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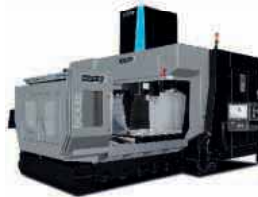
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- **MEDICAL REPORT**
- **5-AXIS MACHINING**
- **CUTTING TOOLS**
- **MEASUREMENT & INSPECTION**
- **SAWING & CUTTING OFF**

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Another bumper year

An Open House held on 7th and 8th December 2021 at Hurco Europe's headquarters, showroom and technical centre in High Wycombe attracted 70 visitors, representing more than 30 companies from the UK and Ireland, the markets into which the company sells its machining centres, CNC lathes and automation solutions. Orders valued at £450,000 were taken over the two days, which is providing an excellent springboard into 2022.

In addition to 12 machines under power cutting metal, which included three different configurations of 5-axis vertical machining centre, supply partners were also in evidence for the first time since the start of the pandemic. Eighteen companies had stands exhibiting tooling, workholding, rotary tables, filtration, CAD/CAM, metrology, automation and finance.



Managing director David Waghorn says: "Despite the difficulties of trading during Covid and some disruption caused by Brexit, we ended our financial year at the end of October 2021 with our second highest turnover ever, only a little less than in the record year of 2018."

Close to 300 Hurco machining centres and lathes were sold into the UK and Ireland, nearly one-third of which went to first-time users of the company's machine tools. It is a statistic that stays fairly consistent over the years and of which the company is particularly proud, as it underpins the company's growth. It is also proof that Hurco's message about the quality, value and usability of its machine tools and controls is reaching an ever-wider audience in manufacturing industry.

In the area of automation, a ProCobot from within the Hurco group was seen feeding a VM20i 3-axis machining centre with aluminium billets from a table and automatically returning finish-machined components. Over the other side of the showroom was an Erowa Robot Compact 80 automatically exchanging pallets into and out of a 5-axis VMX30UDi.

Such solutions provide extended periods of unattended and lights-out running, allowing users to achieve high levels of efficiency and profitability. Both cells will feature prominently on the company's 300 sq m² stand at MACH 2022.

As a postscript, David Waghorn mentioned that Hurco Europe plans to continue increasing the number of service engineers it employs, who account for around one-third of the company's staff. It added two service engineers during 2021 and plans to add another three in 2022, which will bring the total to 25.

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Southern Manufacturing gets back to business

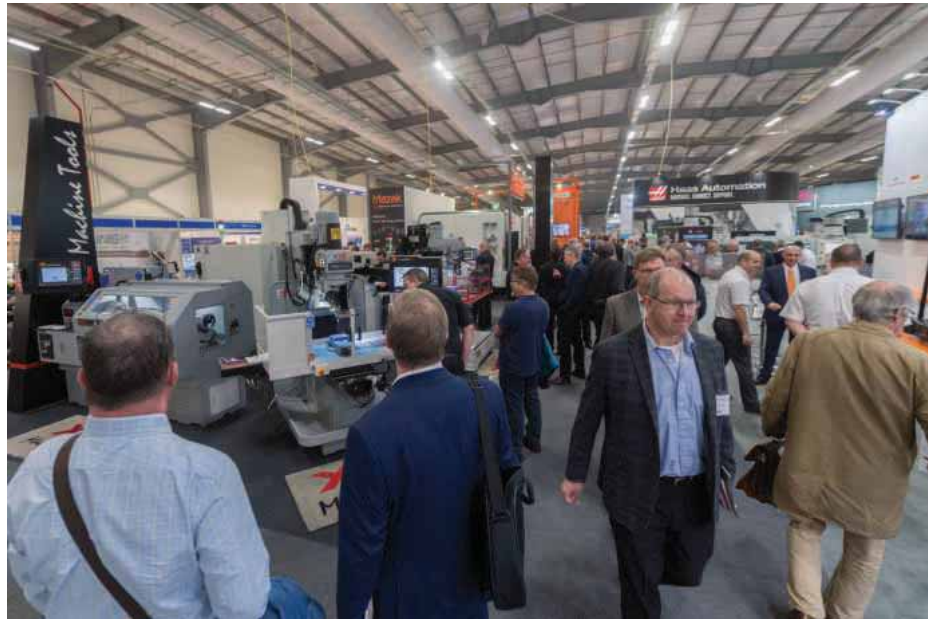
Southern Manufacturing & Electronics makes its eagerly-awaited return to Farnborough from February 8th to 10th 2022

After the disruption of the last 20 months, engineering firms across the UK will want to waste no time in getting back to something approaching normality. Little wonder, then, that the return of Southern Manufacturing to Farnborough International has been greeted with such enthusiasm by its supporters. It's a tangible sign that, at long last, firms can start to rebuild business relationships and order books as the economic recovery begins to gather pace.

After being forced to skip a year due to COVID, the first break in the show's 24-year history, there was a surprising amount of pent-up demand from within the show's cadre of regular exhibitors. With only a few spaces now remaining, the show's organisers expect the event to be fully booked by the time it opens, with many of its regular exhibitors returning to eagerly pitch their stalls at what is undoubtedly one of the UK's most important industrial exhibitions.

With the 20,000 m² Farnborough International Exhibition Centre filled to capacity, Southern Manufacturing 2022 will once again offer visitors an incredible range of exhibitors, from demonstrations of the latest high-tech machine tools and automation, mechanical and electronics components, electronics production, business and subcontract services from all over the UK, continental Europe and beyond. This huge diversity of participants makes Southern Manufacturing an outstanding opportunity to address multiple procurement challenges in one visit; a feature even more compelling by the ever-present spectre of COVID-19 and its attendant ongoing travel difficulties.

For many subcontractors, the show's extensive machinery demonstration area provides the main attraction. The event is



highly regarded by the major machinery vendors and is one of the key UK showcases for their latest products. Southern 2022 delivers its customary impressive line-up of brands and their latest offerings, all cutting metal in live demonstrations.

XYZ Machine Tools will give visitors to Southern Manufacturing 2022 the first opportunity to see its brand new XYZ SS 65 twin/sub-spindle turning centre, which was recently added to XYZ Machine Tools' range. The XYZ SS 65 breaks new ground, says the firm, being its first foray into multi-spindle turning centres, a move driven by demand from customers looking for increased productivity and reduced spindle downtime. XYZ contends that the timing of its launch of a twin/sub-spindle turning centre with live tooling and Y-axis is highly appropriate as companies bounce back from the disruption of the COVID-19 pandemic, while all facing the challenge of finding skilled labour. The ability to machine parts in one-hit, thereby reducing part handling and idle time, it says, will enable

machine shops to maximise productivity and spindle up-time while making use of available labour.

C.Dugard returns for 2022, highlighting its impressive range of machining solutions, including high precision horizontal, vertical and 5-axis CNC machining centres from Kitamura, moving column 5-axis turning and multi-process solutions from Ibarmaia, sliding head CNC lathes from Hanwha, CNC turning centres from SMEC, CNC grinding machines from Chevalier and CNC lathes from Pinacho, as well as its own Dugard range of VMCs.

Hurco will demonstrate examples from its range of CNC Vertical Machining Centres (VMC's), including 5-axis and dual column machines and CNC turning centres. Hurco products are designed to suit all types of industry from small one-off components through to large volume production. Its easy-to-use Winmax control provides conversational programming at the machine, plus full CNC capability.

Mills CNC is showcasing its latest



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innovative automation systems and solutions on its stand. These include a SYNERGi Premier automated manufacturing cell comprising a Lynx 2600SY lathe integrated with an industrial robot and featuring a large-capacity part loading/unloading station, a part inspection conveyor and a 17" touchscreen HMI powered by SYNERGi software will show how machine shop productivity can be revolutionised. Also on show is a high productivity Doosan cobot demonstrating the significant operational efficiencies that can be achieved through automation.

The automation theme is one which runs particularly strongly through this year's line up. Design & Automation Solutions will be demonstrating an example of human-machine collaborative working on its stand at Southern 2022, using a MELFA 'Assista' Collaborative Robot, supplied by Mitsubishi Electric Automation Systems UK. DAS creates custom cobot solutions for a variety of applications, recent examples being a tooled Grimm linear to a cap feeding system for a UK based biotech automation company and a project to provide a high-performance powered gantry system.

1st Machine Tool Accessories will show a number workholding and automation options designed to raising output and maximise return on investment from machine tools. Products showcased will include the Kitagawa QJR with quick-change chuck to reduce setup times and the Kitagawa BR for improved repeatability with T-Nut Plus, the new chucking standard. Visitors can also see V-Tech's zero-point plates for quick-change pallet systems, Chick Workholding's multiple component clamping for long machine running times, the Swift-Klump for automated loading and unloading on machining centres, 4- and 5-axis Kitagawa rotary tables, short, long and multi-spindle IEMCA bar feeds and for automating loading and unloading of both turning and machining centres, the Halter robots.

While machinery and associated hardware undoubtedly provides one of the show's big attractions, it is just a small part of what's on offer. The show is also a great place to source components, consumables and all manner of workshop essentials. Storage equipment manufacturer, Bott, will showcase its cubio range. Ergonomically designed, the modular system is configurable to suit individual processes and adaptable to expand with a business. The range also integrates with the company's



CNC tool storage options, incorporating Lean, 5S and Six Sigma initiatives, promoting efficiency and productivity in the workplace.

Software tools, increasingly important in manufacturing enterprise, are also well represented. CGTECH will exhibit VERICUT 9.2 at Southern Manufacturing 2022, a popular CNC machine simulation to detect incorrect tool path motions, collisions, bugs and other areas for improvement. The latest version, VERICUT 9.2, increases productivity and sustainability with improvements to collision checking and overall performance, as well as enhanced support for "intelligent" cutting tools with cutting performance information and detailed tool reporting. MIE Solutions returns with its MIETrak Pro, a complete ERP software solution designed for manufacturing industry. The easy-to-use package aims to streamline operations and includes advanced features such as cost control, MRP, scheduling, reporting, quoting, inventory control, real time tracking, much more.

Alongside the latest machinery and tooling, subcontract services is the other major aspect of Southern which draws many visitors each year. Here again, many familiar faces will be encountered such as Jenks & Cattell, Orbital Fabrications, Barlow Sheet Metal, MJ Allen and many more. Glenrothes-based Fife Fabrications celebrates its 50th anniversary at Southern Manufacturing 2022. Some of the more niche service providers include Hardcoating Technologies, extending tool life through



the use of PVD coatings as part of its regrind and recoat service.

Together with the exhibition and demo spaces, the ever-popular free seminar programme will return for 2022 in a socially-distanced format.

Extensive anti-infection measures will be in place throughout the event, including the requirement to submit a negative test result and/or evidence of vaccination prior to entry. Farnborough International Exhibition Centre is one of Europe's most modern event venues, equipped with state-of-the-art filtered fresh air ventilation. Access to the show by private vehicle is easy, with 3,500 free onsite parking spaces. A dedicated free shuttle bus runs from the railways stations direct to the show.

Admission to the exhibition is free of charge of charge. Further information and tickets are available from

www.industrysouth.co.uk

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New milling lines from ITC

On stand **H250** at the Southern Manufacturing exhibition, Industrial Tooling Corporation (ITC) will be introducing a host of new product lines from its extensive cutting tool portfolio. The Tamworth manufacturer will demonstrate its latest cutting tool innovations alongside the new technologies available from WIDIA and BIG KAISER.

ITC has an outstanding reputation for the quality, consistency and performance of its solid carbide end mills, drills and thread milling ranges and at the Farnborough event, ITC engineers will be on-hand to discuss the latest product lines that can boost productivity for manufacturers.

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

The 6-flute series 6054 Series is available with diameter options of 6, 8, 10, 12, 16 and 20 mm with a length of cut from 18 mm on the 6 mm diameter tool through to 60 mm on the 20 mm diameter end mills. Complementing the UK manufactured ITC product lines will be products from the WIDIA range. ITC will give a Southern Manufacturing debut to the new WIDIA™ M1600 face mill series. Suitable for roughing to semi-finishing operations in steel, stainless steel, cast iron and nodular iron materials, this new series has 16-cutting edges and a smart insert design that performs

exceptionally well under various machining conditions including low-power machines, unstable, non-rigid setups, long overhangs and weak fixture conditions.

The 16-edged, precision-ground insert with a positive geometry enables low cutting forces and low power consumption resulting in higher tool life and an excellent cost per edge. The M1600 has one universal insert geometry in three versatile grades: WP35CM, WK15CM and WU20PM. The M1600 face mills are available in six metric diameter ranges between 50 mm and 160 mm. Alongside the M1600 will be the impressive M8065HD milling system for machining steel and cast-iron materials. Designed with eight cutting edges and extra-wide chip gashes, the new M8065HD can achieve deep depths of cuts while producing high metal removal rates during face and shoulder milling applications.

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

From the BIG KAISER stable, the expanded line-up of Smart Damper-equipped, arbour-style face mill holders that support face mills with diameters of 80 mm



or 100 mm with an arbour pilot diameter of 27 mm. The Model SDF57 assembly has an outside diameter of 71.8 mm and allows users of 75 mm face mills to access up to 500 mm of reach, the longest tool assembly in the industry using standard components. Despite the remarkable reach capabilities of the Smart Damper face mill holders, the system demonstrates extremely quiet, vibration-free milling, even with long-projection assemblies.

Also from BIG KAISER is the Mega Synchro Tapping Chuck. The innovative new tapping chuck has a special function built-in to compensate for synchronisation errors that may occur during rigid tapping. With



more than 60 body types and 193 tap holders, the exceptionally diverse portfolio enables the end-user to select the perfect combination between the fixture and the tap holder.



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T Cards Online releases milestone update at Southern Manufacturing Show

T Cards has reached its latest 2022 milestone update with the latest release. Now it's even easier to plan and improve task management; helping you to be more agile and quicker to respond to changing requirements.

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T Cards Online was first released over 10 years ago. Since then, updates have continued to reflect the requirements of users and new features have been regularly added. The milestone release this winter, however, is a big step forward and will be demonstrated at the Southern Manufacturing Show on stand **M135**.

Mark Rigby, managing director at MTR Logistics says: "I really like the system. It

works brilliantly for remote working. This is the most simple visual management tool on the internet and it has made a big improvement on the way we manage."

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Dugard to show diverse machine range

Making its long-awaited return to exhibitions after the COVID-19 hiatus, Dugard Machine Tools will be introducing three machines at Southern Manufacturing. On Stand **G260**, Dugard will be demonstrating the diversity of its portfolio with a Kitamura vertical machining centre, a powerful SMEC turning centre and also a Hanwha sliding head turning centre.

The Kitamura MedCenter5AX 5-axis vertical machining centre that will take centre stage at the Hampshire event is an extremely compact and versatile machine. With an X, Y and Z-axis travel of 254 by 330 by 330 mm over a 170 mm diameter table, the machine incorporates a 30 to 30,000 rpm spindle with an HSK-E40 spindle taper that is connected to a 40-tool ATC that can change tools in just 1.5 seconds. Providing an industry-leading tool to tool times, a rapid traverse of 60 m/min and table rotation of 200 rpm on the A- and C-axis, this class-leading machine will certainly attract attention at the Southern Manufacturing event.



With linear and rotary scales, 67 million pulse encoder technology and 16 mm pitch ballscrews, the Kitamura MedCenter5AX is an extremely precise and productive proposition. With a positional accuracy of ± 2 microns across the full stroke and repeatability of ± 1 micron, it is also one of the most accurate machines on the market.

From the extensive portfolio of turning centres, Dugard will be demonstrating one of its most popular machine tools: the SMEC SL2000ASY turning centre. Built upon the foundation of a single-piece Meehanite casting that is heavily ribbed with a torque tube design, box way slideways are used



throughout the SMEC range, resulting in outstanding vibration dampening and thermal displacement characteristics. This combination permits powerful heavy-duty cutting that ultimately enhances surface finishes, tool life, component quality and productivity.

The extremely robust machine hosts a six inch chuck, eight inch optional, with a 650 mm swing over bed capacity that allows a maximum machining diameter of 395 mm and a maximum turning length of 490 mm. This spacious work envelope ensures the robust workhorse caters for the diverse demands of the industry. The SMEC SL2000ASY has a bar capacity of 52 mm, optional 68 mm and a powerful 18.5 kW spindle motor that combine to enable heavy-duty manually loaded or automatically barfeed machining of relatively large diameter parts. For manufacturers that demand one-hit machining, the SL2000ASY also includes a sub-spindle.

For the machining of smaller turned parts, Dugard will have the compact Hanwha XD10 sliding head turning centre alongside the SMEC SL2000ASY. As a relative newcomer to the UK sliding head sector, the Hanwha range from Dugard is already disrupting the market with its remarkably wide product range and flexibility.

