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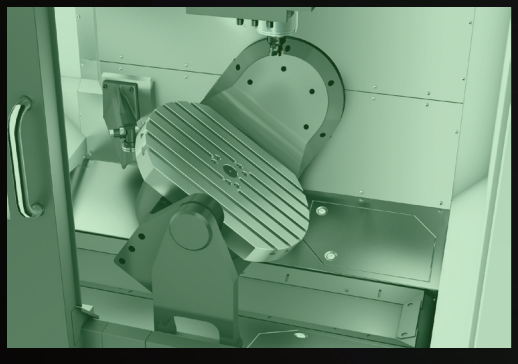

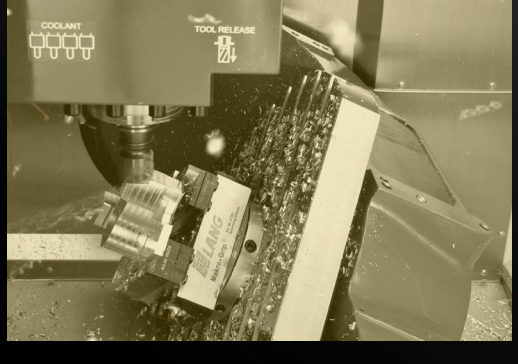

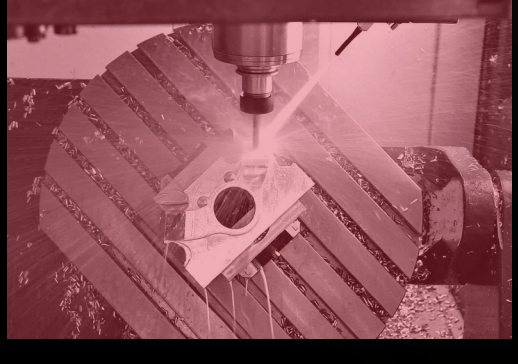

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CONTENTS

NEXT ISSUE SEPTEMBER 2015

EMO 2015 PREVIEW
AEROSPACE REPORT
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Free probing package with all new XYZ vertical machining centres

Customers ordering a new vertical machining centre from XYZ Machine Tools before the end of August 2015 will also benefit from a Renishaw probing package valued at £3221 plus VAT, totally free of charge. The new Primo probing system is a new concept in probing technology and how it is presented to the end user, making use of a licensing system with user tokens valid for six months allowing customer to spread the cost of probing. With the offer from XYZ Machine Tools all of the initial cost and the first six months of use are taken care of at no cost to the customer.

This Renishaw probe deal is available on any of XYZs range of VMCs ordered before the end of August 2015 and the total package includes a Renishaw Primo Radio Part Setter Probe, a Primo Radio 3D Tool Setter along with Primo Total Protect enhanced warranty and six months of user tokens.

At the end of the initial six month period customers have the option of purchasing additional six month user tokens, that include ongoing support of Primo Total Protect (PTP), purchase a lifetime user token (this excludes PTP), or hand the probing system back to XYZ.

Nigel Atherton, managing director of XYZ Machine Tools, says: "The benefits of part and tool probing are well known, but for lower cost machining centres the investment in probing, which could have been as much as 15 percent of the machine cost was prohibitive. With the license style arrangement of the Renishaw Primo system, these customers can make use of the 'pay-as-you go' use of the probe. With XYZ Machine Tools eliminating the initial cost of the probing package, this is an ideal way for customers to take advantage of the productivity gains that probing can bring, with no financial risk to themselves."

Another feature of the Renishaw Primo system is its use of FHSS radio transmission which eliminates the need for any wires connecting the part and tool probe, making their use and installation extremely straightforward and, in the case of the table mounted tool probe, repositioning is quick and easy when required. Other aspects of the system are identical to existing Renishaw OMP40 and TS27R so, if you already use these probes there is no requirement for additional operator training.

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Haas F1 Team on schedule for 2016 debut

Haas F1 Team is on schedule to make its debut in the FIA Formula 1 World Championship in 2016, becoming the first American-led Formula One team in 30 years. Getting a start-up team to the grid is a massive logistical and technical undertaking, but under the leadership of team principal Guenther Steiner, Haas F1 Team has many vital pieces already in place despite the 2016 season being a year away.

