not uncommon to find that high precision automotive components, highly regulated medical device components, implants and other items which may require marks to be produced in small or restricted areas, will have the marks produced using a Galvo-based laser system.

Lasers have the capability to mark virtually all metals including stainless steel, high-grade steel, carbon steels, copper, iron, magnesium, aluminium, brass, titanium and of course precious metals. However, as for most manufacturing processes, there is no "one size fits all" solution for laser marking metals. The type of metal being marked and whether it is coated or not will influence the choice of laser source fibre or CO<sub>2</sub>.

Today, fibre laser technology is by far the

most efficient and effective way to mark metals.

For those with diverse marking requirements, such as subcontract businesses, having the ability to choose between a CO<sub>2</sub> laser or a fibre laser and multiple wavelengths as required is a significant benefit.

Universal Laser Systems ULTRA X5000 and ULTRA X6000 platforms offer laser material processing for the widest possible range of materials. Their unique modular architecture makes it possible to customise laser marking solutions through the ability to reconfigure the system with different laser sources and wavelengths.

The ULTRA R5000 platform can be configured with up to two laser sources, consisting of two interchangeable CO<sub>2</sub> lasers or one CO<sub>2</sub> laser and one fibre laser. Users can configure the ULTRA X6000 platform with up to three laser sources: consisting of two interchangeable CO<sub>2</sub> lasers and one fibre laser.

When these highly flexible platforms are configured with two or three, users can then take full advantage of MultiWave Hybrid™ technology enabling up to three wavelengths to be simultaneously combined into a single coaxial beam. Each spectral component of the beam is independently controlled and can be modulated in real time.

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Galvo-based systems such as FOBA's M2000 series shown here deliver high precision marks at high speed on a wide range of metals

# SIC Marking traceability solutions

The bearing market has been facing a scourge of counterfeiting for many years leading to huge consequences. No less than 5.4 million jobs are at stake, as well as a loss of 36 billion euros for the global economy\*.

These alarming figures are prompting major bearing manufacturers around the world to mark their components. On the one hand, to facilitate internal traceability and maintenance actions but above all to improve their corporate identity by offering distinctive and aesthetic signs.

Every year, millions of bearings are manufactured for numerous sectors such as the automotive and aerospace industries, but also for the energy and medical sectors. Obviously, this large demand generates a wide variety of products, in terms of used materials but also in terms of dimensions. As a result, marking solutions must easily adapt to these differences.

The marking type is also different. The bearings are marked with a variety of information ranging from alphanumeric production codes or product data to Datamatrix codes or logos. The inscriptions must be clear, readable and unalterable. This last point is especially true if the bearings are subject to significant mechanical or thermal stress.

In addition to their great modularity, the marking solutions used must be able to adapt to the different parts' shapes. Consisting, among other things, of an outer and inner ring, it is common to engrave both. This involves flat, circular, concave and convex markings. All of this while considering cycle times that can sometimes be in the order of a second.

SIC Marking, a leader in industrial traceability, has been committed for over 30 years to providing the most appropriate marking solutions to meet the challenges of industry. Its experience has enabled the French group to offer a technically superior range of laser marking machines as well as a large number of automatic reading solutions.

Its integrated lasers are particularly well suited to marking ball bearings, providing clean and permanent results on all materials, from plastics to ceramics to hard metals. The various options



available, including the 3D function and Autofocus, ensure perfect marking on all bearing surfaces.

The range is completed by three workstations, L-BOX, XL-BOX and XXL-BOX, allowing a dedicated marking station. This can be integrated into a production line or used as a stand-alone marking station. The production of small, medium and even large series is possible. The resizing of the boxes, the creation of specific tooling and the addition of additional movements are options available on request.

SIC Marking has three competence centres in Europe, America and Asia, enabling it to offer specific solutions, developed and studied locally. Therefore, the team is dedicated to customer's needs and is perfectly capable of adapting to various contacts, whether they are multi-site, process, workshop or line managers. The particulars of the different sites are carefully studied whether it's the surface area available, the technologies for conveying parts or the environmental constraints.

\*Figures from the World Bearing Association.

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# Behringer HBE320-523 3D and LPS-T 3D for additive manufacturing

In the last year, Behringer GmbH added two new models to its product portfolio with the new 3D series. The high-performance bandsaw machines were developed to separate additively manufactured parts of different shapes and sizes. Additive manufacturing of parts continue to gain a foothold, particularly in applications where typical production techniques reach their limits. One of the clear advantages of 3D printing technology is the seemingly limitless shapes and structures of the creations. Even a moving group of parts can be printed as a complete unit, so there is no need for post-production assembly.