The Hanwha XD10 at the Southern Manufacturing Show will be driven by the recognised FANUC CNC interface with powerful Siemens control systems also available. The machine also incorporates the facility to rapidly switch from guide bush to



non-guide bush operation. With a 10 mm bar capacity and a 15,000 rpm 2.2/3.7 kW main spindle motor that is complemented by a 10,000 rpm 0.5/1.1 kW sub-spindle, the new Hanwha XD10 offers precision and flexibility to suit any small part turning shop.

The impressive Hanwha XD10 also incorporates a multitude of tooling configurations with 8 X 6 turning tools, four ER11 front spindle tools, four ER11M cross-drilling tools as well as four fixed and four driven sub-spindle tools. With the configurable tool platens and positions, the Hanwha XD10 offers fast setup times, a spacious work envelope with plentiful operator access and, most importantly, kinematics that position all tool stations close to the workpiece for unbeatable productivity rates.

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New solutions from Aberlink

Following a two year absence from the Farnborough event, Aberlink has a tremendous amount of new CMM hardware and software functionality to show visitors at Southern Manufacturing in 2022.

Its stand, **K205**, is situated in the middle of the advanced manufacturing zone and on display will be the revolutionary Extol CNC CMM, the widely acclaimed Axiom too CNC CMM with CCD vision system and the latest release of the Aberlink 3D inspection software (v4.18).

Launched in January 2021 and true to Aberlink's heritage for innovation, the Extol is the world's first CMM to utilise a delta mechanism. Designed for robustness and reliability, the Extol CMM will run around the clock making it ideal whether it is positioned next to a machine tool, in a manufacturing cell, or used in a dedicated inspection area. Five temperature sensors monitoring both the machine and ambient temperature ensure that the Extol is capable of operating in uncontrolled environments and reporting measurements as though they had been taken at 20°C. The software will also produce a warning if the temperature changes at a rate greater than that considered reasonable for good metrology results.

The Automatic Tool Offset Correction available with the latest release of the Aberlink 3D software complements the Extol CMM perfectly, allowing its utilisation as part of a fully automated production process in a harsh manufacturing environment. The ergonomics of the Extol have also been a significant design factor. It is not only quick and easy to perform one-off inspections, but also has ample access for

either batch or unmanned automatic inspection. The Extol CNC CMM can be positioned exactly where the measurement is needed.

Since its launch in 2004, the Axiom too CMM, manual or CNC, best represents Aberlink's heritage of innovative metrology. The Axiom too range can be used with touch trigger probe, continuous contact scanning probe or with Aberlink's revolutionary non-contact camera system. The all-aluminium bridge structure not only ensures that the Axiom too has low inertia and high acceleration to get the job done quickly, but also that the temperature of the machine rapidly follows the temperature of the room, ideal when the CMM is not

housed in a controlled environment. Temperature compensation in the software reports results as if they had been measured at 20°C/68°F. The standard high-tech granite and aluminium table, originally developed for the laser optics industry, provides fantastic natural damping of high frequency vibration and the granite Y rail allows pre-loading of the bridge air bearings in both directions for superior accuracy.

The latest released version of Aberlink's CMM inspection software, v.4.18, is available for existing customers to download and upgrade their CMM completely free-of-cost. Existing customers are encouraged to visit the Aberlink stand at Southern Manufacturing to get a complete overview of the new functionality, which includes: Enhanced RPS alignment; Leapfrog function; automatic tool offset correction interface; probe lobing calibration; new pan, tilt and dimensioning of graphical display (X-Y, X-Z, Y-Z and ISO views); extended GD&T; extended feature constructions; extended measurement reports; new CAD software user interface; enhanced vision software measurement.



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Updates and new additions from MIE Solutions UK

MIE Solutions UK has recently released an update to its ERP package, taking the platform to version Q3R1 2021. The release is now widely available and offers users a range of enhancements, all of which have been added to the system based on customer feedback.

Instant messaging

The most recent release now includes an instant messaging platform that seamlessly integrates users throughout both the office and the shop floor via MIE Kiosk. Messages can be sent between users directly through the system, eliminating the need for any third-party instant messaging systems.

Email notifications

Automated emails have been ever-present in the system for periodically sending reports out to users. This has now been enhanced further with the introduction of email notifications, a method in which users can select to monitor orders of their choosing and be alerted once certain activities occur. This may be used to alert

users of a works order being released to the shop floor, or an order for a key customer that has just been despatched.

As well as enhancements to the ERP platform, MIE Solutions has recently released two additions to its range of shop floor data capture options:

MIE Kiosk Lite

This addition is a web-based version of the popular MIE Kiosk shop floor data capture. The Lite version is a lightweight alternative that provides shop floor operators with a platform to clock in and out of their shift, book time against a works order, issue materials, and view electronic work-to lists. The intuitive interface also allows them to view graphical representations of their own performance in terms of parts made/scrapped and the number of hours they have booked against works orders.

MIE Field Service

Providing users with a form of data capture



dedicated to employees who operate off-site such as service engineers or installation teams. The web-based platform enables users to clock in and out of their shift, book time against a works order, issue materials, view electronic work-to lists and view customer details such as phone numbers and addresses.

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Vision Engineering to showcase a range of new digital inspection and automated metrology products

Vision Engineering, a leading manufacturer of high-quality visual inspection and measurement technologies, will be returning to Southern Manufacturing to showcase several ground breaking, innovative new products.

It has been designing and manufacturing high-quality ergonomic microscopes, digital instruments, inspection and measuring systems for over 60 years and prides itself on its products' innovation and quality.

In line with its commitment to continuous innovation and ergonomic design, it has developed a number of new digital inspection systems which help its customers improve productivity.

Amongst them is VE Cam, a compact digital inspection microscope ideal for visual inspection or manufacturing quality control and Makrolite 4K, a digital microscope offering inspection, magnification, measurement and capture with UHD resolution.

Visitors to Southern Manufacturing can also experience the range of ergonomic eyepiece-less microscopes, including Mantis, Lynx EVO, winner of the Queen's Award for Innovation, and its ground breaking 3D digital microscope, DRV-Z1.

For those interested in measuring solutions, Vision Engineering will also be displaying systems from its contact and non-contact metrology ranges. Visitors to the show can bring along their own samples to see first-hand how robust, accurate and repeatable its manual and automated systems are.

Visit stand **G240** and receive guidance and demonstrations from the company's experienced team in how its products help optimise your current manufacturing and production processes.

Vision Engineering Ltd is a multinational designer and manufacturer of innovative, patented ergonomic stereo optical and digital instruments; used for inspection, manipulation, measurement and analysis of manufactured parts, by the world's leading manufacturers and their suppliers.

Vision Engineering's contract manufacturing division offers a comprehensive contract manufacturing service. Staffed by a team of experienced designers and engineers, customers can access our latest technology and benefit from bespoke design and commercialisation packages.

Founded in 1958 and wholly British owned, Vision Engineering's Global HQ, design and manufacturing facilities are based in state-of-the-art modern premises in Woking, Surrey, UK, with extensive manufacturing facilities in the UK and US. Regional sales and technical support offices are located throughout North America, Europe and Asia, supported by a fully trained network of distributors.

Vision Engineering and ZEISS collaborate to produce DeepFocus 1:

Vision Engineering is partnering with ZEISS Industrial Microscopy to add an extended depth of focus inspection system to its range of microscopy systems for the first time.

The new DeepFocus 1 system represents a significant collaboration between two of the world's leading microscope innovators. DeepFocus 1 combines Vision Engineering's technical and design expertise with ZEISS' new Visioner 1 long depth of focus digital microscope head.



DeepFocus 1, featuring MALST[™] Technology, delivers live, real-time extended depth of focus imaging with depth of focus up to 100 x greater than that of a conventional microscope, which removes the need for time consuming post imaging focus stacking by delivering 'all-in-focus' images instantly to a depth of up to 69 mm.

Using a Micro-Mirror Array Lens System (MALST[™]) enables DeepFocus 1 to generate "virtual" lenses with distinctly different curvatures, thus focus planes. This is achieved by changing the orientation of each individual micro-mirror in an orchestrated way. Re-shaping the curvature of this "virtual" lens at speed enables ultra-fast focusing and real-time all-in focus imaging and documentation.

Three viewing options aid understanding of the subject being inspected. Extended Depth of Focus (EDoF) view shows the top down view of the subject with all details in focus. Height-map view displays height data from the subject aiding visualisation of monochromatic samples and understanding of height while Topographic view shows a simulated 3D visualisation of the subject which can be rotated and manipulated.

Both Vision Engineering and ZEISS Industrial Microscopy are well known manufacturers in their respective markets and the collaboration will allow both companies to extend their coverage of the global inspection market.

Paul Newbatt, Vision Engineering's group sales and marketing director says: "We are delighted to partner with ZEISS in adding DeepFocus 1 to our growing innovative microscopy product range, which further cements our position as a leading microscopy solutions provider in the electronics and precision engineering sectors."

Vision Engineering Ltd

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When all you need is everything

The Vigilance Group has announced that both its new and used machine tool divisions, MACH Machine Tools and Machine Tool Sales Online (MTSO), will be attending the Southern Manufacturing Show in February with each exhibiting in its own right.

Both companies will be showcasing individual products from their respective ranges on adjacent stands, **H310/MACH Machine Tools** and **J270/MTSO**, which are divided by a walkway.

Vigilance Group managing director, David Andrew says: "The Southern Manufacturing Show in 2022 provides us with a great opportunity to demonstrate and promote the Group's prowess through two of our most successful divisions, MACH Machine Tools and MTSO."

"With component manufacturers reporting a significant upturn in economic activity over recent months, many have looked to improve their machining capacity and capabilities to help them capitalise on the increase in demand for their services."

"At Southern Manufacturing we are demonstrating that we can meet manufacturers' needs by providing them with either new or pre-owned high-quality machine tools ready for immediate delivery and installation anywhere in the UK or Ireland. New or used, our machines deliver and represent real value."



MACH Machine Tools

MACH Machine Tools is returning to the Southern Manufacturing Show ready to showcase its latest and most advanced machines. The line-up includes the MACH VS-2 SP, a new, next generation 'Super Precision' manual turret-type milling machine and a range of the company's leading and best-in-class DynaPath controlled CNC/manual lathes and bed mills.

MACH Machine Tools director, Matt Andrew says: "MACH Machine Tools is back on the exhibition scene with a bang. Manufacturers up and down the country already know about our legendary and some may say iconic, VS-1 turret type milling machine which, since its introduction into the UK in 2013, has taken the market by storm."

"Well, the big news is that we've launched new Super Precision models into the market and at Southern, one of these, the VS-2 SP will be making its debut."

Other MACH machines taking centre stage include a number of

DynaPath controlled lathes and bed mills each featuring innovative Wi-Fi enabled technology that enables customers 24/7 access to technical and applications help and support should it be required.

MTSO

For the first time in its history MTSO, one of the UK's largest and most respected used machine tool retailers, will be exhibiting a range of its high quality pre-owned machines at the Southern Manufacturing Show.

David Andrew concludes: "MTSO has a reputation in the market for quality, value, integrity and 'going the extra mile' for its customers. All these values, which are key differentiators in the used machine tool market, will be on show on the stand."



Matt Andrew

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Problem solving spindle repair shops boost the bottom line

Working with an expert partner that goes beyond mere part replacement can optimise the machining process, cost-effectively improving quality and production

With CNC machine tool spindles essential to any drilling, milling, boring, grinding, routing, cutting, or sawing process, many manufacturers and machine shops rely on rebuilders to get production back online as quickly as possible when problems arise and replacement is required. However, rebuilding a spindle is not always as simple as shipping off a problematic unit to have its parts replaced.

Every industry and shop floor has specific and unique factors that involve the materials machined, cut depths, required speeds, volumes and precision for a range of applications. Failing to take these factors into account can lead to a host of unresolved issues that can degrade quality, consistency and productivity.

At times the problems can be subtle such as intermittent variability or a faint sound indicating an issue that even a routine rebuild will not sufficiently resolve. Sometimes the problem can be serious and immediate. That is when additional expertise is required.

To cost-effectively ensure superior outcomes for challenges, the best spindle repair shops will provide a true



problem-solving approach. This includes understanding all requirements of the application, consulting with the machine shop operators and even utilising some expert detective work.

"The goal is to machine high precision parts as soon as possible at the facilities I oversee. Because our operators run spindles at very high speeds very fast, I need to be a problem solver and want to work with spindle rebuilder and repair shops that can problem solve", says Eduardo Flores, maintenance manager at GAMMA Aerospace, a specialised, end-to-end provider of engineered airframe and flight components for leading original equipment manufacturers and Tier I suppliers in the aerospace and defense industries.

Problem solving boosts profitability

GAMMA Aerospace's facilities in Mansfield, Texas, Gardena and Los Angeles, California and Mexicali, Mexico, manufacture a diverse offering of components

utilising advanced, in-house special processes that encompass machining, forming, assembly and wet chemical special processing.

As the maintenance manager of two facilities, Eduardo Flores oversees the use of about 50 CNC machines in Gardena and about 35 in Mexicali. His role is to keep the facilities efficiently running and involves ordering parts, troubleshooting and problem solving.

According to him, optimising spindle reliability including repairs and rebuilds is the "bread and butter of the business" even when using softer metals like aluminum.

While diligently following preventative maintenance schedules for the CNC machines, Eduardo Flores seeks expert help when concerns emerge: "Once the spindle starts giving us individual problems that is something I do not specialise in, so I consult with experts because I cannot fix everything despite my best efforts."

According to Eduardo Flores, one specific brand of CNC machine had a unique situation where the spindles on a couple of units lost orientation: "This was something we didn't hear and didn't see on the controller. We just saw the result when it



was trying to do an automatic tool change. With the wrong orientation the automatic tool changer would jam. The spindle certainly wasn't bad; it was spinning correctly. It was just flipping on the orientation and was an OEM defect."



Neither reaching out to the spindle manufacturer or the CNC machine OEM was helpful. Instead, Eduardo Flores turned to MZI Precision of Huntington Beach, California, an experienced machine tool spindle rebuilder. He consulted with Ed Zitney, President of MZI Precision who has about three decades of industry experience.

"When I consulted with Ed, he came over, observed the machine and saw that it was slipping. He took the spindle and created a retrofit for it," says Eduardo Flores.

Ed Zitney explains that in these cases, the spindle would lose its location in reference to the tool changer, which is typically a proximity switch issue: "We tested the proximity sensor, examined the location settings, the gap, and looked for any damage on the spindle's pickup diameter or on the sensor.

"We discovered that all the proximity components were in good working order, but that on this particular model of spindle the compression rings were not capable of holding the coupling 100 percent in place. It would turn slightly, causing the machine controls to see a loss of positioning."

Utilising all OEM components, MZI Precision engineered four special pins that would locate and lock the coupling in place. This eliminated the movement and solved the issue of the machine faulting out because of the lost position.

"The engineered pins lock the spindle in place. It does not slip and lose its orientation, so tool changes are easy," explains Eduardo Flores.

He points out the significant impact to production and the bottom line: "Purchasing a new spindle would have cost us ten thousand dollars plus about a thousand dollars to expedite its air freight from Taiwan and may not have solved the problem because it was an OEM design issue," says Flores. "For the same reason, a rebuild alone probably would not have resolved it. Working with an expert, MZI Precision, we ended up saving thousands of dollars per machine for a critical retrofit that will help us keep six CNC machines reliably operating going forward."

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Chance acquisition of VMCs with conversational control leads toolroom in a new direction

Easy-to-use NC Merge in Hurco's conversational control software means CAD/CAM is only needed for programming complex 3D contours

Six Hurco 3-axis Vertical Machining Centres (VMC's) carry out a majority of prismatic machining in the toolroom of plastic packaging manufacturer Berry M&H in Beccles, Suffolk. Although the firm dates back to 1973, the first Hurco machines, a VM10i and a VMX30i, did not arrive until 2015 when the assets of another toolmaking company were acquired, including its machine base.

Prior to that, manual knee-type mills in the Beccles toolroom were followed by 3-axis CNC milling machines and then a succession of machining centres with automatic tool change. All of the CNC machines were fitted with the same G-code-based brand of control system to provide commonality for the convenience of the staff.

Berry M&H's Beccles toolroom manager Kurt Knights, who has been with the company for over 20 years, says: "When we started using WinMax conversational software in the Hurco control, it made shop floor programming far easier and quicker for our operators and it also simplified training for new people and our apprentices alike.

"Most programs we prepare take advantage of the Hurco's NC-Merge feature. Complex parts of a cycle for contour-milling 3D mould surfaces are output from either NCG CAM or SolidWorks CAD/CAM systems in our design department and the file is imported directly into the control.

"Con conversationally programmed blocks prepared at the machine using WinMax are then automatically merged in the control with the offline content into a single program for milling the block parts of our moulds."