Augmenting Haas F1 Team's United States home in Kannapolis, North Carolina, is the recent purchase of a facility in Banbury, Oxfordshire. The 39,350 square foot (3,655 square metre) building will serve as Haas F1 Team's European base, allowing for easier and quicker access to the team's overseas suppliers and streamlined logistics for when the team travels to Formula One venues in Europe.

Construction of the team's equipment, from transporters to the pit apparatus to garage setup, is well underway. Upon completion, all will be housed at Haas F1 Team's Banbury location.

Key personnel have also been added, notably Dave O'Neill as team manager, Rob Taylor as chief designer and Ben Agathangelou as chief aerodynamicist.

Dave O'Neill came to Haas F1 Team from Marussia F1 Team, joining what was originally Manor GP in 2009. His experience is quite valuable to Haas F1 Team, for his task upon joining Manor was to set up a Formula One team in six months.

Recruitment of personnel, the purchase of equipment and infrastructure, oversight of car design and supplier selection were just a few of his many duties. He was the team manager for Jordan Grand Prix from 1998 through 2005 before joining A1GP, a racing series promoted as the "World Cup of Motorsport". As the chief technical coordinator for A1GP, he set up the series and track testing of cars. During this time, he also served in the role of team manager for A1GP's Team Ireland, winning the A1GP championship in the series' fourth season (2008-2009).

Rob Taylor also joined Haas F1 Team from Marussia, where he held the post of deputy chief designer. Prior to Marussia, he was the senior design team leader at McLaren from April 2006 through December 2010. Before McLaren, he was head of vehicle design for Red Bull Racing, Toro Rosso and Jaguar beginning in 2002. Senior design roles at Arrows (1997-2002) and Scuderia Ferrari (1992-1997) were achieved after stints at Cosworth (1987-1989) and Benetton (1989-1992). His role with Haas F1 Team marks his 28th year in Formula One, a tenure that has provided a range of experience in all disciplines of Formula One design.

Ben Agathangelou paired with Haas F1 Team from Scuderia Ferrari where he managed the upgrade of the team's wind tunnel and testing systems in Maranello, Italy, in March 2012. Prior to that, he was with Dallara, serving as an engineering consultant for a number of projects for Italian racecar manufacturer dating back to 2009, which included the technical lead for the Campos F1 project, 2012 technical upgrades for GP2 and the World Series Renault, design and development of the DW12 Indycar chassis, and management of the Alfa Romeo 4C "low cost" sports road car project. He has a wealth of Formula One experience, as he was the head of aerodynamics for Jaguar and later Red Bull Racing from 2002 through 2007. He held the same role with Renault F1/Benetton from September 1999 to March 2002. He began his Formula One career in 1994 with McLaren as an aerodynamics analyst, moved to Tyrrell in August 1997 as senior aerodynamicist and then joined Honda Racing Development in April 1998 as chief aerodynamicist to prepare Honda's 2000 Formula One entry.

Ben Agathangelou and Rob Taylor have already designed the 60-percent scale model of the car Haas F1 Team will race in 2016. The duo has logged numerous hours in the wind tunnel it shares with Haas F1 Team technical partner Scuderia Ferrari. By working diligently to develop the scale model, Haas F1 Team will be ready to go racing in 2016.

Melbourne, Australia, serves as the kickoff race for the Formula One season. It is where Haas F1 Team will make its debut following preseason testing. Haas Automation, Inc., the CNC machine tool builder Haas F1 Team chairman Gene Haas founded in 1983, will serve as the team's primary sponsor.

In addition to Haas F1 Team, Haas' motorsports holdings include Stewart-Haas Racing and Windshear.

Stewart-Haas Racing is co-owned by Haas and Tony Stewart. The organisation won the Sprint Cup championship in 2014 with driver Kevin Harvick to earn the team's second championship in four years. Driver-owner Stewart won the team's first Sprint Cup title in 2011. Stewart-Haas Racing fields four entries: the No. 14 Bass Pro Shops/Mobil 1 Chevrolet for Stewart, the No. 10 GoDaddy Chevrolet for Danica Patrick, the No. 4 Budweiser/Jimmy John's Chevrolet for Harvick and the No. 41 Haas Automation Chevrolet for Kurt Busch. The team operates out of an 18.581 square-metre (200,000 square-foot) facility with approximately 280 employees.