Ohnhäuser GmbH from Wallerstein, Germany, is primarily known as a contract manufacturer and premium supplier for the aerospace industry. To manage the demands of manufacturing bionically constructed parts, the company expanded its production methods to include Additive Manufacturing (AM). In the latest stage of development in 3D printing, Ohnhäuser is concentrating on the use of a special titanium powder, optimised for aerospace requirements. As a material, titanium boasts strength characteristics in the range of tempered steel with a comparatively low weight. An EOS M 290 printer is used to generate the 3D metal parts.

After additive manufacturing, the titanium parts must be separated from the printing plate. While carrying out research into a suitable separation process, it became clear that only a saw system would make the cut: "We then contacted Behringer to ask what



solutions our bandsaw manufacturer could offer" recalls Moritz Färber, project manager at Ohnhäuser GmbH. "Ohnhäuser had been using a bandsaw machine from Behringer for several years, so we knew the company was a high-quality and reliable manufacturer of saw machines."

## Precision sawing of a range of materials

When it comes to highly-sensitive 3D printing, accurate separation of the part from the printing plate is essential. Deviations in the cut or drifting out of the cutting channel is not permitted, as this would damage either the base plate or the printed parts.

The HBE320-523 3D is based on the already established HBE Dynamic series. This impresses with its robust construction, energy-efficient drive system and above all, its accurate sawing. It cuts the inserted materials with precision to a tolerance of tenths, whether it be steel, aluminium, nickel-based alloys, titanium or plastic. The bandsaw blades can also be quickly and flexibly changed to suit the material that is being sawn. All the machine's blade-guidance parts are cast in Behringer's in-house foundry. The grey cast iron dampens vibrations and reduces unpleasant background noise during cutting. All these factors have a positive effect on the sawing process. The result is high cutting performance and a long bandsaw service life.

## Easy handling

The machine is designed for functional handling to support processes. Once the base plate has been clamped, it is quickly and precisely aligned for the saw cut using the measuring stop. The stop system is located on the printed side and works regardless of plate size. This eliminates the majority of the setting and alignment work. In regard to the loading and clamping processes, Behringer caters to customers' individual needs: "It is very important that





we are flexible in this regard. The process often depends on the 3D printer design," explains Rolf Bentz, project manager at Behringer.

## Focus on safety at work

Some of the metal powders used in 3D printing have a tendency to self-ignite. After printing, the residual powder is removed from the finished parts, but powder which is embedded in supporting structures can pose a hazard. To separate these materials, the 3D saws from Behringer can be equipped with an enclosure which is connected to an extraction system. Metal dust, vapour and oil/aerosol mists that arise during the separation process can be directly extracted.

The cooling system should also be matched to the material to be sawn. Flood coolant is recommended for the majority of materials to ensure efficient sawing of the parts. The models in Behringer's 3D series are equipped with a filter system which continuously cleans the metal powder particles from the coolant. However, when aluminium alloys are being processed, for example, reactions with the coolant, water-oil mixture, can occur and promote

the formation of explosive hydrogen. Micro spray systems are suitable for such cases.

## Behringer responds to individual customer requirements

The HBE320-523 3D has now been in daily use at Ohnhäuser GmbH for over a year.

"We are very satisfied with this machine, the saw cut is precise and a solution-based approach has been taken with the material handling. We also enjoyed the open dialogue with Behringer, so that our machine could be optimally adapted to our machining process. Together we have developed a special, hydraulic quick clamping system for easily securing the printing plate to the fixture," explains Moritz Färber.

The HBE320-523 3D can be used to process printing plates up to 300 mm x 300 mm. For sizes bigger than this, Behringer offers the LPS-T 3D which can accommodate printing plates up to 850 x 650 mm. When using a crane to load and unload the larger, heavier base plates, the vertical machine design with freely accessible machine table is the best choice.

The Behringer Group is a manufacturer of high-performance bandsawing machines,

circular cold saws and structural fabricating equipment. Operating as Behringer Ltd., the UK operations are located in Pitstone, Bedfordshire and is a subsidiary of the parent company Behringer GmbH, in Kirchartd, Germany.

Behringer prides itself on building the highest quality metal sawing and fabricating equipment in the world. Its primary goal is to create value for its customers, by continuously striving to achieve the highest combination of speed and accuracy, combined with cost-effectiveness. All equipment design is based on achieving these primary objectives, on a dependable and long lasting machine.