Offline code generation for a mould takes typically 10 hours, while the shop floor element is completed in around two hours, much faster and more simply than is possible on a machining centre driven by a G-code control. It quickly became apparent that the Hurco/WinMax combination was perfect for Berry M&H's requirements, which centre mainly on fast-turnaround production of moulds from 170 mm wide Alumec 89 billets. Most moulds comprise neck, body



space and layout well and was correctly sized for machining the company's moulds. Four halves at a time are fixtured, each of which takes about three hours to machine. The resulting 12-hour cycle is more than sufficient for a full light-out shift overnight.

As the size and performance of the two VM5i machines were ideal, the decision was taken in 2019 to buy a third, this time for producing items such as printing chucks, bracketry and other general, non-mould items for different departments across the Beccles site. It brought in-house a lot of previously subcontracted milling, delivering considerable financial savings.

In November 2020, a larger Hurco VM30i with a 1,270 x 508 x 508 mm working volume was purchased that Kurt Knights described as "a superb machine and excellent value for money". The investment was down to Berry M&H's decision to move

and base blocks manufactured from the high strength aluminium alloy, held together by a steel back plate.

Two new Hurco VM5i 3-axis VMCs were purchased for machining these moulds, as well as for new tool development that was formerly the province of the CNC mills, all but one of which have now been sold. The VM5i was chosen as it has a generous 457 x 356 x 356 mm working volume in a compact 1.6 x 2.9 m footprint. It suited the toolroom



latter as it has good thermal conductivity and wear resistance and is also magnetic, allowing a mould to be clamped conveniently on the bed of a grinding machine.

Berry M&H designs, develops, produces and prints to British Retail Consortium standards a large range of plastic bottles, jars, tubs, flexible tubes, closures, caps and dispensing systems. The packaging solutions are sold into the personal care, healthcare, pharmaceutical, nutritional, pet care, automotive and household product markets.

The company has an extensive range of almost 5,000 standard products and also offers bespoke design, prototyping and moulding services. There are manufacturing sites across the UK, mainland Europe, America and Australia. Kurt Knights' department produces blow moulds and injection moulds for many of the group's factories across Europe.

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more strongly into the production of bigger moulds up to 700 mm wide and with up to six cavities.

There had always been a requirement for this size of tool and their production was previously subcontracted out, so this expense is now also saved. Both Alumecc 89 and 1.2316 stainless steel are used, the



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Machine tool investment at the centre of Meddings Group growth strategy

Meddings Group can trace its roots back to the late 1930's, when the current chairman's grandfather started the business and, in 1941, the first Meddings Pillar drill was developed. The product, although greatly updated, remains central to the Group's activities with customers around the world. With drill production growing, the decision was taken to relocate to its current location which was a greenfield site in Ivybridge, Devon. The move gave room for expansion and development of its own products, which also saw the acquisition of swimming pool heating manufacturer Thermalec, along with extensive subcontract machining and fabrication capabilities as well as an industrial supplies division.

"For the past three years and the past 12 months in particular, the focus of the Meddings Group has been one of looking outwards, to develop its existing markets, not only for its drills and heaters, but also subcontract work, supplying customers across many industries including marine, telecoms, electronics and oil & gas, automotive and with AS9100 approval underway," says managing director Mark Dibbens. "We have re-shored all manufacturing of the Meddings Drills and Meddings Thermalec products. Product development will see new drill designs being launched at the MACH 2022 exhibition, as well as expansion of the Meddings Thermalec range which will help open up new markets."

To help meet increased machining requirements, Meddings Group has



undertaken a major investment program spending over £1.4 million in the past 12 months on capital equipment and facilities to enhance its machining and fabrication capabilities, the latest of which is an XYZ UMC-5X 5-axis machining centre. Meddings Group's long history is testament to its desire to deliver the highest quality of products and components and its investment in the latest machining technology from XYZ Machine Tools will help to continue that.

"We recognise that market opportunities for our machining activities will in future be driven by the ability to have greater flexibility and efficiency in machining parts and 5-axis will be key to that. The potential for 5-axis machining is huge, with the ability to turn round jobs faster, reduce setups and improve lead times on components that are becoming ever more complex and in higher volumes," says Mark Dibbens.

Initially the focus of the XYZ UMC-5X will be on Meddings own products with the new developments of the Meddings drills and Meddings Thermalec heaters benefitting from the capability of simultaneous 5-axis machining, such as the new design of pool heater vessel, which at over 100 kg in weight, reducing setups, it's a major advantage. Another product machined on the XYZ UMC-5X has also seen dramatic reductions in cycle times with one-hit machining cutting the original cycle time of 15 hours down to 7.5 hours.

"Over the past 18 months we have faced challenges but have remained busy and we have taken on new employees, including



apprentices. That period also gave us the opportunity to carry out strategic reviews of the business and prepare for what we see as an exciting year ahead for the Group. Our ongoing investment program will allow us to continue our product development plan alongside gaining the versatility and flexibility in our machining capacity to meet the needs of not just our own internal production, but also meet the needs of our external subcontract customers."

The choice of XYZ Machine Tools for this move to 5-axis machining was quite a straightforward one for Mark Dibbens and his engineering team, as they have a longstanding relationship with XYZ: "The relationship we have with XYZ Machine Tools just works for us, the machines are high quality and competitively priced, the service from initial inquiry through to delivery and ongoing service is brilliant and with their factory just a few miles up the road, we know we can call in at any time to see what's new or to ask advice.

Mark Dibbens concludes: We have often thought of putting an XYZ sign outside and becoming a showroom for them as over the years we have built up quite a selection of XYZ machines."

XYZ Machine Tools

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New 5-axis horizontal machining centre

Japanese machine tool manufacturer Makino has introduced a new, 5-axis, Horizontal-Spindle Machining Centre (HMC), which made its debut at the EMO exhibition in Milan. Productivity on a 5-axis machine is sometimes lower than on a 4-axis model, but not with the a800Z, according to sole UK and Ireland agent NCMT.

The jacket-cooled spindles provide the same power as on a Makino a81nx 4-axis HMC. The standard 10,000 rpm BT50, HSK-A100 optional, spindle takes just 2.7 seconds to reach maximum speed and is rated at 55 kW, 25 percent DC, 27 kW, continuous, while torque is 721 Nm, 10 percent DC, 305 Nm, continuous. An optional 8,000 rpm spindle provides uprated power at 75 / 37 kW and higher torque at 1,199 / 552 Nm.

By raising the rear X-axis guideway above the one at the front, the column travels over a slanted plane. It allows high cutting forces to be transferred efficiently during heavy-duty machining and maximises the rigidity of the machine structure. The design also reduces the weight of the moving

column, minimising jerk during acceleration and deceleration. The machining envelope is defined by axis travels of 1,280 x 1,200 x 1,325 mm, actuation being by cooled, large-diameter ballscrews.

The agile rotary tilting table and fixtured workpiece have their centre of gravity close to the centre of rotation of the 180-degree tilt axis. As a result, inertia is minimised and positioning movements can be performed accurately at high speed. Productivity and short idle times are ensured by up to 50 m/min cutting feed rate and 60 m/min rapids. Maximum weight of the fixtured workpiece on the 630 x 630 mm pallet is one tonne, excluding the weight of the pallet.

The a800Z has a high-capacity chip management system. The interior, near-vertical walls in the working area are stainless steel to minimise chip adherence and promote swarf evacuation via three channels in the machine base. An agitator in the coolant tank prevents fine metal particles from settling and accumulating. The suspended particles are removed from the coolant by means of a cyclonic filtration



unit, from where they can be safely discharged from the machine.

The 32-tonne HMC can be easily connected to various automation options including a pallet magazine or robotic workpiece load / unload system. It may also be incorporated into existing automation facilities.

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Hyfore introduces new toolholders

Hyfore Workholding has now introduced its latest line of high-quality collet chucks to meet the exacting demands of the industry. Complementing its extensive workholding and clamping portfolio, the collet chuck range caters for all machine types and applications.

In the collet chuck range is the NR, NR-WD, C-H, C, HC, HEC and NR line of precision collet chucks, high-speed precision collet chucks, power milling chucks and hydraulic chucks. The NR and NR-WD Series of high-precision collet chucks are available for tool shanks from 3 to 16 mm diameter with BT30, BT40 and BT50 variants available with a length from the spindle taper to the tool that ranges from 60 to 200 mm depending upon the size and variant selected. The NR is also available with a high-speed HSK variant that can work on machine tools with a HSK40A, HSK50A or a HSK63A spindle taper.

Alongside the NR range is the C and C-H Series of power milling chucks. The C-Type precision power milling chuck and the C-H high-speed variant are available in BT30, BT40 and BT50 variants that can clamp tool shanks up to 20 mm diameter with an external chuck diameter from 50 to 69 mm depending upon the chosen variant. This compact chuck design is further enhanced by a distance from the spindle taper to the tool of 85 to 165 mm depending upon the chosen variant. This compact design extends accessibility to the component whilst the special dust-proof design can extend tool life and longevity by more than 50 percent. Both the C and C-H variants are also available for HSK40A, HSK50A or a HSK63A spindle taper machine tools.

For high-speed precision machining with light-duty cutting, Hyfore is introducing the HC high-speed precision collet chucks. Suitable for clamping tool shanks from 3 to 16 mm diameter and available in BT30, BT40 and BT50 variants, the HC Series is offered with five different styles that demonstrate a range of capabilities from extended reach, stability and clearance giving your high-speed machining requirements all the toolholding options to cater for your components. The HSK40A, HSK50A and HSK63A spindle taper variants can support tool shanks from 3 to 10 mm.

Complementing the HC is the HEC range of hydraulic collet chucks. The BT30 variant is available in a complete range of diameters from 6 to 20 mm with the BT40 and BT50 variants catering for shank diameters up to 32 mm. While the HC range is available with HSK40A, HSK50A and HSK63A spindle taper variants, the HEC hydraulic variant is currently only available in HSK63A format.

As well as providing an expansive range of toolholders, Hyfore Workholding is also a leading supplier of standard and specialist workholding solutions as well as being bespoke workholding, clamping and automation experts. With an internal team of design engineers and a state-of-the-art manufacturing facility, Hyfore has a team of 30 engineers that can go above and beyond your requirements to engineer, implement and prove out a workholding, fixturing, jig or clamping system and even automate the solution to meet the exact needs of your business. So, if you want something as simple as a toolholder or vice through to specialist products or even bespoke hydraulic workholding systems, it's time to call Hyfore.

Hyfore Workholding Limited has been in business for more than 30 years providing UK manufacturers with an innovative,



high-quality range of standard workholding, hydraulic fixtures and bespoke workholding solutions. The company has experienced continuous growth and employs over thirty dedicated, highly trained professionals at its design and manufacturing facility in Coventry, West Midlands.

Being centrally located, Hyfore is strategically positioned to service engineering businesses throughout the United Kingdom and Europe.

As well as providing a comprehensive standard workholding range, Hyfore specialises in the design and manufacture of high quality, bespoke fixtures and workholding systems for metal cutting, welding and assembly applications. Its products have been assessed and certified as meeting the requirements of ISO 9001 for many years.

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Optimise tooling and cutting data instantly with Seco Suggest

Seco Tools customers can reduce the time they need for process optimisation with quick, expert tooling recommendations through the recently redesigned Suggest, a free online resource available 24/7.

As machining jobs become more complex, tolerances tighter, delivery times shorter and skilled operators harder to find, shops need reliable access to advice that helps them find the most efficient tooling solutions. After a user enters key information about their machines and application requirements into Suggest, they receive authoritative recommendations and cutting data in less than a minute.

Speed up setup time for increased productivity

Suggest provides real-time access to Seco product information and recommended cutting data for most Seco products, enabling shops to minimise cycle times.

"Any reduction in machining time helps shops maintain competitive advantages, but traditional cutting tool selection can be difficult and time consuming, especially for less-experienced operators," says Gerrit



Kremer, global product manager for digital product services.

Obtain relevant alternatives

Because more than one tooling solution can address each machining situation, Suggest also lists alternative products that may be a better fit for a user's unique prerequisites. For shops that need to optimise thread programming, Suggest accompanies application details with fully optimised CNC code.

Focus on customer convenience

Newly optimised for even easier use, Suggest helps shops get cutting data and

tooling recommendations quickly and accurately. With this comprehensive solution to their questions about cutting strategies, customers can leverage the expertise of Seco Tools to achieve their best production results.

With its origins in Fagersta, Sweden and present in more than 75 countries, Seco Tools is a leading global solution provider of metal cutting solutions for indexable milling, solid milling, turning, holemaking, threading and tooling systems. With the hands-on application advice of Seco Tools, the company drives excellence for more than 80 years throughout the entire manufacturing process of manufacturers by ensuring high precision machining and high-quality output. For more information on how Seco innovative products, expert services, knowledge and experience bring success to manufacturers across all industry segments, visit www.secotools.com

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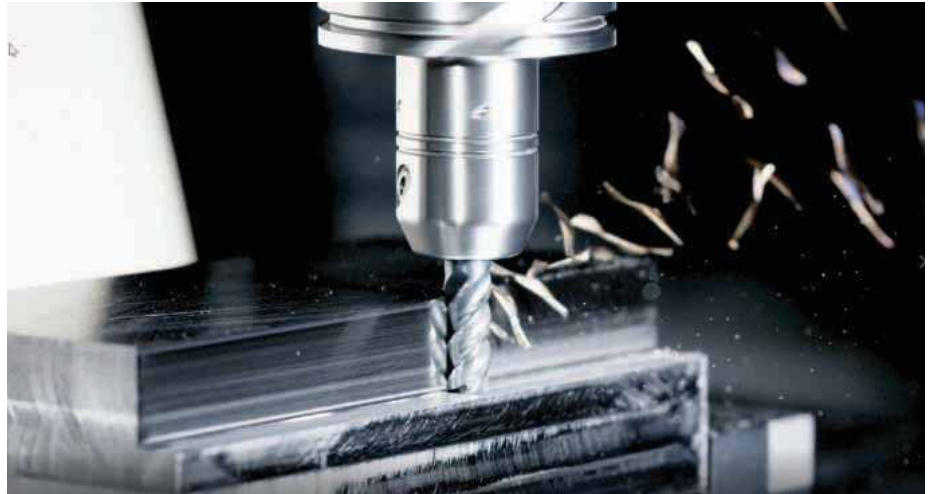
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Guhring sharpens its edge

To address the issue of machining soft, tough and high-alloyed materials that create an issue with swarf clearance, Guhring has now introduced its new RF100 Sharp Series of high-performance end mills. Chip jamming and swarf sticking to the cutting tool can create a major impact upon productivity and machining performance. To eliminate this problem, Guhring has developed the new RF100 Sharp Series of solid carbide end mills.

Recognised as Guhring's sharpest solid carbide milling tool to date, the new RF100 Sharp delivers high-quality machining results with unparalleled swarf evacuation on the most challenging of materials. Not only does the new RF100 Sharp demonstrate extremely smooth cutting action and chip removal, but it is also an extremely flexible end mill that is suitable for slotting, ramping, roughing, helical milling, finishing and trochoidal cutting. The smooth cutting action combined with the potential to be used in a wide variety of applications makes the new RF100 Sharp, the end mill of choice on challenging material types.

With a rake angle of 12 degrees, the end mills can be applied to materials with high ductility and tensile strength from 300 to 900N/mm². This makes the 4-flute end mills suitable for machining steel, stainless steel, aluminium, aluminium alloys and other challenging materials. The performance of the new RF100 Sharp is derived from a tough carbide grade that combines with an AlCrN coating to prevent tool breakages under the most demanding of conditions and the coating technology increases the wear protection, regardless of the cutting speed. Complementing this composition is a geometry that has an optimised facet that



dampens vibration, smooths the cutting action and increases tool life. This tool life improvement is further enhanced with a corner protection chamfer that increases stability and edge strength during the most difficult of machining applications.

The RF 100 Sharp is available in three versions, an extra-long design long (DIN+) that is an extension on the long (DIN) version but has an even longer cutting edge and there is also a standard length end mill. The RF100 Sharp with the standard and long (DIN) are available in diameters from 1 to 3 mm in 0.5 mm increments with the range including all common sizes up to 20 mm diameter. Depending upon the chosen diameter, the RF100 Sharp is supplied with an overall length from 50 to 104 mm with a flute length from 3 to 41 mm.

The longest tools in the range have a long neck to facilitate reaching into difficult to machine areas. With the longer series tools, the overall length ranges from 50 to 126 mm with a combined flute and neck length that ranges from 5.5 mm on the 1 mm diameter tool through to 75 mm on the 20 mm diameter variant. This increases the reach and flexibility of the series significantly, enabling end users to reach into cavities and difficult to access surfaces while retaining unsurpassed chip clearing. For further information on how the new Guhring Sharp tools can help you improve productivity on difficult to process materials, please contact Guhring.