In addition, Behringer offers the widest selection of models, which allows it to not oversell or undersell a customers needs. Through detailed discussion with end-users, the company is positioned to offer a system that delivers the appropriate size ranges, options and material handling requirements for its unique application.

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# Supplying cutting solutions to Britain's manufacturers for five decades

After 50 years, Accurate Cutting Services Ltd is still a private family-owned business, but has increased in size and scope through the acquisition of Birkett Cutmaster Ltd. Operating from two main sites, Redditch in Worcestershire and Cleckheaton in Yorkshire, it can offer faster response to customer needs in machine servicing and repairs and a new larger portfolio of products for UK distribution.

The core of Accurate Cutting Services remains subcontract sawing, however using the same saws that it distributes provides it with a practical advantage when considering customer requirements for the selection of their own sawing capacity. It also allows the company to select the best equipment for its own use.

Its advanced capabilities in reshaping metals have brought added value in a variety of industrial sectors, including aerospace, automotive, construction, energy and marine engineering. Whether cutting from billets, bars, plate or blocks, to sawing fully or part machined components to optimise manufacturing yield or improve dimensional accuracy at lower cost, the value is there.

With knowledge and skills acquired over nearly 50 years of service to industry and by investing in locations best suited to customers, Accurate Cutting Services has won an unrivalled place as a technical partner to leading UK manufacturers.

### Versatile subcontract metal sawing service

Its sectioning of part-finished or finished forgings, fabrications and castings brings benefits such as low material loss, nil distortion and improved accuracy. Manufacturing processes are simplified, with reduced production times and lowered direct costs.

### Adding more value by working close to its customers

The company's responsiveness to industry's needs has led to it establishing working cells in Lancashire, Yorkshire, West Midlands and a second Redditch location. Some are within customers' own premises, reducing WIP and transport costs and optimising response-to-change times.

Its services bring the greatest possible



value to the customers there. Lead times and costs are low in the JIT working and communications are ideal.

### Advanced investigation and value-recovery services

Accurate Cutting Services provides facilities for the investigation of component or fabrication failure, as well as valuable opportunities for reclamation. The company can tackle large items through the skillful use of its heavy-duty bandsaw machines. It was selected as the only company capable of sectioning a 1,500 mm reactor vessel cylinder for Europe's Health & Safety Commission. On another occasion, a close tolerance cut was required to remove a flange header from a sophisticated heat exchanger, made in a titanium alloy. The company had to dry-cut this in-line component from the petrochemical industry, because contamination of the continuous process could not be tolerated.

### Solutions through sawing-machine and blade sales and service

Accurate Cutting Services applies its 50 years' experience of developing, manufacturing and using band and circular saw blades, and machines, to providing sales and support solutions to its users. With the metals used in today's manufacturing including advanced alloys with extreme thermal, chemical or mechanical properties, heavy demands are

made of blades. The right choice of blade to use and its proper maintenance, are vital if delivery times, productivity targets and quality standards are to be met.

To provide the best possible service responsiveness, the company's blade manufacture, grinding and repair and sawing-machine repair work are carried out around the clock.

### The experience pays off

Doncaster FVC's case book of advanced applications includes sawing, in two, a centrifugally-cast turbine generator casing, 1,350 mm long, 1,450 mm in diameter and with 200 mm thick walls, using what is one of the UK's largest horizontal band saws.

It produces high volume rounds, squares, solid bars and tubes, also, to close tolerance, in ferrous and non-ferrous metals. One object for such precise cutting was a multiport extrusion, demanding minimal distortion.

Keith Winkley, technical sales manager for Doncasters FVC Ltd, says: "The casing is for Siemens Industrial Turbomachinery AB and without the assistance of Accurate Cutting Services, it would have been a struggle to find a subcontractor with the knowledge and capacity to cut such a large casing."

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# New Prosaw website launched

As time passes and technology develops, every website needs both an update and refresh. Early in 2020, this process began at Prosaw with the input of its dedicated employees along with customers and suppliers.

“The main purpose of the update was to make the user experience more enjoyable and assist visitors in getting to the product of interest in only a few clicks,” says sales director, Robert O'Brien.

As with the previous site, Prosaw has developed its popular 'Saw Finder' to allow visitors to drill down very quickly to a smaller selection of machines that meet the criteria relevant to their search. In addition, the site features seven sections dedicated to specific applications such as fabrication, stockholding and precision engineering, where once again the machines shown have been selected as the most suitable for this type of work.

Another aspect of the website was to increase its ability to be 'mobile-friendly'. Images, videos and other content have been arranged so as to allow the growing number

of visitors to the site on mobile devices, to gain the same experience as those on a desktop computer.

The new layout of the website also allowed for the addition of 'featured products' where on a regular basis Prosaw will show machines that are either on special offer or perhaps have just arrived into stock.

At any point and on any page, visitors have quick access via a one touch button to request further details whether that be about a specific machine, consumables and spares, or Prosaw's after sales service.

Following the official launch in May 2021, Robert O'Brien stated: “The results of the past years development work and the complete new look and feel of the website is already showing, with an increase in visitors to the site. Also, the length of time that visitors are staying online looking at our range of sawing machines and associated



equipment, this was the result we were aiming for and it appears we more than achieved it.”

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# Ficep UK helps Norway's Contiga AS improve efficiency with new automated saw system

Ficep UK, a leading supplier of automated, advanced structural steel machinery and plate processing equipment, has supplied a new automated saw line at Norwegian-based Contiga AS, helping the business to improve production processing time by up to 40 percent.

Ficep has worked with Contiga AS for over two decades, including the manufacture and supply of its first saw drill line, recently supplying a fully automated saw, drill/coping system which was installed amidst tight covid lockdown restrictions at Contiga's Roverud facility.

The new system consists of the Ficep Orient, a CNC-controlled drilling and combined thermal coping line equipped with rotary single-spindle. To prove the time and cost savings of the system and process, Ficep prepared time studies which presented clear indications of the time saving achievable with the machinery investment.



Owned by Heidelberg Cement, Contiga AS is a leading supplier of complete prefabricated products in steel and concrete for the Norwegian and Nordic countries construction market. The firm employs over 500 staff across 11 production facilities in Norway. Contiga AS designs and develops steel solutions that are tailored to individual projects, delivering between 7-8,000 tons of steel structures to the Norwegian market per year.

Ficep UK MD, Mark Jones says: "Contiga

AS has been a long-standing customer of ours for over 20 years and during that time we have built a solid working relationship which meant that, despite them inviting other suppliers to offer up solutions, we were able to present a more economical and efficient solution that met their exacting needs.

"We overcame several challenges, not least that the machinery was installed during a period of Covid restrictions, but also that the space was limited and it was important that there was minimum disruption to reduce operational downtime. There were also added contractual obstacles to overcome due to Contiga AS now being part of the huge Heidelberg Cement group and additional levels of communication across several countries were required."

Thor Egil Einarsrud, factory manager at Contiga, says: "We use modern technology and work processes, as well as the best machines, to guarantee that all our steel products have high-quality. To ensure our competitiveness, automation is absolutely necessary and we are already seeing that in several of our production processes we save as much as up to 50 percent in time spent on the new automated sawing plant compared to when we did things manually.

"We have a strong focus on the environment and so it was of huge importance for us to minimise the impact on the environment when installing our new saw plant. We did this through the reuse of large parts of the existing conveyor belt which fits together well with the new system as they are all Ficep products. This versatile technology allows various operations normally only available through multi-spindle drilling lines. The new plant has transformed our business, now allowing better efficiency and precision."



Ficep S.p.A. was established in 1930 and located at the foot of the Alps on the northern border between Switzerland and Italy. Ficep has been exclusively engaged in the engineering and manufacturing of machine tools for the metalworking industry.

Its structure is comprised of several affiliate Ficep owned companies that collectively encompasses over 1,500,000 sq. ft. Each specific facility maintains the responsibility for a specific product or product group to maximise efficiency.

Ficep UK's facility, located on the M62 in West Yorkshire, provides full spares inventory, technical support line and provides live demonstration for customer visits of the latest equipment in its range. It also has space dedicated for machinery refurbishment and testing in its HQ facility.

It is a family company whose owners actively participate in the business on a daily basis. Throughout the world, Ficep is considered a market leader, but the key to its success lies in its workforce and their capabilities in customer relations.

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# In the bandsaw and blades business for over 30 years

Saws UK is one of the UK's leading bandsaw machine and bandsaw blade suppliers. It has a huge range of bandsaws and circular saws, which include ACM Italy and its own Alligator brand. It is the sole agent for many high-quality European manufacturers and it supplies the Italian-made Carif bandsaw range of semi-automatic and CNC saws. The company is also a leading manufacturer of custom bandsaw machines and its engineers have provided bespoke solutions for a wide range of sectors, including aerospace, energy, mining, car manufacturing and Formula 1.