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DirectCooling system from CERATIZIT now available for turning toolholders

What is good for the inside can be good for the outside as well. That is what CERATIZIT's development specialists thought when upgrading the tried-and-tested MaxiLock-S turning toolholder to the DirectCooling holder. Two nozzles now apply coolant directly to the cutting edge, enhancing overall performance and tool life.



With a focus on sustainability and efficient use of resources, the accurate not liberal, concept of DirectCooling from CERATIZIT brings a minimalist approach to machining companies. In a typical turning scenario, coolant is distributed extensively on the machining area. However, with the new MaxiLock-S DC turning toolholders, which form part of the DirectCooling (DC) system, coolant is applied precisely to the cutting edge via two internal holes. This guarantees that coolant is applied precisely to the cutting edge, with one hole targeting the rake face from above and the other the flank from below. The addition of flank cooling boosts the service life by 60 percent compared with cooling exclusively on the rake face.

"We wanted to take what has since become the norm for grooving holders and apply it to our turning toolholders for external turning applications. This resulted in the MaxiLock-S DC range, which allows customers to boost both general process security and cutting values thanks to targeted cooling. Compared with conventional cooling, DirectCooling achieves service life improvements of around 65 percent, regardless of material and machining application," explains Stefan Karl, CERATIZIT product manager for cutting tools. CERATIZIT has also reworked the insert seat, adding greater stability to the clamping of the indexable insert. This in turn reduces wear on the cutting edge and creates better surface finish on the workpiece.

DirectCooling can be used for any application and works with a minimum coolant pressure of just 10 bar where this is fed through the turning centre turret. "Of course, the higher the pressure, the better chips are broken and cleared away. This is particularly beneficial to those machining steel especially in combination with our new ISO-P indexable insert. However, the MaxiLock-S DC is just as comfortable on stainless and difficult-to-machine materials," says Stefan Karl.

The latest DirectCooling products for turning operations are now available from stock with more information available at <https://cuttingtools.ceratizit.com/de/de/direct-cooling>

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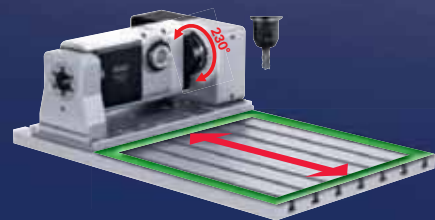
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Walter Accure tec vibration-free milling system now with ScrewFit exchangeable head

Walter has now launched its vibration-damped Accure tec adaptors, a product range developed specifically for low-vibration turning and milling with long overhangs. The Accure tec A3000 boring bars and the adaptors for the AC001 bore adaption milling cutter have a new feature. The vibration-damped AC060 adaptor for ScrewFit exchangeable heads has been developed specifically for smaller diameters. This will initially be available for the T18, T22 and T28 interfaces.

As with all Accure tec adaptors, this has an axially and radially flexibly positioned damper element which is pre-set at the factory. The taper locking ScrewFit connection and the conical shape of the milling adaptor gives the tool a high degree of stability, which in turn leads to a high level of process reliability and a high surface finish quality.

With the Accure tec AC060 milling adaptor, operators can not only change tools easily but also benefit from the many features of the ScrewFit range. This is of particular interest for mould and die making, where ScrewFit is frequently used, as Accure tec can now accommodate smaller milling diameters. The vibration-damped AC060 adaptor is suitable, for example, when thin-walled shapes need to be milled with minimum vibration. Operators also benefit from high concentricity at up to three times higher cutting depths and lower noise levels, significantly longer service life of the tool and spindle, as well as a variety of machine-side interfaces that include hollow shank tapers as well as CAT-V or Walter Capto™ steep tapers.

Grooving tools via Walter Xpress

Via the Xpress rapid delivery service, Walter now offers its customers special tools

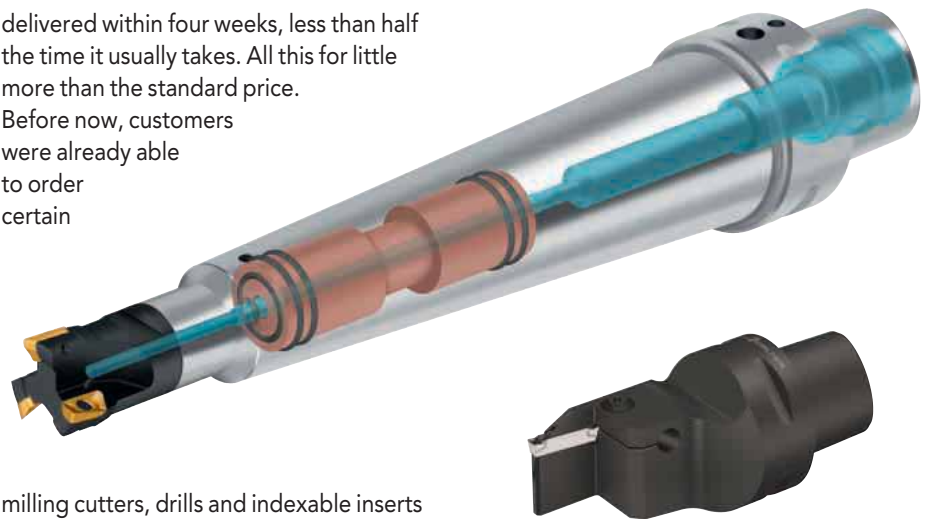
delivered within four weeks, less than half the time it usually takes. All this for little more than the standard price.

Before now, customers were already able to order certain

milling cutters, drills and indexable inserts via Walter Xpress; Walter is now adding grooving tools and cutting inserts to its range.

As a result, the G1011 and G4011 monoblock grooving tools and the double-edged and four-edged cutting inserts from the DX, GX and MX systems can now also be ordered via Walter Xpress. This is available in shank sizes of 10 to 50 mm, as a square shank with approach angles from 0 to 90° or with Walter Capto™ C3–C8. This provides Walter customers with access to a wide portfolio for radial grooving, parting off and groove turning, with and without precision cooling, which they can tailor to their specific needs.

The goal is to offer customers tools that are perfectly adapted to their circumstances. For example, tools that are as long as necessary and as short as possible to achieve maximum stability, therefore decisively increasing the tool life and surface finish quality. The customer can configure their tools online within minutes, alongside their on-site Walter engineer, selecting such features as the shank version that suits their needs, various approach angles, with or



without internal coolant, as well as the required width, reach and approach angle for the application. In addition to short delivery times and an attractive price-performance ratio, customers also receive an automated quotation drawing included with the quotation, validating the tool dimensions selected.



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Welcome to the future of workholding

With technology in our industry endlessly evolving, it's important that YMT Technologies continues to offer the very best workholding and toolholding solutions available.

After weeks of rigorous testing and examination by its experienced applications team and by many of its current 5-axis workholding users, it has decided to move forward with an alternative supplier for 5-axis vices and its mechanical zero-point bases. The new range of workholding solutions enables far greater performance and flexibility for your fixturing requirements going forward.

The company has announced an exciting new UK partnership with Jergens for its Fixture-Pro® 5-axis vices and Quick-Loc zero point bases. Jergens has been making workholding solutions for 80 years and, with such experience and expertise, it has developed the best performing and most flexible self-centring vices available in the world today. Along with Jergens extensive range of 52/96 zero-point systems, YMT

now has a range of fixturing solutions to accommodate almost all applications.

"This is an incredible acquisition for YMT Technologies and we're incredibly proud to represent such a household name here in the UK," says Luke Puplett, development manager at YMT Technologies. "With numerous jaw and insert options, the Jergens Fixture-Pro vice range is the most flexible self-centring vice in the world today.

"There is a growing need for automating the manufacturing process in our workshops. With many businesses looking towards palletised automation products, it's important that YMT Technologies can offer not only quality workholding products to give your parts security for lights-out machining, but it's fundamental that we offer you outstanding flexibility to ensure the product can be used for a high number of different applications. Jergens Fixture-Pro vices and Quick-Loc zero-point pallets are the perfect solution."

Jergens has really thought about all aspects of the Fixture-Pro self-centring vice



range. Due to the unique pull-down jaw design, all Fixture-Pro vices are equipped with quick-change jaws which means no tools are required to swap or reverse the jaws.

Jergens Fixture-Pro vices are equipped with 96 mm and/or 52 mm pitch patterns in the bottom of the vice, which are compatible with Jergens Quick-Loc pallets, Lang Quick Point, 5th Axis Rocklock and others. The Jergens mounting stud receivers are the same as the Lang version. This means both Jergens and Lang systems can interchange without the need to swap mounting studs.

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Gripping new solutions from Leader

The extensive OMIL range of gripping systems offers new and enhanced products specifically developed and selected to improve the efficiency, productivity and accuracy in a number of key sectors including: machine tools, assembly machines, transfer machines, gantry-robots and in the general mechanical and electromechanical engineering industry sectors, as well as 'bespoke' special machining solutions. The range is now available from Leader Chuck International, one of the UK and Ireland's premier workholding and manufacturing ancillary specialists.



Managing director Mark Jones explains: "There is a strong case for automation to be applied wherever possible across all industry sectors, with all the well-documented benefits it brings, such as lower overheads, increased efficiency and productivity. To support our customers on their journey towards business improvements we selected OMIL as a trusted partner with extensive knowledge and experience in this crucial area and the flexibility to develop the precise solution to any challenges presented."

With an impressive facility in Turin, Italy and over half a century of experience producing gripping systems, OMIL has a comprehensive range of standard products that are robust, reliable and are usually available on very short lead times at very competitive prices. The range includes grippers, linear and rotary actuators, vices, chucks and bespoke solutions.

Main application areas include robotics, assembly lines, milling machines and special machinery. End effectors for industrial robots can grip parts weighing up to 500 kg and up to 1,000°C for die casting and

forging, while applications for grippers used on automated assembly lines include automotive, pharmaceutical, electronics, food & beverage, domestic appliance and packaging.

The range of pneumatic grips offered is as diverse as the industrial applications supported, from two-finger parallel to three- or four-finger self-centring and two-finger radial. As an example of the exceptional level of engineering applied to its products, the OMIL GSO range of two-finger parallel grippers is manufactured to ensure protection to class IP67 for harsh environments. An oval cylinder is used for higher gripping forces, between 123 N for the smallest unit with 5 mm stroke and 1,640 N for the largest with a stroke of 32 mm. A mechanical gripping force maintenance device ensures a minimum gripping force even if the air pressure drops.

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Automation to boost reshoring in the UK

New opportunities for manufacturing industry in the West after COVID-19

The recent appointment of Salisbury-based 1st Machine Tool Accessories as UK sales agent for Dutch robotic machine tending systems manufacturer Halter CNC Automation makes available to British machine tool users an extensive range of third-party component loading and unloading cells of the highest quality and reliability. The cells are easy to program and have frequently been shown to out-perform similar equipment offered by the machine manufacturers themselves.

The COVID-19 pandemic has been a trigger for many OEMs and large manufacturing companies to rethink their often-complex supply chains. When China stopped production in early 2020, followed by other countries, manufacturers in Western Europe and the United States were forced to close their factories due to lack of parts. The blockade of the Suez Canal by the container ship Ever Given showed in a different way how vulnerable world trade has become after decades of globalisation.

Do companies still want to be dependent on distant supply lines from low-wage countries? In the coming years, climate policy will ensure that this question remains at the top of the agenda. Transparency regarding the real costs of outsourcing in the Far East will lead to shifts in global supply chains.

The playing field for manufacturing

industry is changing as work comes back from low-wage countries. It is creating opportunities for local manufacturing companies, provided that they can respond flexibly to demand and keep their overheads low. Automation and digitalisation are the solution for seizing the opportunities that are presenting themselves in the post-COVID-19 era.

From offshoring to reshoring

The discussion about bringing production back from low-wage countries to the West is not new. Reshoring initiatives were launched a decade ago, aimed at making OEMs aware that the real cost of a product from China or India, for example, consists of more than just the unit price charged by the supplier.

This has become a hot topic, as at the macroeconomic level, growth and employment are crucial. Western countries have seen millions of high-wage industrial jobs disappear since globalisation started 25 years ago. This really dawned on policy makers after the 2008/09 credit crisis. Reshoring creates stable, well-paid jobs.

In addition, there is increasing pressure from financial markets on OEMs to reduce their carbon footprint. Transport from the Far East plays a major role. It is expected that CO₂ costs will increasingly be included in the price of manufactured products. This

creates a fairer playing field, as if they are made close to the OEM they become relatively less expensive due to the smaller carbon footprint.

A third trend that favours onshoring is the ever-shorter life cycle of many consumer products. It is causing a shift towards build-to-demand, where suppliers respond quickly and supply the products that are requested by the end customer in a short time frame. In markets with limited product life cycles, the risks of inventories are too great, as is the disadvantage of long delivery times due to outsourcing from afar.

Flexible automation is the key

To reduce the cost of manufacture and compete successfully against low-wage countries, machining companies in the West need to reduce their overheads. They can do this robustly and reliably by automating and digitalising their manufacturing processes to lower the labour cost content of products.

Flexible automation with robot cells to provide unattended running is the perfect solution, not only to reduce costs but also to enable production to be scaled up or down quickly to meet customer demand, especially in view of the increasing scarcity of skilled machinists.

Automation gives SME manufacturing companies the means to respond. Apart



from the advantage of lower wage costs and more flexibility, automation is more in line with what young employees expect from their jobs. Setter-operators who are prepared to remove a workpiece from a fixture and replace it with new material dozens of times a day are increasingly difficult for employers to find and retain.

Quality is also improved by autonomous production, which cannot succeed if processes are unreliable. During unmanned running, a chip left in a fixture, a broken cutter or an insert with a shorter service life than expected can stop production. Automation forces companies to view their processes in detail and optimise them where necessary. It is the first logical step towards Industry 4.0.

However, there are mental barriers to its adoption by SMEs, notably the perceived high cost of robotisation, a lack of programming experience and too few integrators for servicing the various potential end user industries. Customers therefore want robot systems that are easy to program and simple to link to existing or new CNC machines and to manufacturing industry software.

HALTER LoadAssistants are the answer

With batch sizes becoming ever smaller, coupled with a shortage of skilled operators and machine tools that are too expensive in relation to their output if manually loaded and unloaded, it is clear that automation offers the solution to many of the problems facing manufacturing industry today. HALTER CNC Automation's plug-and-play robotic machine tool tending systems are perfect for fitting to any make of CNC machine of suitable size at any time, existing or new, regardless of its age and the type of control.

Renowned for their compactness, reliability and the strength of the service and support provided by the manufacturer, both locally and remotely from the Dutch factory, the cells are available in four series for handling components weighing up to 70 kg: TurnStacker for automating workpiece handling in fixed-head CNC turning machines; MillStacker for providing similar functionality for machining centres; Universal, capable of feeding parts automatically for either rotational or prismatic machining; and workpiece-specific solutions.

Nearly 95 percent of Halter customers across 25 countries report a return on investment within 18 months for their



automation systems, with some saying it is as short as five months. So there is much to be gained in terms of extracting greater manufacturing efficiency and profits from either new machine tools or existing models on a shop floor.

Simple programming and operation

The programming software in the SmartControl of a HALTER LoadAssistant is so intuitive that switching to the next batch run takes just a few minutes, minimising downtime and lost production. The manufacturer has a team of software engineers that understands the need to make robot programming easy and fast, whether off-line or at the control on the shop floor while production continues.

Even if a person has no robot knowledge, he or she can be trained to program and operate a cell in just a few hours and it does not matter if a production cycle includes subsidiary operations like deburring, washing, metrology and/or laser marking.

The workpiece table may be replenished with billets or other raw material at any time, even while the robot arm continues loading the CNC machine tool. This is a unique feature of the HALTER LoadAssistant and helps to extract the maximum output from a machine, as the spindle almost never has to stop.

Another facet of these all-in-one automation solutions is that the equipment may be moved easily by pallet truck from one CNC machine to another. The new machine is automatically identified and recalibration is rapid owing to self-centring anchors which fix the robot's reference

position. Operator safety is paramount and scanners are provided that first slow and then stop the robot arm if an operator approaches.

In conclusion

The most important consideration when automating machine tools on a shop floor is the experience and reliability of the automation partner chosen. In this respect HALTER leads the field. For manufacturers in the UK, the extra back-up provided by 1st MTA coupled with its extensive workholding knowledge and product range will prove invaluable.

HALTER's business development manager Rik Peer explains: "1st MTA is the first formal sales agent we have appointed in Britain. As our LoadAssistants are fitted to such a broad range of machine tools, we were keen to find an independent agent that nevertheless had in-depth knowledge of the industry.

"We believe we have found that company in 1st MTA, with its long experience of supplying bar feed automation for lathes and a wide variety of workholding equipment and other accessories for both turning and milling."

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FANUC Open House highlights appetite for automation

A full schedule of speakers and a record number of visitors to FANUC UK's Open House demonstrated the appetite for automation in UK manufacturing.