Whatever tooth pitch or bandsaw blade size you need and whatever machine you have, Saws UK can provide the right blade for your needs, offering very fast delivery times for its blade orders. It can also offer made to measure blades for any bandsaw, based on the length, width and tooth pitch. Its experienced team can advise you on choosing the correct tooth pitch for your application.

Saws UK Ltd was founded in 1987 by its

present chairman Allen Peatfield. He has a wealth of experience in the field of machine tool development and, prior to starting Saws UK, he was employed by both band saw blade and bandsaw / circular saw machine manufacturers. He quickly realised the sawing machine was the 'Cinderella' in most companies, often relegated to an undignified existence in a shed outside the main factory. Saws UK has worked tirelessly to get sawing regarded as a central operation, working accurately and efficiently on a cost per cut basis.

Today, Saws UK supplies a range of bandsaw machines to suit most customer requirements and is happy to design or adapt machines for special applications. If you need advice, spare parts, bandsaws, blades, or a service, the company is able to assist you. It is happy to visit your premises to showcase the capabilities of its machines, or it can arrange a demonstration in its showroom with your cutting samples. Get in touch for a free consultation about your bandsaw and blade requirements.



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# TCI Cutting BP-H COMBI

The benefits of waterjet and HD plasma cutting in a single machine

TCI Cutting's waterjet cutting machines provide high-quality European technology and personalised developments, as a result of extensive experience in the sector, both in national and international implementations.

Specifically, the BP-H COMBI cutting machine integrates in a single machine the benefits of water cutting technology as well as those of HD plasma. It provides cutting precision, versatility, speed and quality to customers. In short, it is a complete cutting solution that guarantees the highest quality of the finish in cuts of various levels of complexity, thickness and material.

BP-H COMBI stands out for its modularity and infinite growth possibilities, to satisfy the future growth of its clients' activity. This machine incorporates the 5x Direct Drive 4.0 Infinite Loop® 5-axis cutting head, which allows infinite rotation without rewinding in three-dimensional cuts.

This cutting machine offers the possibility of cutting in 2D, 2D½, inclined cut, or 3D, cut with volume, as well as the incorporation of other complementary heads such as drills and others, according to client's specific needs. BP-H COMBI is characterised by having a maximum height adjustment on its Z-axis of up to 700 mm that guarantees unique versatility.

Cutting the pieces with pure water and water with abrasive, for materials of great hardness and thickness, give an extensive cutting coverage according to the needs of the client and the sector. In waterjet technology, the pieces are cold cut, avoiding both alterations in the chemical composition of the material and its deformations, in the case of metals.

TCI Smarttouch, the operator-machine interface, maximises the use of the cutting machine to optimise its performance and connects with TCI Manager. It provides intelligent production management software for autonomous and strategic decision making, for the comprehensive control and optimisation of the entire factory production process.

### North American market launch

TCI Cutting has launched in the North American market as part of its growth and international expansion plan.



The company has recently reached a collaboration agreement with two local partners, INDUCOR and PHASE FOUR, both highly incorporated and knowledgeable of the North American market and specifically in the sheet metal and industrial cutting sector.

TCI Cutting is especially focused on growth in three industrial centres of interest for the Spanish company. The target areas are: Northwest, California and Texas. Aware that this market is made up of many different markets and types of customers, the company is committed to industrial technological developments especially suited to the American demand in each of these industrial areas. This means, state-of-the-art laser cutting machines like the Dynamic line Fiber, Smartline Fiber and Speedline Fiber, with their respective intelligent automation solutions and intelligent production management software for autonomous and strategic decision-making, as well as its waterjet cutting machines, BP-C and BP-H, among others.

TCI Cutting seeks both a fast and high-quality introduction to the North American market of its brand, to consolidate itself as a high-end option for American companies seeking to optimise their industrial cutting plants in accordance with the current digital environment. Furthermore, to become customers'

long-term technology partner in order to help them in their transformation into Smart Factories.

Emilio Mateu, CEO and executive director of TCI Cutting, says: "The North American market has an important weight within our corporate international expansion plan. It is a strategic market for the development and growth of the company. We want to make known our cutting solutions and meet the needs of our potential customers in this country. There is nothing we would like more than to help them to be more competitive and productive in the future."