With over 1,000 people passing through its HQ doors at Antsy Park, Coventry, FANUC UK's week-long event brought together individuals from across the industry to look at the future of automation. Keynote speakers and expert panel discussions framed the week, which looked at 'The Future of Automation' spanning three core themes: Automation & UK Manufacturing; Business Development, Training & Apprenticeships and Industry 4.0 & IIoT (Industrial Internet of Things).

The event was very much centred on collaboration, not just in terms of knowledge sharing, but also the technology that was on display. Alongside FANUC's extensive portfolio, there were almost 50 exhibitors on-hand to illustrate how they have used automation across a wide range of applications. For those who were unable to make the journey, a number of the talks were also streamed live on LinkedIn and are still able to be viewed on FANUC UK's LinkedIn feed.

Tom Bouchier, managing director at FANUC UK, says: "We are delighted at the great response to our Open House, which is indicative of how many within manufacturing are realising the potential of automation. Being able to welcome people face-to-face is critical for getting to grips with the latest technology and understanding where pressure points lie in order to develop effective solutions.

"It was a fantastic exercise to talk through the issues that are most important to our industry and understand what the future of automation holds for UK manufacturing. We would like to thank all of the exhibitors and visitors for helping to ensure it was a productive event, and one which we are already looking forward to next year."

2022 manufacturing trends emerge

FANUC's recent Open House revealed a number of emerging trends that the UK manufacturing sector must embrace to deliver growth in 2022.

The event highlighted a number of key



factors that will underpin the future success of manufacturing.

One of the key discussion points throughout the week was machine connectivity, or IIoT. While not a new concept, manufacturer engagement with the technology is increasing. This can be attributed to a number of factors, not least the improvements in IIoT that ensure it is both more sophisticated and user-friendly for businesses.

Tom Bouchier comments: "IIoT has been around for a number of years and we are now at a stage where the technology is powerful enough to make a real difference to operations, while at the same time being simple enough to use effectively. There is also an element of COVID and its associated challenges highlighting the power of intelligent use of data, in optimising processes and improving overall efficiency.

"It's all about getting the most out of your factory, whether it is floor space and equipment, or ensuring your workforce is as productive as possible. This means automating labour-intensive, repetitive processes and getting feedback from your machines to develop efficient, coherent processes. That's where IIoT has a major role to play."

The other key topic to emerge from the Open House was the potential opportunities for SMEs Conversations surrounding the

barriers to automation repeatedly revealed that smaller manufacturing businesses stood to gain the most from implementing it into their production lines.

Tom Bouchier concludes: "UK manufacturing has always been strong in delivering high-quality outputs at scale. This is something that will continue long into the future and we've already touched upon the potential benefits these types of businesses will see through IIoT.

"However, it also became clear over the course of our Open House that there is massive room for growth amongst SMEs. The productivity gains associated with the implementation of automation will significantly boost the outputs of a smaller manufacturing business.

"It was really interesting to note that visitors to our event were further along their automation journey than they were at our last Open House two years ago. I think UK manufacturing has started to accept that it is key to remaining competitive on the global stage, which makes it an exciting time for the industry."

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Turnkey system for a totally flexible and fully integrated machining line

Automated and flexible systems are now playing a crucial role in the production of workpieces. WFL Millturn Technologies has taken a decisive step towards its aim of highly intelligent, automated production with the completion of a customer project. Manufacturing is carried out with a central turnkey system, to which four complete machining centres are attached.

WFL Millturn Technologies has always been involved in the field of automation. From articulated robots to gantry loaders, every system combined with a MILLTURN brings a high-tech element and a breath of fresh air into production halls. The acquisition of FRAI Elektromaschinenbau GmbH in 2018 represents another step towards innovation in complete machining, paving the way for a digital future.

Autonomous production methods have long been used by automotive manufacturers, the aerospace industry and, above all, mould construction companies to produce equipment for machine tools. Other sectors with less of a focus on automation are nonetheless showing increased interest in this area, above all due to the possibility of introducing autonomous night and weekend shifts. WFL Millturn Technologies works with different automation variants such as gantry loaders and articulated robots for automated workpiece loading and unloading, depending on each customer's requirements. Peripheral transport and storage systems for workpieces, tools and clamping devices can be combined as desired.

This brings some key advantages for the user, such as continuous productivity with minimal operating effort. Automated machines are also ideally suited to repetitive tasks. However, robots are not only used in largescale series production. There are also many advantages to automation for small batch sizes, when used in combination with easy-to-program software.

Customer-specific options, such as unloading samples, inscribing, cleaning, measuring blank parts, or even additional processing tasks performed by the robot, like deburring, provide optimal conditions for automation.

Fit for the future

An automation solution recently implemented by WFL has been specially developed for flexible batch production and is designed for the automation of four machine tools for handling different shafts. The 6-axis robot with 500 kg payload is mounted on a 7th axis. An automatic gripper exchange system has also been attached so that a wide variety of grippers can be connected and disconnected fully automatically as required when the system is operating in automatic mode. An integrated drip tray collects coolant and chips.

Thanks to the fully automatic quick-change gripper system and gripper warehouse, five different grippers are used in specific applications: servo grippers for workpieces and shafts, grippers for prismatic tools, such as long boring bars, grippers for tailstock tips and grippers for three different inner and outer jaws.

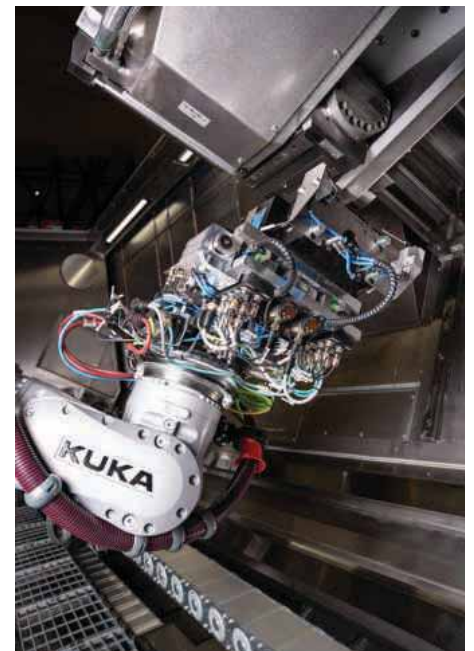
The prismatic tools that are inserted into the machine have a prismatic tool accommodation with a very narrow tolerance range. Before the new tool is inserted into the machine, the robot moves with the exposed guide to a special station in which the guide is blown off to clean it and then coated with oil. This creates the optimum conditions for correct installation.



Smart tool handling

The jaws can be changed over fully automatically in the automated solution by means of a special chuck. The tailstock tips can also be changed over automatically using a special gripper. Another special gripper is able to automatically change the long prismatic tools, boring bars up to 2,500 mm long and 250 kg in weight.

By using two separate setup stations for workpieces and tools, tools can be set and new workpieces can be loaded parallel to machining time and without restricting automation.



In the warehouse, 20 different sets of jaws, six different tailstock tips, 12 individual prismatic tools and up to 10 workpieces are stored. The gripper station, for the five different grippers, has also been integrated into the warehouse.

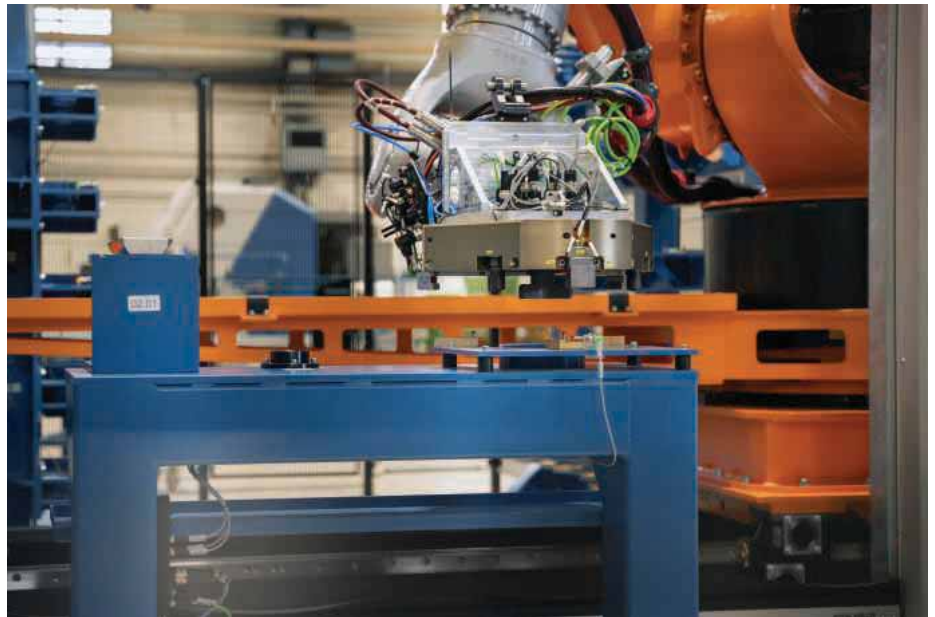
The system has three control levels: the KUKA KRC robot, the Siemens PLC sequence control and safety technology and the host computer for cell logic and logistics. The host computer, which manages the CNC programmes centrally and makes machines available as well as tool management and material flow planning optimise machine utilisation, minimise downtimes and enable autonomous or low-personnel manufacturing.

Exclusive added value for customers

Automatic changeover of jaws, tailstock tips and prismatic tools in conjunction with a servomotor gripper, diameter and length plausibility, which covers an extremely wide product range, allows for setup free operation of the machines and automation solution.

The warehouse serves as a "lung" and the host computer as the "brain", meaning that the production plant also manufactures both small series and batch sizes of 1 without restriction. The host computer configures an optimised production programme based on the available tools and workpieces so that the system can be operated autonomously overnight or at weekends without manual intervention. The increased degree of utilisation not only leads to the production of higher numbers of units, but also to reduced unit costs due to reduced staff. The high degree of flexibility offered by automation also allows four different shafts to be produced on the four machines at the same time.

Andreas Bitzyk, sales manager at FRAI Robotic Technologies says: "The major challenge today in the field of automation is the intelligent combination of a very wide



range of technical solutions. You cannot invent or develop everything yourself and this is also not necessary, as there are excellent solutions in a wide range of different areas. Combining these solutions with your own experience and successfully implementing customer projects is a fine art. Although a modular concept has often been spoken of in the past, I use the term "Expert

modular system", which FRAI is improving on a daily basis together with WFL and expanding with every exciting project."

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Delivering the automation dividend for employees

The perception of a clear dividing line between tasks for robots and tasks for humans started to become blurred when collaborative robots entered the workplace. Clearly, risk assessments need to be carried out to ensure safe and true collaboration, but the continued uptake of these systems confirms that they do have a place in our manufacturing environments.

This collaboration between the operator and the robot is a benefit to both parties, with the operator generally being removed from the mundane tasks to add value through human flexibility and dexterity. This represents one level of improving an operators' working environment and giving them a more interesting role.

The continued shortage of labour in many of our manufacturing sectors has sparked a new and higher level of interest in robots and automation and perhaps, for the first time, businesses are looking even more closely at how they can redeploy, retrain and upskill its existing workforce alongside its investment in automation to futureproof their production.

Simon Jenkins, robotics director for UK & Ireland at Stäubli explains: "The often voiced mantra of 'robots cost jobs' has over the years proven to be largely false. It has now become crystal-clear that in many cases robots and automation are the route to not only saving jobs, but the means of providing employees who were once restricted to mundane tasks the opportunity to obtain new skills and develop as individuals."



So how can one individual's role change as a result of the introduction of robotics and automation? Simon Jenkins continues: "It is true that many of the tasks once deemed to be the domain of the operator are now being performed by a robot. However, despite the common perception of 24/7 unmanned running, robots and automation do at times require support. This is especially true in applications where multiple product variants are being produced. Although it is sometimes possible to automate many changeover tasks, in some cases there is still the need for human intervention to perform setup tasks such as swapping over grippers, fixtures and organising product for assembly or processing. The role of the operator here is now more akin to that of a technician.

The once mundane tasks are now replaced with interesting operations which require increased skills and deliver a greater level of responsibility.

Stäubli (UK) Ltd Tel: 01952 671917
Email: robot.uk@staubli.com www.staubli.com

Demystifying, derisking and delivering advanced automation solutions to Irish manufacturers

Mills CNC, the exclusive distributor of Doosan machine tools in the UK and Ireland has, through its recently created Automation Division, Mills CNC Automation, supplied Irish Manufacturing Research (IMR), a leading independent and not-for-profit research and training organisation, with a SYNERGi automation system.

The new, large-capacity SYNERGi Premier system was installed at IMR's 35,000 sq.ft. Technology Centre facility in Mullinger, Country Westmeath in November 2021 and has been integrated with a Doosan Puma 2600 II multi-tasking lathe, acquired by IMR from Mills in August 2020, to create a flexible automated manufacturing cell.

The SYNERGi cell is an important and significant investment. It is intended to help IMR de-mystify, de-risk and deliver new and emerging technologies to enable industry, across Ireland, compete and succeed at the cutting edge of advanced manufacturing.

IMR's main research and development efforts are focused on four 'thematic pillars': Digitisation; Design for Manufacturing; Sustainable Manufacturing; Automation and Advanced Control.

It is intended that the investment in the SYNERGi Premier system and the creation of a high-productivity and high-efficiency manufacturing cell will enable IMR to explore and evaluate the potential of flexible automated manufacturing cell production. It will provide guidance and direction to individual Irish manufacturers about the application and suitability of automation within their operations and work in partnership with selected Irish manufacturers to help create new and/or improve existing manufacturing processes and systems etc.

Chris Judge, IMR's machining applications specialist, says: "Automation can help Irish component manufacturers, irrespective of their size, specialism or sector focus, improve their productivity, efficiency and competitiveness."

COVID-19

COVID-19 turmoil has forced manufacturing companies around the world to think on their feet and quickly adapt their business



strategy and operations to ensure the health and safety of their people and keep their organisations alive in a rapidly evolving environment.

The impact and continuing effects of the pandemic have helped put automation front and centre in component manufacturers' minds. No longer a 'nice' thing to have, automation is now perceived as a 'need' to have and IMR is ideally positioned to meet this need.

Chris Judge continues: "Ongoing skills shortages and the need, for some manufactures, to adopt 24/7 operations were already key automation drivers prior to COVID-19. These haven't gone away but have been further compounded over the last two years by pandemic-led issues i.e., the need for social distancing and the increase in remote working practices.

"The pandemic represented a watershed moment for many manufacturers. It has certainly put automation on centre stage and enabled it to gain more traction not just amongst high-volume, low mix manufacturers but with high-mix: low volume manufacturers too."

SYNERGi systems are designed and built by Mills CNC. They are driven by Mills' proprietary software and are made specifically for Doosan machine tools. In 2020, IMR invested in a Doosan Puma 2600SY II lathe from Mills CNC. The lathe with its integrated sub-spindle and Y-axis was acquired to help IMR deliver innovative and best-practice 'Design for Manufacture' solutions. To ensure longevity and relevance as well as helping to future proof the investment, the Puma was supplied 'automation-ready'.

The SYNERGi Premier system is a rigid, robust and large-capacity automation system comprised of a FANUC 6-axis

Industrial robot, 25 kg payload, with Schunk 3-jaw grippers integrated with a five-drawer, bi-directional part loading and unloading station and laser floor scanner technology. It also features a part inspection conveyor and a 17" touchscreen HMI powered by Mills' proprietary, SYNERGi, software.

Chris Judge says: "Being the largest SYNERGi system in Mills' portfolio, the Premier has a broader application appeal and provides us more with flexibility. We particularly liked the system's five drawer configuration and capacity, each drawer is 900 mm (W) x 600 mm (D) x 200 mm (H) with a 200 kg maximum weight per drawer and it's innovative laser floor scanner technology that ensures safe operation. The system was delivered and installed at our facility in November, and we anticipate that staff training will be completed in December."

He concludes: "We are already in discussions with many manufacturers about introducing and integrating automation systems within their operations and, from early 2022, will be designing, developing and proving out automation-led solutions using the SYNERGi Premier automated manufacturing cell with a number of them. These are exciting times for IMR, and the SYNERGi Premier system is central to our and to our partners', ongoing success."

Irish Manufacturing Research (IMR) is a leading manufacturing research and technology organisation with labs and industrial pilot lines in Dublin and Mullingar, Ireland. IMR works with leading global and indigenous brands to de-mystify and de-risk new and emerging technologies and to deliver high-impact collaborative research to enable global leadership in advanced manufacturing.

IMR has over 80 researchers with hundreds of years of combined industry expertise working in areas such as 3D printing, data analytics, knowledge management, sustainable manufacturing, advanced robotics and the Industrial Internet of Things.

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Smart Factory solutions

For over 30 years, EROWA has been providing factory automation to the various global manufacturing industry sectors and its Flexible Manufacturing Concept uses automation as part of a smart factory installation. Its robot systems are capable of handling small workpieces from a few kilos to large parts up to four tonnes.