The TCI Cutting company is headquartered in Guadassuar, Spain and is a leader in the manufacture of laser and waterjet cutting machines, customised and scalable intelligent automation systems, as well as intelligent production management software for making autonomous and strategic decisions. It accompanies its clients in their digital transformation processes and the optimisation of their cutting factories.

### TCI Cutting

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## Acres Engineering expands its capability with waterjet cutting

Acres Engineering is one of the leading design and manufacturing businesses for custom finished products which it can design, manufacture, assemble, load test and CE mark. The company also takes care of any additional elements required for custom machines or small automation jobs including electrical, pneumatic and hydraulic control elements. When required it can also provide regular, thorough examinations.

Although its focus is on manufacturing custom solutions, it also provides a subcontract parts and sub assembly service to its customer's own drawings and designs.

From initial consultation and CAD design to prototyping and manufacturing in the quantities you need, when you need them, Acres work alongside its customers to create a partnership that contributes to making it the preferred supplier of leading names across a broad range of industries.

To further improve and extend the services it offers, Acres has just taken ownership of a Swift-Jet Pro waterjet and it

couldn't be more excited about the benefits of this impressive piece of kit, enhancing control over processes, cost and lead time.

The Swift-Jet Pro is a feat of incredible engineering; a package that combines the ability to cut a wide range of materials with superb accuracy and repeatability in order to create excellent results. Exceptional quality, phenomenal value for money and the robust build of Swift-Cut's CNC plasma tables have all come together to create the Swift-Jet Pro; the waterjet table that is setting the standard.

Swift-Cut commissioned the new waterjet machine a few weeks ago and the Acres CNC team has already produced a number of components for incorporation into its products.

Acres Engineering's clients see a lot of potential for this machine's capability and, as such, by the end of week one, it had thirty-five days of cutting queued up from eager customers keen to benefit from the Swift-Jet Pro's incredible capabilities.



Founded in 2011, Swift-Cut set out to be a leader for the design and build of high quality, affordable CNC plasma cutting machines. It has surpassed what it thought was possible, providing a highly engineered CNC plasma cutting system to enhance customers shop productivity.

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### All-New WARDJet M-Series Waterjet System Purpose Built Large Format Cutting

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30 years of CNC Innovation and Expertise



## ESAB welding and cutting equipment now available via full-service rental partners throughout Europe

In order for construction companies, fabricators and others to gain immediate access to metalworking equipment, ESAB has launched a partnership with rental companies throughout Europe. The initial roll out includes rental partners in France, Netherlands, Sweden, Finland, Denmark, Norway, Spain, Portugal and UK. ESAB equipment available for hire includes a range of ESAB's most innovative equipment with outputs for MMA, TIG, MIG/MAG, flux cored, multi-process welding, gouging and manual plasma cutting.

Whether customers need a welding machine for a week or for several months, they can now hire what they want from a rental outlet without having to purchase equipment outright, freeing up working capital. ESAB partners can also supply the necessary filler metals, torches, PPE and accessories, so customers can one-stop-shop for their short- and medium-term welding requirements.

### Benefits of hiring

ESAB equipment in the rental fleet includes some of the industry's most compact, portable, powerful, productive and energy efficient welding and cutting power sources. When end-users know that they have quick access to state-of-the-art equipment, they can tender for more work. Should they win the contract, they will not need to make a heavy up-front investment in order to use the optimum technologies for each project, whereas they might otherwise purchase a welding machine that is perfect for one contract but sub-optimal for subsequent contracts.

Hiring equipment often makes good financial sense because customers pay for actual use and not equipment ownership. Hiring minimises maintenance and repair costs, as well as reduced profits due to downtime because rental companies are responsible for keeping the equipment in good working order.

### Packages for hire

ESAB equipment in the fleet includes the latest technologies and packages can be customised for specific job requirements. A sample of the products available for hire include:



### Renegade ES300i

An inverter-based MMA/TIG machine that offers extreme power in a compact format. Designed for welding in the field, it weighs 13.61 kg, measures 320 x 198 x 460 mm and produces a top output of 300 amps at 40 percent duty cycle. Easy-to-grab front, rear and top handles give the operator maximum flexibility for lifting the machine. Operators can easily pass obstacles, climb stairs, pass through manholes and lift the unit onto racks.

### Renegade ET300iP

Red Dot Award-winning 300-amp inverter-based machine which features advanced controls for MMA and pulsed TIG welding, High Frequency (HF) or Lift TIG arc starts options. Renegade units have an automatic input voltage sensor and can operate with a wide range 3-phase main current, with a single-phase option available.