Offering around-the-clock running for machine tools producing heavier components, up to 4,000 kg, the EROWA LoadMaster Compact range provides exceptional reliability and robust operation. Each LoadMaster can cater for a variety of component sizes set to ideally match the spread of workpieces that customers' machine shops have to tackle.

The LoadMaster Compact highlights how easy it is to load raw material billets, cast or forged components into the multitiered storage system ready for unattended milling and turning. Finish machined parts can be removed via the ergonomic workstations or returned to the layered racking for retrieval when required.

The new LoadMaster range builds on the company's renowned reputation for precision and quality to offer automatic loading and unloading of large workpieces with the exceptional return on investment that customers have come to expect. This is thanks to the ingenious kinetic system with very limited space requirement. With the 360° swivel function, any position in the magazine and on the machine tables can be reliably reached.

The magazines are of a vertical design, with the storage positions arranged over two, three or four levels, saving on space and cost. Each level is optimally configured for typical workpiece sizes. The magazine modules can be combined in series so there are no limits on the number of units that can be connected, and the total rail length depends on the number of machines and their positioning.

With walk-in access or via sliding doors, the setup stations are integral components of the LoadMaster production lines. Versions are available with lifting unit, with rotating and tilting table, or with indexing table. The setup positions are also accessible via overhead crane.

EROWA's 'Pilot' control software makes schedule control, tool and job management very straightforward. It assists the operator



in the daily production flow, with clear displays of system status.

Mixed pallet sizes in a production line allow optimal use of the available space and, for systems with different pallet sizes, the 'MultiFork' gripper is an efficient alternative to changing individual grippers. The gripper width smoothly adapts to different pallet dimensions providing solid, robust technology for large workpieces.

For workshops where space is at a premium, the EROWA Easy 800 keeps it tight. Recently launched, the automation specialist's rationale for the Easy 800 is intended to support the efficient machining of larger components. Capable of deploying heavier workpieces on larger pallets, but within a minimal footprint, the Easy 800 offers a significant increase in the size of the raw material or part finished components that can be accommodated, up to 850 mm diameter and up to 1,000 mm in height with six stations.

"The impetus from the manufacturing industry has been for larger, more complex machine tools and now these can be fully automated with the Easy 800," explains managing director, Ian Holbeche. "Using the EROWA 'Flexible Manufacturing Concept' (FMC) customers equipped with an automation system can typically increase productivity by a factor of five using various manufacturing technology, including die sinking EDM, multi axis milling and turning,



as well as measurement and inspection."

EROWA's goal is to increase the productivity of machine tools using its FMC philosophy based on its automation systems and the four steps to follow to achieve the maximum number of working hours, up to an incredible 8,760 hours per year, from any machine.

Ian Holbeche concludes: "Maximising the number of hours on your existing machine tools before you invest in your next machine can save you time and money. EROWA has the ability to retrofit automation systems to existing standalone machine tools and even manufacturing cells, so the advantages and benefits are available to just about any manufacturing business."

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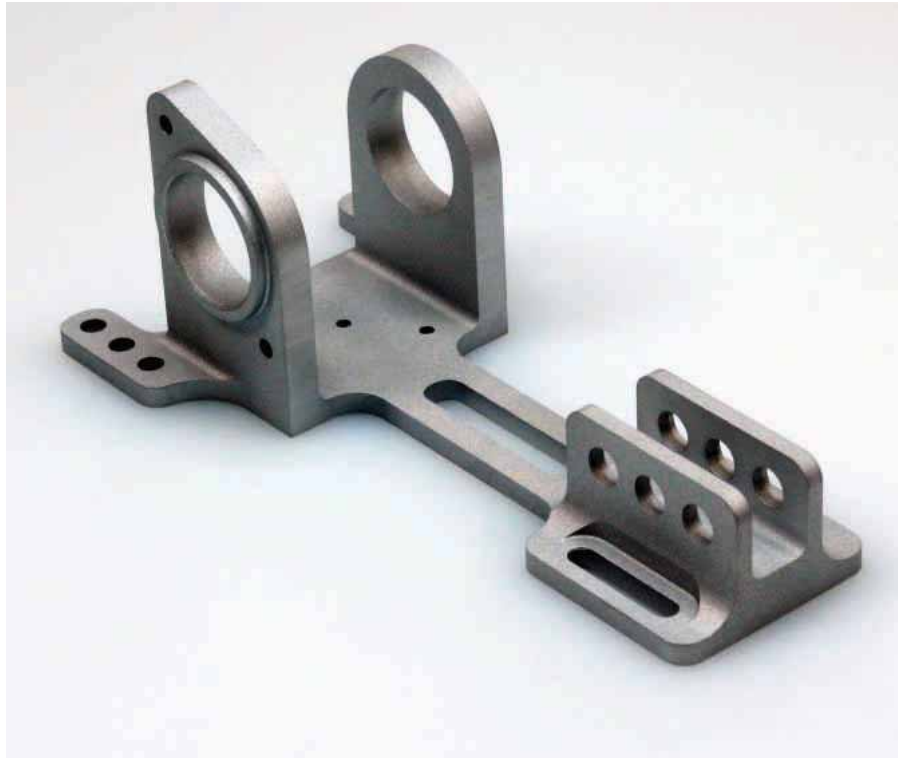
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hyperMILL provides MAXX results for Cutting Blue

Birmingham-based Cutting Blue Ltd was founded four years ago by Piotr Parobczy as a consultancy imbued in the programming of complex high-value components for the F1 and motorsport industries. However, in the last 18 months, the small subcontract company has commenced manufacturing, purchasing machine tools from Doosan and DMG MORI that are supported by the CAM software from OPEN MIND Technologies.

Cutting Blue has rapidly built a customer base in the Electric Vehicle (EV) and micro-mobility sectors, manufacturing drivetrain components, battery and electronic enclosures and more. The company has invested in a large bed Doosan DNM6700 and a DMG MORI CMX600V machining centre to undertake the processing of primarily plastic and aluminium parts that are machined in batches from 100 to 500-off.

Alluding to why the company opted for hyperMILL from OPEN MIND Technologies, Cutting Blue company founder Piotr Parobczy says: "I have used hyperMILL as well as other CAM systems for more than 10 years and it stands way above any other CAM system. As a business, we are currently only running 3-axis machining centres but hyperMILL is perfect for this type of machining. OPEN MIND may be known for



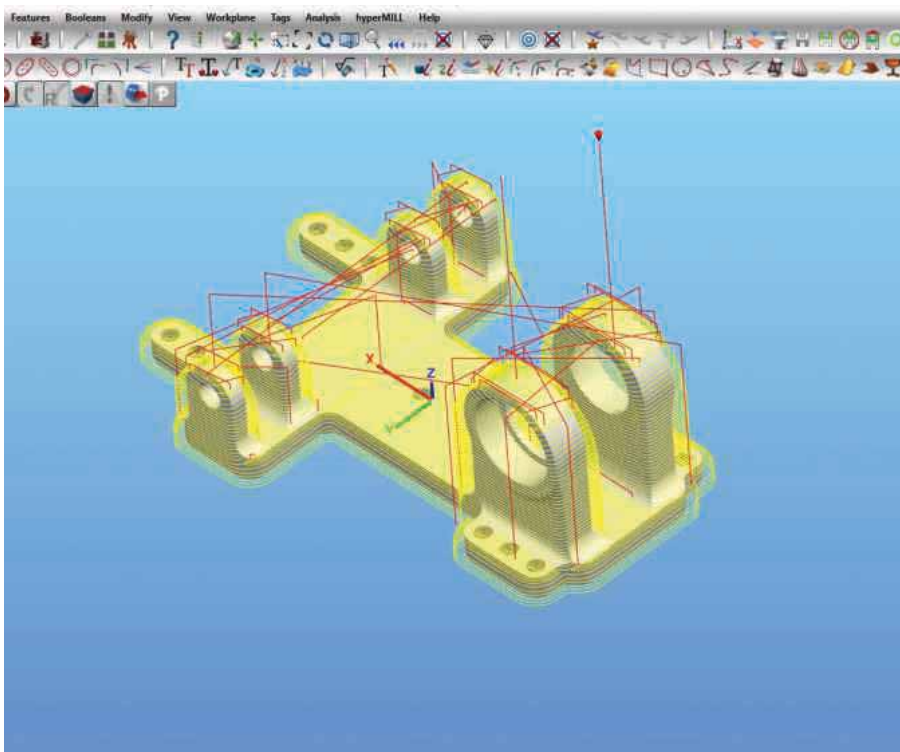
its 5-axis strategies, but as a completely modular system, we can 'bolt-on' additional features as and when we need them. This makes hyperMILL not only an extremely cost-effective solution but also the most premium package available for your money.

As hyperMILL is not a subscription model, it is far cheaper than other premium software."

While hyperMILL is only required for 3-axis machining on the shop floor at Cutting Blue, the consultancy division of the company undertakes the programming of complex components for a host of industry sectors. It is here where the benefits of hyperMILL are evident. As Piotr Parobczy continues: "We have hyperMILL fully loaded with strategies from MAXX machining and 5-axis through to tube machining, multi-blade, probing, turning and more. That is the beauty of hyperMILL, you can add features to suit your specific requirements."

"Compared to other CAM systems, we have found hyperMILL faster, more productive and easier to use than other packages. Moreover, we have often found alternate CAM systems unreliable with limited post-processor availability and the collision avoidance doesn't always fill you with confidence. This is not the case with hyperMILL. They have post-processors for every machine and the collision detection and avoidance is outstanding. When going through the NC Code, hyperMILL is at least 20 percent faster than rival CAM systems."

The components machined at Cutting



Blue can often have cycle times from five to 22 hours per part and hyperMILL generates considerable cycle time savings on many of these components. Piotr Parobczyk says: "By using strategies like the MAXX machining for roughing, we can use high-speed cutting tools and trochoidal milling to reduce cycle times on some parts by more than 30 percent. When you are machining batches of 100-off or more each month, this is a significant saving. In fact, the strategies in hyperMILL often shave one hour or more off the cycle times of many parts. Some parts that we have programmed for customers have also seen cycle times fall from 22 hours to 17."

The CAM programming consultancy offered by Cutting Blue generates equally impressive cycle time reductions for its clients. If customers are adopting the latest cutting tools and machine tools the benefits can be impressive. Alluding to this, Piotr Parobczyk continues: "We have one customer that is 5-axis machining impellers for the marine industry and we have yielded impressive cycle time reductions on these single blade impellers. By utilising the Multiblade feature in hyperMILL, the blades

are quite easy to programme, as the strategy has a host of small options that simplify the process while a lot of the other tasks are automated. The customer is applying conical barrel tools and as OPEN MIND are the pioneers in this technology, applying the tools and strategies is straightforward."

"The result of this project has seen the client reduce the cycle times from one hour per impeller to just 20 minutes. This is a credit to the combination of the hyperMILL strategies and the adoption of conical barrel tools that enable the tool paths to run with a stepover of 3 mm or more compared to a stepover of just 0.2 mm with conventional ball nose tools."

Concluding on this impeller project and the application of hyperMILL, Piotr Parobczyk says: "The impeller project is something that we will be machining in-house next year and we are currently investigating suitable mill/turn centres in the market to support us in doing this. By utilising hyperMILL, we can undertake such challenges with complete confidence and peace of mind. The CAM system is exceptionally reliable and consistent with post-processors and

collision avoidance that is second-to-none. As our company and machining capacity and capabilities evolve, so will our application of hyperMILL."

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

It designs technologically optimised CAD/CAM solutions that include a large number of unique features to deliver significantly higher performance in both programming and cutting machining processes. With its CAM software hyperMILL, OPEN MIND offers a wide range of outstanding 2.5D, 3D, 5-axis milling and turning strategies, as well as special applications. It has made a name for itself internationally as a pioneer in cutting-edge 5-axis technologies.

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Tebis version 4.1 for ease-of-use with clear user guidance

Tebis, a specialist provider of CAD/CAM and MES solutions, has released the latest version of CAD/CAM system 4.1. Tebis 4.1 version is a powerful software system with a modern user interface for easy and straightforward operations. The clear structure ensures that you always have a handle on even complex manufacturing tasks.

Quickly find information in new structure tree

Tebis 4.1 users can organise their work completely through a practical structure tree. All activities are therefore traceable at all times.

Subdivide structure tree into CAD and CAM areas

Tebis CAD node contains CAD elements: if you import parts from a different system, you can instantly obtain a precise overview of your customer's input data. If you've designed the part or individual elements with parametric/associative design within Tebis, the entire creation history is also visible in full detail.

Tebis CAM node contains the Job Manager. You have access to all CAM information such as NC machining operations and NC sequences and can directly use manufacturing-specific functions.

Customise user interface

Another benefit of Tebis 4.1 is the capability to personalise the user interface: you can individually configure toolbars and structure trees, adapting them precisely to your tasks and requirements. The customised configurations can also be used as templates for company-wide standards.

Complete NC program in just a few clicks

With the new Job Manager and Tebis NCJob technology, it is possible to create and manage all NC programs for all technologies to manufacture a part; from milling, to turning, to hardening. It reflects the entire manufacturing process with clearly structured operating sequences and guides through CAM programming.

It is also possible to define machining setups and to clamp parts on virtual



machines. This allows users to quickly and easily generate finished NC programs.

Automatic filter function

Only the functions and parameters you need for the specific manufacturing tasks are displayed. Parameters that have been configured are handed over for subsequent programming tasks. You can also directly access digital Tebis process libraries: safe and efficient NC programs are ensured.

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Laser marking without the cost of the laser

Laser technology has become the preferred method of marking products of varying material types and across multiple market sectors. The majority of business using the technology will have one or more laser marking systems as part of their production processes. However, there are instances where there is a desire to take advantage of the many benefits which laser marking offers, however purchase of the laser marking system is difficult to justify.

The production of prototype components, high-value/low-volume manufacturing, personalisation, traceability, or branding are just a few of the reasons why TLM Laser now offer a subcontract laser marking service from its Bromsgrove base.



TLM's subcontract laser marking service is used by a wide range of companies across multiple market sectors

TLM's Andy Toms explains: "There is no doubt that the laser provides the quality, precision and resolution demanded by industry today for identification and traceability purposes. With a track record of over 14 years supplying and applying laser technology, TLM is able to draw upon unparalleled levels of expertise in laser marking. Our subcontract marking services have been used to date by customers from the aerospace, micro-electronics, and precision engineering sectors to name but a few. Although in many cases the volume of parts we are asked to process can be quite small, we recently completed a project where we laser marked 2,000 boxes of plastic alarm components." Other applications where TLM's service has proven to be valuable include re-branding and marking silicon chips.

As UK and Ireland distributors for a number of the world's leading laser companies, including FOBA Laser and Universal Laser Systems laser marking



The FOBA Laser M Series

technologies, customers can be assured of the quality of the systems being used to mark their products.

Andy Toms continues: "We have a range of laser marking technologies available to us including two CO₂ based systems and two fibre based systems. The latter incorporate a number of unique features such as Point & Shoot™ which is used to manually position marking contents on the products to be marked. The Point & Shoot™ camera system views the marking field through the lens, captures an image of the component and displays it in the user interface. The user creates the marking and positions via drag & drop at the exact position on the product where it is supposed to be applied. Other features available on our fibre based

systems include IMP and MOSAIC. The patented IMP (Intelligent Mark Position) high-speed camera system automatically detects the workpiece and its position and aligns the mark accordingly, ensuring precision and repeatability. IMP consistently delivers premium-quality markings and produces a measurable reduction in the number of defective products. This makes the camera system ideal for automated volume production applications."

Andy Toms continues: "Last but not least is MOSAIC which uses the internal camera of the laser to create an image of the marking field by simulating a straight down camera view. This straight down view eliminates perspective errors typically found when using an external camera and enables the system to accurately mark parts regardless of their placement. In all cases and irrespective of the laser being used, we apply the same levels of expertise and deliver the highest levels of laser marking clarity, quality and precision."

TLM is hoping to add UV marking to its capability in the coming months. This technology provides distinct advantage when marking certain material types such as HDPE, glass and other substrates where standard fibre and CO₂ wavelengths are less effective.

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Laser marking systems from Laser Lines

Within modern industry, laser marking has become the leading method for part identification and traceability, offering a superior level of quality, speed and flexibility. Laser marking is a fast and highly accurate marking method with no consumables or wet chemicals used, it enhances the product appearance and creates a brand appeal that no other technology can offer. Available at prices to suit a range of different budgets, it's a simple to use technology that's energy efficient and future proof.

Why choose laser marking systems?

Laser marking systems from Laser Lines are highly regarded, in terms of the technologies they offer, the materials they can mark and the advanced software and hardware options they have available.

The laser marking systems offer the following benefits: All laser marking systems are configurable with Fibre, DPSS and CO₂ lasers; The laser marking systems mark almost any material, including metals, alloys, composites, glass, wood and plastics; They are available as Class 1 systems which require no additional PPE; A wide range of power outputs enable fast marking and deep engraving to be performed; Software controlled embedded Windows 10 which is fully customisable to enable bespoke experiences.

What laser marking systems are available?

There are a number of different sizes of laser marking system in the range, each one boasting a variety of benefits. There are a number of different laser marking systems on offer at Laser Lines and don't forget to also look at the workstations into which these can be built.

Lasermark PRIMARY

Lasermark PRIMARY is Laser Lines' entry level laser marking system. This unit perfectly matches safety, functionality and a small footprint with value for money and potential for an excellent return on investment. It is suitable for installation with a variety of lasers from the DPSS and Fibre ranges. This system features a manual Z-height adjustment, interlocking door, laser safety glass and options for fan or extraction-based air removal. Overall, this system presents the very best in value for small laser marking applications.



Lasermark PRESTIGE

The Lasermark PRESTIGE system from Laser Lines is specifically designed with the industrial laser user in mind. With free standing and benchtop versions available, this system offers a full range of customisable features and options including: automatic door, programmable Z-axis, rotary capability, secondary focusing diodes and safety viewing window.



Lasermark PREMIUM

The Lasermark PREMIUM system from Laser Lines combines all of the benefits of the Lasermark PRESTIGE system with a larger footprint and working area. It is designed for applications that require extra space for



larger or longer parts. Again, as with the Lasermark PRESTIGE, a full suite of customisable options is available for these systems along with suitability for integration with all Laser Lines lasers.

Lasermark PROJECT

The Lasermark PROJECT system is a unique system devised for your specific application. Laser Lines understands that the best option for your business may not be an 'off the shelf' solution. The company has a wealth of experience in designing bespoke marking solutions. Speak to one of its engineers today to discuss how they can turn your vision into a reality.



About Laser Lines

Laser Lines was founded in 1975 and has grown to become a leading supplier of lasers and accessories, 3D printers, rapid prototyping systems and vacuum casting systems.

Now representing 26 suppliers of proven technology and being the longest Stratasys UK reseller, its experienced and enthusiastic support team offers an end-to-end service which includes training, installation, maintenance and repair services for all of its products. It also has a subcontract facility for 3D printing and additive manufacturing requirements.

Laser Lines works to align proven and emerging technologies within potential markets so that it can offer customers innovative options and a range of solutions across the full spectrum of 3D printing, industrial lasers and photonics applications.

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New products for marking and traceability applications

At November's Advanced Engineering exhibition at the NEC, Pryor Marking Technology launched two new products for marking and traceability applications. The PortaDot 60-30 Touch is Pryor's first 'all-in-one' portable marking solution and is also the first product to be available with the



new '4000 Touch' control interface. This user interface is based on Pryor's successful 4000 Controller, which powers the rest of their machinery products and has many of the same features. The new PortaDot 60-30 Touch also allows data input via a Wi-Fi connection with a Wi-Fi enabled scanner or a phone app. The marking machine is supplied in its own case, complete with a

battery, battery charger and space for a few key spares. Powered by a Bosch 36V battery and incorporating patented technology to ensure there is no loss of marking force when the battery charge decreases, this is the most portable and versatile dot peen machine on the market.

The second product launched at Advanced Engineering was Pryor's new entry level Bench Laser. Touchscreen control, an automatic door, larger enclosed area, larger viewing window, and an increased working height are all improvements over the very popular previous version. The same reliable controls and operator friendly software remain, but with a few important updates. The new Bench Laser is available with several fibre laser sources starting at 20W and is compatible with Pryor's range of accessories, such as their label feed systems and circumferential fixtures. These improvements and advancements make it one of the most capable, entry level, laser marking machines available today.

If you would like to know more about



these two new products, contact: enquiries@pryormarking.com

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Traceability in the medical sector a technical challenge

Governed by numerous standards ensuring the reliability of its components, the medical sector has implemented numerous traceability processes over the last few years.

Thanks to the markings applied to the various components, it is possible to obtain information about the manufacturer, but also the component reference number or their expiry date. All this data complies with the UDI (Unique Device Identification) and MDR (Medical Device Regulation) standards, which are essential for exporting devices to the USA and Europe.

The components to be marked are as diverse as the professions that make up the medical sector. There are, for example, many cases of marking on surgical instruments such as scalpels or bistouries, but also on prosthetics or orthoses, made of steel, cobalt, ceramics or biomaterials, dental implants, often made of titanium, or hearing aids or pacemakers.

In order to ensure optimal identification throughout their distribution and use, these multiple devices must have a marking composed of different elements. In order to comply with the standards mentioned above, it must contain a machine-readable barcode or Datamatrix as well as several alphanumeric codes that can be identified by humans. Quite often a logo is applied, meeting a need that is more aesthetic than practical.

In addition, there are many constraints linked to the complexity of the marked components and the sector of activity. For example, the materials with which the various devices are made are complex and varied, steel, titanium, stainless steel, ceramics, various alloys, biomaterials and require real technical expertise when marking. Precision objects and medical tools are often small and leave very little space for marking. Despite the small marking windows, the identifiers must be contrasting and visible to allow reading via a vision system and a human.

Another challenge is not to weaken the part nor to change its surface state. This is essential for bone prosthetics which undergo important efforts throughout their life span. It is also important to take into account all the surface treatments and sterilisation cycles that medical instruments undergo. This is why it is essential that the



marking carried out is resistant and durable over time.

Benoit Massel, specialist in laser marking technology at SIC MARKING explains: "All the difficulty of permanent marking by laser technology on medical parts lies in the ability to obtain a contrasting result without affecting the surface state of the material, which must resist passivation treatments. The technology must also be able to mark on a variety of materials."

Laser marking, the most suitable solution for the medical sector

All these constraints make the traceability of medical tools a real technical challenge. This is why SIC MARKING, a leader in traceability solutions, is committed to providing the most appropriate marking solutions to meet all the challenges faced by the medical sector.

With more than 30 years of experience, SIC MARKING has become an expert in laser marking. This latest generation technology consists of emitting radiation from a source, amplifying it and directing it towards the part to be marked. The beam creates a chemical reaction on contact with the workpiece.

This traceability solution, thanks to its many advantages, is becoming more and more widespread in the medical industry. It offers great flexibility of use and is able to mark barcodes, Datamatrix codes, alphanumeric characters and logos. All this while adapting to any material. The high-contrast and durable result obtained allows perfect reading over time for optimal traceability. Finally, laser marking ensures faultless security because it doesn't weaken the part and doesn't degrade its hygiene, a crucial factor in the medical sector.

The SIC MARKING laser product range can be adapted to your requirements, regardless of the type of marking, the parts, for serial or single marking. It consists of

lasers that can be integrated with various options: 3D function for marking on complex shaped parts, different heights, curves or angled faces; Integrated Vision function for fast and reliable reading of barcodes and Datamatrix codes; Rotary D-axis for marking cylindrical workpieces around the diameter. The range is completed by three marking stations, L-Box, XL-Box and the new XXL-Box.

Nicolas Louison, technical sales, says: "Today, the medical sector is a sector where traceability has become essential and necessary. SIC MARKING's experience in this sector enables us to provide our customers with the most interesting marking solutions from a technical and economic point of view. The wide range of laser marking solutions from SIC MARKING enables us to offer our customers a marking system that meets the requirements of the various types of applications: permanent, non-destructive marking, resistant to the sterilisation process."

SIC MARKING has many links to the medical sector. Notably in Italy, with the company MECTRON. Specialising for more than 40 years in the manufacture of inserts for clinical applications, it exports its products to more than 80 countries.

SIC MARKING was approached with the exciting challenge of marking titanium instruments for dental surgery. The marking consisted of an alphanumeric code and a logo and should not, under any circumstances, weaken the parts, used during ultrasound dental surgery. The challenge was also to create an automatic laser marking system capable of working in collaboration with the latest generation of COBOT (Collaborative Robot).

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New all-in-one laser workstation

The brand-new Graphix Series all-in-one laser workstation, introduced to the UK market by Universal Marking Systems, has been designed to make laser marking accessible to all. The Graphix laser, developed by Technomark takes laser marking to a new level, with new intuitive software for both novice and experienced users, achieving fast, high quality permanent marks in as little as just three clicks. The new Graphix is supplied as a complete workstation, including the laser source, keyboard, mouse, TFT screen with an optional extractor as the only external part.



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

The Smartview function is also ideal for viewing parts that require multilevel marking. This can be achieved with the multiplane software function, which optimises the laser path in three dimensions, allowing multilevel marking on stepped or curved components with help from the motorised column that automatically adjusts the marking height.

Another feature to assist with setting up the marking parameters is the new materials database which enables you to select the material you wish to mark, plus two other criteria and the Graphix will do the rest. This makes it very easy for novice users to use the laser from the get-go. It enables a quick setup time to keep the marking cycle as short and efficient as possible with precise repeatability. More advanced users have a palette of more advanced features they can access if custom settings are required.

The assisted door opens with two positions for easy access to components and the workstation is more adaptable than ever with the option to use a rotary axis to mark around the diameter of curved surfaces. The Graphix has been designed with more space for larger components up to 500 x 500 x 400 mm, with a marking window of 100 x 100 mm as standard and 140 x 140 mm also available soon as an option. The illuminated marking area makes it quick and easy to position and view components.

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

Universal Marking Systems offers long term technical support for all its customers from initial enquiry to full after sales support. It



welcomes sample components which it can test mark for you to showcase the equipment's capabilities and the results that can be achieved for your application.

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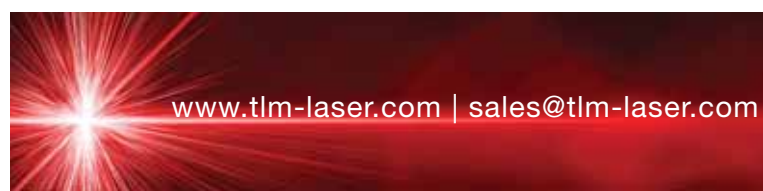


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The Apex of quality for Carville

Following the recent launch of the advanced Crysta-Apex-V CNC Coordinate Measuring Machine (CMM) range, Mitutoyo UK has been enjoying high levels of sales of the new CMMs. In addition to sales made to new customers, Mitutoyo has been busy installing Crysta-Apex-V machines at the premises of existing users. Typical of the loyal Mitutoyo customers that have embraced the innovative new CMM range is Dorking, Surrey-based Carville Ltd.

Established in 1928, Carville is one of the world's oldest and most experienced precision plastic machining companies. Carville's remarkable longevity and continuing success is due largely to the business' ability to continuously evolve to meet contemporary needs and also to its reputation for supplying high-quality products and services.

Over the past 90 years Carville has developed many innovative new processes, major company advancements include pioneering the development of diffusion bonding in the 1960s and producing the first bonded medical manifolds in 1980. Today, the company is an acknowledged expert across a wide range of demanding areas, including high-precision plastic machining and the production of multi-layer diffusion bonded manifolds and microfluidics.

Given the demands of its customers and the critical roles many of its manufactured



products perform, the ISO 9001:2015 certified business administers a strict Quality Management System (QMS) and is experienced in meeting the ISO 13485 requirements of its clients, including full traceability and the provision of quality reports with in-depth CMM data.

Carville purchased its first Mitutoyo CMM over 20 years ago and since that time the business has installed a further three Mitutoyo CMMs in its quality department. After two decades of sterling service, the company's original Mitutoyo's CMM was

recently replaced with a new Crysta-Apex-V CNC CMM.

Carville MD Vince Ellis explains: "Carville supply many clients based in the medical device and In-Vitro Diagnostics markets, sectors that produce the highest safety class of products such as Class III medical devices. Carville's parts are often classed as "critical to function and safety", therefore we support all of our clients' ISO13485 requirements with our QMS including full traceability, testing, measurement and vigilance support. As our rigorous quality methods have been developed to satisfy the demands of the medical and life science sectors, we are able to apply similar, stringent quality control methods for our customers involved in other industries.

"Central to our inspection regime over the past 20 years has been our use of Mitutoyo CMMs. The fact that our original, well used machine remained in working order and within specification for nearly two decades bears witness to the quality of Mitutoyo's products. Impressed by the improved specification and increased speed of Mitutoyo's latest CMM, we recently replaced our oldest Mitutoyo model with a new Crysta-Apex-V CNC CMM, bringing our Mitutoyo CMM count back to three machines. The Crysta-Apex-V is the fourth Mitutoyo CMM we have purchased and, over the past two decades, we have been able to witness the continual technical development of the company's machines.

"Along with several other improvements,



we have been very impressed with the increased precision, speed and automated nature of our new Crysta-Apex-V CNC CMM, these advantages have already helped increase the throughput of work in our quality department. Along with our existing, two older Mitutoyo CMMs, our new model is now being kept busy measuring components, including first-offs, last-offs and mid-production run samples and generating SPC data and in-depth inspection reports."

Mitutoyo's new generation Crysta-Apex-V CNC Coordinate Measuring Machine represents a quantum step in CMM technology and delivers advances in accuracy, speed, and versatility. Designed to meet both today's and tomorrow's challenges, the future-proof machine is able to work within connected production environments and the smart factory of the future. The new Mitutoyo CMM range offers cutting-edge capability across a range of ten models, covering practically any measurement application within the small to mid-sized part range.

Unlike earlier generation CMMs, a controlled environment is now unnecessary as the Crysta-Apex-V series machines

maintain their accuracy over a wide temperature range of 16-26°C. An active scanning feature enables high-speed measurement by evaluating discrepancies between design values and actual workpiece dimensions while maintaining the advantages of 3D optimal-path scanning. The intricacies of some workpieces, such as turbine blades and impellers, can cause their accuracy to vary or makes them more susceptible to misalignment, making accurate measurement difficult. The new V Series enables the smooth and precise measurement of this type of complex workpiece.

When compared with conventional CNC CMMs, the V Series delivers higher maximum drive speed and acceleration of around + 20 percent and + 40 percent respectively. This rapid movement, combined with typically 60 percent higher measuring speed, significantly reduces inspection times.

Further aiding the V Series efficiency advantages, the new CMMs also feature Mitutoyo's Quick Launch function, enabling simple and intuitive operation for easy



part-program execution, including via barcodes and QR codes.

Mitutoyo utilises a wide choice of touch-trigger, scanning and non-contact probes to enable the Crysta-Apex-V Series to assess practically any component. An extensive choice of application software is also available for the automatic generating of part programs and for the efficient measurement and evaluation of simple or complex components.

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DKW Engineering meet soaring demand with Bowers Group bore gauges

The quality team at DKW Engineering is using Bowers Group pistol grip bore gauges to ensure the quality of its machined components. As subcontractors, DKW Engineering receives a constant influx of new jobs in addition to their more regular work. This means that the team is faced with new inspection challenges daily, depending on the type of work and the diversity of components that they must manufacture.

Using traditional plug gauges for measurement aren't always appropriate as there are only limited sizes available and not costly if new gauges need to be purchased to suit the requirements of a single job. Instead of buying new plug gauges to suit the demands of individual jobs, DKW Engineering decided to invest in a more flexible and cost-effective measurement solution in the bore gauges from Bowers Group.

Used several times a day, the bore gauges are an integral part of the inspection process. They are also used by operatives on

the shop floor to measure parts with particularly tight tolerances during the production process.

Vitalij Cernomorec, quality inspector at DKW Engineering says: "We find the Bowers bore gauges much better than your standard plug gauges; they're far more versatile, flexible for our needs and perfect for subcontractors like ourselves. As subcontractors, the types and size of components vary, so it helps that we're able to use the bore gauge to check a range of measurements, including series of step bores, all in one go. They're quick and easy to use on the shop floor for in process checks and we always trust the bore gauges; the accuracy is excellent."

Based in Portsmouth, DKW Engineering manufactures and supplies quality, high value and complex machined components for critical industries including automotive, medical, gas and oil, and more. Established in 1969, it has been providing subcontract manufacturing services on a global scale,



producing both simple and complex milled/turned parts from a wide range of materials in various batch sizes.

The business prides itself on its team of highly skilled engineers who utilise the latest CNC machines to ensure all manufactured components are produced efficiently and to specification.

The bore gauges provide an accurate, repeatable, and cost-effective measurement solution. They can be used for a variety of sizes of component depending on what's required on a particular day.

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Accelerate automotive production with abrasive waterjets

Combine an entrepreneurial spirit with a love for automotive excellence and you'll find a long list of OMAX abrasive waterjet success stories that translate a vision of speed into real-world products. Because abrasive waterjets can cut just about anything, including materials and thicknesses that other methods can't handle, OMAX hardware enables shops to save time, eliminate outsourcing, reduce production costs, bring innovations to market and help students learn work-ready skills.