### Rebel EMP 215ic and Rebel EMP 320ic

Rebel is a true multi-process machine for MIG/MAG, flux cored, MMA and TIG welding that combine power and mobility. These compact and lightweight systems offer process and location flexibility in any welding environment. Rebel 215 has a MIG/MAG output of 205 amps at 25 percent duty cycle and weighs 18.2 kg. The industrial Rebel 320 has a MIG/MAG output of 320 amps at 40 percent, duty cycle of 40 percent, runs 1.2 mm wire and weighs 31.4 kg.

### Warrior 400i CC/CV

The Warrior 400i CC/CV is a multi-process inverter, MMA, Live TIG, MIG/MAG, flux

cored and gouging, designed for heavy-duty applications requiring up to 400 amps. It is favoured by those requiring high productivity and reliability in civil construction, ship, structural steel fabrication and general industrial fabrication and repair.

For wire welding applications, pair with the Red Dot Award-winning Robust Feed Pro, a portable and durable feeder for outstanding performance in shop and field applications with solid and flux cored wires.

### Cutmaster 40 and Cutmaster 60i

Manual plasma systems that offer the highest power-to-weight ratio in their class. Users choose plasma systems when they need to improve productivity over oxy-fuel or mechanical cutting processes. Cutmaster 60i offers a 20 mm recommended cut capacity and a 38 mm maximum sever capacity, while Cutmaster 40 weighs only 10 kg and has a cut capacity of 12 mm and a sever capacity of 16 mm.

At ESAB, we exist to shape the future of welding and cutting. We connect fabricators with the widest range of products under our industry-leading brand portfolio with the latest technologies to solve virtually any industry challenge, then we back it up with our knowledge, experience and passion to help them be more productive than ever before.

To learn more, visit [esab.com](http://esab.com)

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## New compacting unit for modular resistance welding of stranded wire and cables

AMADA WELD TECH has introduced a redesigned wire compacting unit for its line of modular resistance welders. Ideally suited for stranded wires, the plug and play, ready-to-install modular compacting unit provides precise, fast and reproducible adjustment after electrode exchange.

This exciting new product replaces the previous open C-frame box type unit, with a unique closed box design that provides maximum rigidity and eliminates any flexing of the unit due to lateral forces. Ball bushes offer precise guidance of the ceramic slide and a new cross roller guide facilitates adjustment of the electrode position.

Featuring fast, precise and reproducible adjustment of the ceramic and electrode position, using a micrometre screw, operators can now lock the ceramic and electrode position without affecting adjustment. As a result, the adjustment time has been reduced from thirty minutes down to five.

The versatile redesigned unit can be used

for numerous process variants, including single compacting, double compacting, single compacting welding, and double compacting welding. It accommodates several unit options, including single closing right or left and double closing. The compacting unit also accommodates such special wire industry requirements as inline feeding, top loading and front-loading.

The newly redesigned New Horizon modular resistance welder delivers consistent and accurate compacting, thus ensuring part quality, minimal variation and increased production stability in automotive and electronics applications.

Resistance welding is a thermo-electrical process that uses the principles of Joule's first law, known as Joule heating. Resistance welding-based compactors use the generated heat and a constantly-applied mechanical force to form the strands into the desired shape. As a result, when compared to the competing ultrasonic methods, the surface of a resistance welded



stranded wire is even and not curled. This ensures superior part quality throughout the production process.

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### C-Gate IoT Platform

#### Digitisation of welding technology

The digitisation platform C-Gate IoT Platform enables the demand-based management of welding and robot data. With the integrated information and communication tool you visualise the performance of your robot systems, localise shortages and increase the efficiency of your welding production.

Weld your way.

# Modular digitisation platform for individually networked welding production

With the C-Gate IoT platform, users can access information from their welding production in real time. All information is entered and processed centrally in an integrated information and communication tool. This allows users to monitor and control their production processes down to the smallest detail. It consists of several modules which users can activate depending on their individual digitalisation strategy.

The basic module, BS, enables the networking of CLOOS robot systems and welding machines. With open interfaces, APIs, as well as standards such as OPC UA, the system can be easily and securely integrated into existing network and application environments MES, ERP. In the basic module, the raw data of the networked devices are available as data points. Further modules enrich these with evaluations, statistics and analyses.