Eliminating production bottlenecks

Xos (formerly Thor Trucks) not only builds commercial electric vehicles, its distinctive style and its e-mobility technology help redefine the future of transportation. To eliminate delays in production and create the parts that give its trucks their signature look, Xos wanted to bring fabrication in house, starting with a MAXIEM 1530 abrasive waterjet. From plastics and acrylic to steel and aluminum, the company uses its waterjet to cut just about everything, including battery-support brackets as well as bodywork

Leaving competitors behind

To build specialised and tight-tolerance parts for custom bikes and other applications, Dunphy's Cycles Machining put a ProtoMAX abrasive waterjet to work. Its combination of compact design, easy programming and powerful cutting made ProtoMAX a simple tool-investment decision for Dunphy, which uses the machine to cut 6061 T6 aluminum up to 1" thick, along with A36 steel, plastics, glass and wood. In fact, ProtoMAX has become Dunphy's "secret sauce," the ingredient in its production process that competitors haven't duplicated.



Powering responsive, on-demand production

Ash Safety creates custom safety, lifting and detection equipment, including PPE and rescue gear and has also used its OMAX 2626 JetMachining® Center to create hard-to-find motorcycle parts. The abrasive waterjet cuts everything from brass and bronze to stainless and tool steel, along with plastics and other materials. The machine's speed and precision, coupled with its material versatility and easy-to-use software, enables this UK company to create products on demand, reduce stock on hand and respond quickly to customer orders.

Building skills and race cars

Motorsports engineering students at the University of Central Lancashire (UCLan) engineer and build race cars, beginning with concepts and CAD drawings, manufacturing the real thing and entering motorsports events. With a MAXIEM 1515 in the dedicated workshop, students learn new skills that benefit them in the job market and they quickly cut what they envision without waiting for a CNC machinist to help them out. Along with race cars, UCLan also creates eco bikes and superbikes, cutting a wide range of parts including frame brackets, wheel bearing housings and brake discs on its OMAX, often with no need for secondary processing

What do all these visionary businesses and workshops have in common besides their focus on automotive applications? They've accelerated the pace of their innovations with in-house production capabilities built on flexible versatility and they share a deep appreciation for what abrasive waterjet technology helps them create.

History of waterjets

Using water as a cutting method for soft materials has been around for decades. Early forms such as the paper metering system by the Paper Patents Company in the 1930s used relatively low-pressure water. While early waterjets could easily cut



soft materials, they were not effective in cutting harder materials. The ability to cut harder materials, such as metals, was achieved by adding an abrasive to the waterjet in the cutting nozzle after the jet stream was formed. But simply inducing garnet was not a viable solution without further advancements. Cutting harder material would take two innovations: ultra-high-pressure pumps and advanced waterjet nozzles.

High pressure waterjet technology took form in the post-World-War-II-era, resulting in faster cutting and greater precision. Reliability remained a challenge until the early 1970s when Dr. John Olsen, VP of Operations at OMAX Corporation, developed the first reliable ultra-high-pressure pump.

Early abrasive waterjet nozzle life was too short to be commercially viable, but material innovations in mixing tubes by Boride Corporation eventually resulted in a commercially acceptable nozzle. With the combination of a durable abrasive waterjet nozzle and a reliable high-pressure pump, an abrasive waterjet machine could now cut a wide range of materials, including hardened tool steel, titanium, stone and glass.

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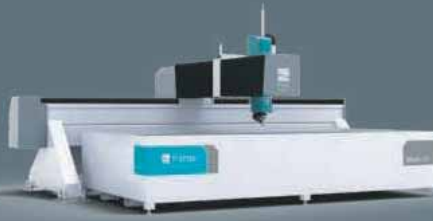


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CWC and Flow, a story that has lasted almost 30 years



Established in 1983, Control Waterjet Cutting has been providing waterjet cutting services for over three decades now. Control Waterjet cutting started life as a fabrication firm. It was becoming clear that a profiling service was required, hence the decision to purchase one of the first waterjet machines in the UK.

With the ability to cut materials that other laser/profiling companies struggle with, the business has grown to a point where Control Waterjet Cutting now had four Flow machines. The newest being a Flow 4 m x 2 m Mach 500, taper compensation waterjet.

The DynamicWaterjet® technology is on both machines and this provides automatic taper and jetlag compensation resulting in very precise geometry and at fast cutting speeds. Both machines are working in tandem to provide the additional capacity needed for their increasing order book.

Invented and patented by Flow to counteract stream lag and taper, Dynamic Waterjet allows you to cut at high speed and to a fine precision. Stream lag and taper are no longer an issue in the waterjet process and the most versatile cutting tool has been transformed into a system that is highly competitive with alternative cutting methods in accuracy, precision and speed.

Dynamic Waterjet Technology utilises advanced SmartStream™ mathematical models that automatically tilt the waterjet head to the side as needed in order to eliminate taper. Additionally, those same models tell the waterjet head when to tilt forward in order to control the stream. The Mach500 Series is the flagship machine from Flow and combines the latest in machine design and drive technologies with well proven pump technology and Dynamic Waterjet.



Interview with Ian Macpherson, CEO of Control Waterjet Cutting

What is your company's core business?

Our core business is water jet cutting bespoke profiles from various materials ranging from 0.5 mm plastic to 180 mm titanium. Materials cut include, aluminium, wood, hastelloy, invar, glass, plastic, stainless steel and many more.

What do your products bring to the market?

The waterjet cut parts that we produce can sometimes be used as a final component without the need for secondary machining. We also cut profiles that have no chance of being produced by any other method due to the complexity of the design and the fact that it is a cold cutting process and does not suffer from any heat distortion.

Whether they are final parts or part of a more complex production?

Our orders are varied and wide-ranging. From brackets, lugs and cover plates to football club logos and signage.

Why did you choose FLOW and not another?

We have over 20 years' experience of waterjet cutting using Flow machinery. During that time, we have had very little down time or major issues due to the machinery.

Production cutting speeds, edge quality and the reliability we expect from a Flow waterjet machine, made flow the obvious choice when we decided to purchase a new waterjet.

How easy is the machine to use?

With the training that is given by flow and with a competent operator, the waterjet machine is relatively straightforward to use.

What is the degree of finishing quality above the others?

As we know, a very good finish can be obtained, by most waterjets, by running at slower speeds. We needed to use a machine that when in a typical production environment could produce a good edge quality at a relatively quick federate.

Did Flow meet your expectations?

Simply, yes.

Flow UK

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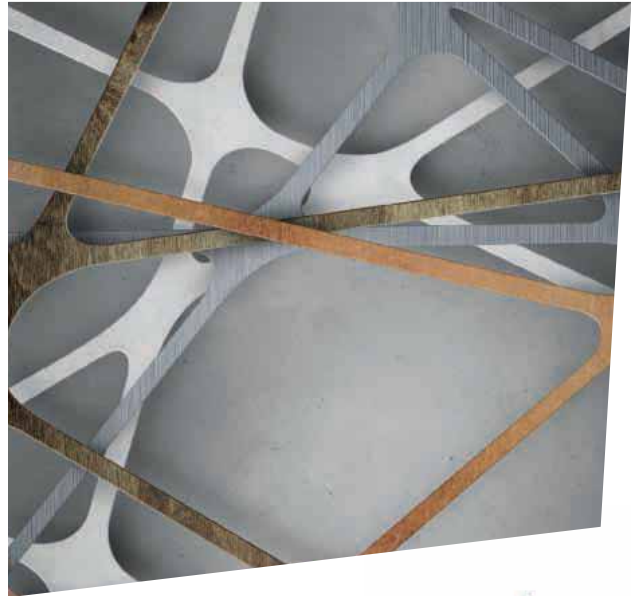
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From powersport star to international industrial entrepreneur

NIKAB is a fast-growing industrial services company based in Sweden working mostly in service and maintenance, refurbishment and new construction as well as consulting services. Two young powersport acers lead the business with the same courage, creativity, and persistence that has characterised their sporting careers.



Fast-growing success company

NIKAB was founded by Tim Marklund in 2015, at the time best known as a successful and daredevil snowmobile and motocross driver. After a broken back, at the risk of being crippled, he made his way back to the sport with a lot of persistence while also exploring new opportunities for the future. One of the projects was Norrlands Industri och Konsult AB otherwise known as NIKAB.

NIKAB's services were quickly appreciated and the company grew rapidly with the three resorts of Piteå, Skellefteå, and Umeå now established and assignments all over the world. Just over a year ago, Tim Marklund's racing buddy Adam Thomelius joined as a partner. Together, they have built a strong team of around 40 employees to date with the business continuing to grow both in Sweden and the rest of the world as more and more customers discover the company's capabilities.

Creative solutions and sustainability

There are always new things going on at NIKAB and so Water Jet Sweden took full advantage of the chance to have a chat with Ida Määttä, head of HR and organisational development who explained: "We work

with welding and industrial repairs, all forms of maintenance and new construction. We solve most things for industrial plants. In the immediate area, customers largely consist of the large industries such as mines and pulp industries, but we work on all kinds of exciting projects. It can be projects as diverse as creative bar interiors or an

all over the world. For example, now we work in Kazakhstan where we weld in ABB's electric motors and soon we will be going to Peru. These customers come to us because we have such skilled welders and can deliver welding assignments with high quality and precision. Plus sustainability is important."

Recently NIKAB has invested in new premises and the addition of a waterjet cutting machine. Ida Määttä explained why: "We represent creative solutions and sustainability. If it is possible, it is better to repair instead of buy new. We'll figure it out most of the time. Nothing is impossible. That's why it is good to have a waterjet cutter."

Waterjet cutting for improved service

For NIKAB, waterjet cutting was a completely new technique. In connection with the procurement of a new machine, Johan Ceder, who has many years of waterjet cutting experience, contributed with special expertise. Today, he is employed at NIKAB with responsibility for waterjet cutting.

Waterjet cutting is a non-thermal cutting method using only natural sand and water to cut almost any material. The brittle cutting process give a smooth cutting surface with no slag or heat affected zones with less need for post processing. All materials can be cut by the one waterjet machine, from soft

individual who needs a special staircase."

NIKAB helps a wide range of businesses from local companies to major international players such as Smurfit Kappa, Northvolt, Skanska, ABB, WT Energisystem, and LKAB.

Ida Määttä explained: "We are quite well known in Norrland and Sweden but what is not so well known is that we have customers



Waterjet specialist Johan Ceder in front of his NCT 30 from Water Jet Sweden

rubber and plastics to the hardest metals and ceramics. A CNC operated waterjet cutter ensures identical parts independent of volumes and with a minimum amount of waste material.

Johan Ceder says: "The basic idea is that you can do most things with a waterjet cutting machine. We work with industry in a very expansive region, with companies such as Northvolt, LKAB, and several paper mills where downtime costs a lot of money. They want their parts now and not in three weeks. With our own waterjet cutting machine, we get short lead times and can ensure that we deliver the best products. With our own machine, we can be more innovative and test new solutions."

Just as in NIKAB's own operations, quality, guarantees, support and spare parts were important in the choice of waterjet machine supplier where reliability and sustainability was key.

Johan Ceder adds: "Everything has worked out exactly as I expected since we installed it two years ago. No strange surprises. The old machine could sometimes mess things up by itself, but it never

happens with the machine from Water Jet Sweden. It always delivers according to plan."

As a natural process, there is much to be gained by fine-tuning the settings used for waterjet cutting to optimise the cutting result. "I notice that the support team really knows their stuff and has been around for many years. They are quite skilled. I always get good help and the spare parts always come quickly when I order," adds Johan Ceder.

Towards new goals

Lennart Svensson, CEO of Water Jet Sweden, states: "NIKAB is a young organisation and the company has the future ahead of it. We are proud to be part of helping them on their journey of success."

For more information or to get a quote on any waterjet cutter machine, contact WJS on 01937 845499 or via email:

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NIKAB is a fast-growing industrial services company based in Sweden working mostly in service and maintenance, refurbishment and new construction as well as consulting



Left: NIKAB's sought-after welder in action. Right: Customers in the immediate area can be large industries such as mines and pulp industries

services. Two young powersport acers lead the business with the same courage, creativity and persistence that have characterised their sporting careers.

Water Jet Sweden UK is the authorised UK partner for Water Jet Sweden, a leading manufacturer of precision 2D and 3D waterjet cutters.

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AAG introduces new M-Series of waterjet cutting machines

Leading supplier of CNC machining solutions to a wide range of industries, AAG has now added the M-Series of large-format waterjet cutting machines to its WARDJet portfolio. It includes a number of new design features that enable easier access to the material being processed, faster cutting speeds and maximum utilisation of the processing bed area to further reduce material wastage.

The M-Series is available in a choice of four different-sized models, 2540, 5040, 7540 and 10040, with respective cutting envelopes of 2.5 x 4.0, 5.0 x 4.0, 7.5 x 4.0 and 10.0 x 4.0 metres. Purpose-built for the cutting of industry-standard material sheet sizes, the M-Series incorporates WARDJet's proprietary MOVE intuitive software that encompasses multiple machining functions. It also features a triple-head cutting configuration that enables radically increased productivity levels and easier switching from single- to triple-head cutting, contingent upon the size and volume of the material being processed.

A new gantry design makes it easier to load and offload material while the machine is running, with the integrated helical rack and pinion drive system featuring a multi-teeth configuration enabling cutting speeds of up to 35 m/min. This system also ensures more even distribution of the workload, quieter machine operation and ultimately a longer than normal machine life.

The latest Apex-60 5-axis cutting head further extends the performance of the M-Series and in particular its ability to handle three-dimensional work. Key benefits of the Apex-60 include the ability to cut any angle from 0 to 60 degrees, thereby opening up many new possibilities and applications.



The Apex-60 also greatly increases the speed and efficiency with which ancillary finishing can be carried out that would otherwise require additional machine shop staff and add to operating costs. With a Z-travel capability of 304.8 mm, the Apex-60 will also accommodate the processing of the thickest materials likely to be encountered and with no compromise on quality.

In common with all waterjet cutting machines supplied by AAG, the M-Series will handle a wide range of materials that traditional CNC routing/cutting systems cannot effectively handle. Typically, these include stainless steel and other non-ferrous metals.

The M-Series is fully upgradeable to meet customers' future production requirements and supported with free product training and ongoing online technical support.

AXYZ Automation (UK) Ltd Tel: 01952 291600

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Central program management of robot systems

New module for CLOOS digitisation platform: C-Gate.PG

Carl Cloos Schweisstechnik GmbH has introduced a new module for the C-Gate IoT Platform. The C-Gate.PG program management module provides robot programs at a central location for robots and applications. This allows users to easily reload, save and organise programs for their CLOOS robot systems via network. With C-Gate.PG, robot programs can be used centrally in the network for all CLOOS systems. They do not have to be stored on a robot but can be reloaded as needed. An updated robot program can also be saved on C-Gate.

Integration with Carola EDI and RoboPlan

The programs are available in file format via a WebDAV interface. This can be integrated as a network drive under Windows or used to back up programs. The file structure is compatible with Carola EDI and RoboPlan thus allowing easy integration of the applications with C-Gate. A connection between C-Gate and the CLOOS program editor Carola EDI allows parallel development of robot programs from several PCs in the network.

Traceability of all program changes

In the future, C-Gate.PG will offer the possibility to search and restore older versions of programs. This functionality makes it possible to trace program changes and their influence on the production. Furthermore, an automatic synchronisation between the robot and C-Gate is planned as well as an extended organisation of programs.

Monitoring and control of production processes

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 digitisation strategy.

C-Gates IoT Hub and Connector

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. The C-Gate IoT Connector enables the offline provision of IoT hub data as well as the secure transmission and buffering of device data. Another

advantage is the separation of the machine network and other networks.

Further innovations of the C-Gate IoT Platform

The C-Gate IoT Platform can now also be used with the new QINEO QuesT TIG welding power source. In the dashboard, widgets can now be set with a user-defined time window. In the case of a component count, it is now possible to display this on the basis of production steps. In addition, devices can be grouped with tags for the display of statistics.

In addition to German, English Chinese, Polish and Portuguese, the C-Gate IoT Platform is now also available in Italian, Russian and Spanish.

For further information visit: <https://c-gate.cloos.de/>



The new module C-Gate.PG offers a central program management of CLOOS robot systems

Robot and welding technology from a single source

Since 1919, Carl Cloos Schweisstechnik GmbH has been one of the leading companies in welding technology. More than 800 employees all over the world realise production solutions in welding and robot technology for industries such as construction machinery, railway vehicles, automotive and agricultural industry. The modern CLOOS welding power sources of the QINEO series are available for a multitude of welding processes. With the QIROX robots, positioners and special purpose machines CLOOS develops and manufactures automated welding systems meeting the specific requirements of its customers. The special strength of CLOOS is in its widely spread competence. From the welding technology, robot mechanics and controller to positioners, software and sensors, CLOOS supplies everything from a single source.

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