The production module, PR, enables a comprehensive online monitoring of welding machines and robot systems. Here, users have access to classic operating data with target/actual comparisons including calculation and visualisation of the system effectiveness. An integrated plan data



The single modules can be activated individually depending on the application



The devices can be connected either directly to the IoT Hub or to an additional IoT Connector



With the C-Gate IoT platform, users can access information from their welding production in real time

generation supports them in determining their target values without manual entries. Shift plans and component data can be transferred from upstream systems via interface.

The QM quality management module focuses on the individual component with its

production and welding process data. It allows a detailed assessment of the weld quality already during welding. For complex and chained systems, quality statements are made for each production stage in addition. The determined data is summarised in a component protocol and can be called up via the report function or via OPC-UA or REST interface. Thus, users get an optimum support for their quality management system and the implementation of welding quality requirements.

In the future, the C-Gate IoT Platform will be expanded to include a maintenance module and a program management module. The plant maintenance module, PM, makes it possible to plan, monitor and carry out maintenance on systems and welding equipment. With the program management module, PG, programs can be managed centrally on all systems.

The individual modules are provided as software on a central C-Gate IoT Hub. This ensures secure and reliable communication between the user's IT infrastructure and the connected systems and machines. Users can

optionally use the new C-Gate IoT Connector. This is an edge gateway that is installed in robot systems or welding machines as a data/application buffer and firewall. Existing QIROX robot systems and QINEO welding machines can also be connected to this platform.

In addition to the CLOOS products, C-Gate offers the possibility of connecting third-party devices with the help of a PLC. The PLC transmits standardised station information to C-Gate, such as the current component, the production status or possible errors. With such stations it is possible to track and log a component over a complete production chain, including loading and unloading stations on C-Gate.

The C-Gate IoT Hub offers optimum conditions for the implementation of digitisation and smart factory projects.

More information is available from:

<https://c-gate.cloos.de/>

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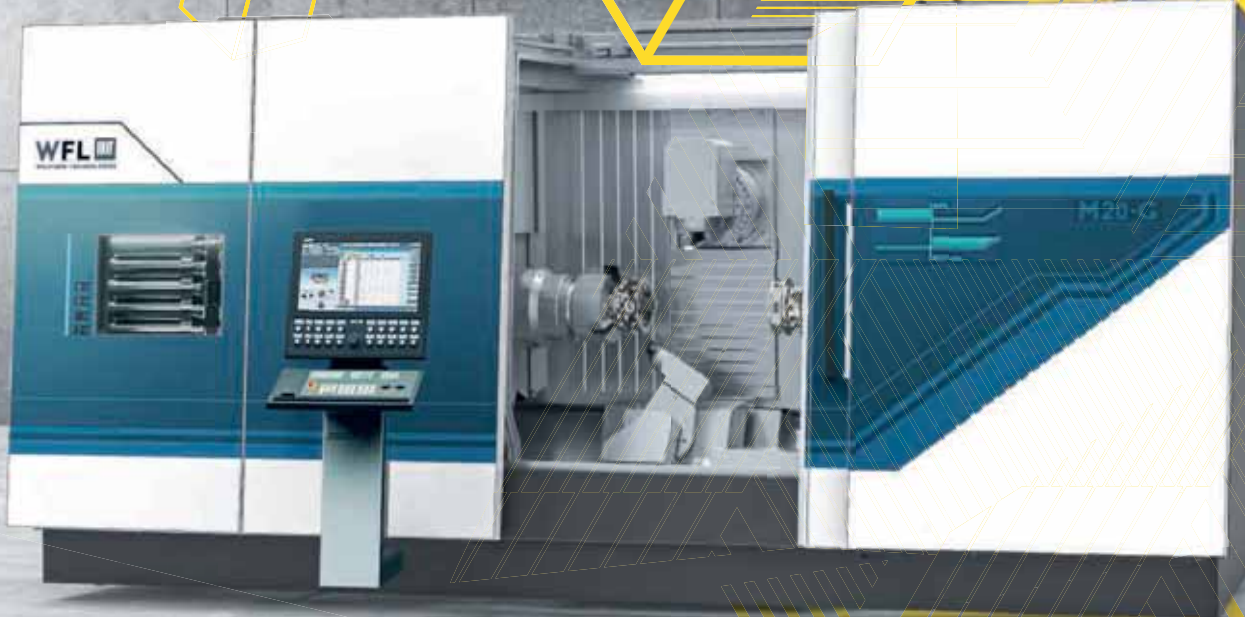
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