Windshear is a 290 kph (180 mph) rolling-road wind tunnel in Concord, North Carolina, that is the first of its kind in North America. Founded by Haas, it is only the third rolling-road wind tunnel of its scale in existence and the world's first commercially available, full-scale, rolling-road wind tunnel. Windshear is available for hire to all motorsports teams and auto manufacturers. NASCAR, INDYCAR, sports car and NHRA teams utilise Windshear, as does the United States Council for Automotive Research (USCAR), which has conducted tests on production cars at Windshear.

Haas Automation Inc. is America's leading builder of CNC machine tools. Founded by Gene Haas in 1983, Haas Automation manufactures a complete line of vertical and horizontal machining centres, turning centres and rotary tables and indexers. All Haas products are built in the company's 93,000 square metre manufacturing facility in Oxnard, California and are distributed through a worldwide network of Haas Factory Outlets that provides the industry's best sales, service and support while offering unparalleled cost-to-performance value.

More information can be found at: **www.HaasCNC.com, on Facebook at www.Facebook.com/HaasAutomationInc** and on **Twitter @Haas_Automation**

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Kennametal partners with AMRC

Kennametal has announced that it has entered into a partnership with the University of Sheffield Advanced Manufacturing Research Centre (AMRC) with Boeing.The AMRC is a world-class centre for advanced machining and materials research for aerospace and other high-value manufacturing sectors and identifies, researches and resolves advanced manufacturing problems together with its partners. It is a partnership between industry and academia, which has become a model for research centres worldwide.

John Palmer, Kennametal's technical program manager Aerospace in the UK, has taken over the technical lead of this cooperation and coordinates research and development projects with Boeing, Airbus and Rolls Royce on-site at the AMRC:

"Driving application research in the aerospace sector at this highly sophisticated and technology-leading research centre is one of the key elements of my job," he says. "With our membership in the AMRC we will have access to AMRC's resources and generic research and, together with our expertise, we can help shape and determine the direction of future programs. This will help us strengthen our position in various advanced manufacturing sectors. These future leading projects will also enable us to increase our aerospace footprint in the market and win future opportunities" he proudly adds.

"This is a significant investment for Kennametal which will create many opportunities for our business and foster Kennametal's position as an innovative technology leader. With this partnership we are in a position to expand our expertise in the aerospace sector and leverage collective experience in machining methods for advanced materials. We are looking forward to a long-term collaboration and are proud to be working together with other manufacturing businesses and institutions, from global aerospace giants to local SMEs, on individual research and business support projects." comments Neil Walker, director sales Kennametal Tooling NEMEA.

AMRC executive dean, Prof Keith Ridgeway, CBE says: "We are delighted to

welcome fellow Boeing Supplier Excellence Award winner Kennametal as one of our 80-plus industrial partners. We look forward to working with them to push the boundaries of manufacturing even further in future."

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Precision machining in record time

toolcraft produces high-precision components for the LMP1 team from Porsche, with technical expertise and state-of-the-art CNC technology from DMG MORI

MBFZ toolcraft GmbH has impressed customers from the aerospace, optical and medical equipment industries with its fast and reliable production of precision parts since its foundation in 1989. More than 260 quality-conscious employees ensure smooth processes in a production area of 10,500 m².

The company has extensive experience in the motorsport and automotive sectors and consequently has been able to include the Porsche team in its customer base. For three years now, toolcraft has produced high-precision components for the LMP1 team from Porsche. toolcraft meets the high demands of the team with the necessary technical expertise and a diverse machine portfolio that it has expanded over the years. The 15 CNC machine tools from DMG MORI are part of its flexible, high-precision production suite.

toolcraft's commitment to motorsport started in the year 2002 when BMW entered Formula 1 racing with its own team. Christoph Hauck, one of the managing directors of toolcraft along with Bernd Krebs and Karlheinz Nüßlein, recalls the cooperation with the people from Munich: "We got to know the motorsport world from scratch in the nine years we supplied BMW as its exclusive partner for metal cutting."

Christoph Hauck (left), managing director at toolcraft, with the people responsible for Porsche, project leaders Stefan Auernhammer (centre) and Robert Renner

toolcraft continued to benefit from the experience it had gained even after BMW's withdrawal from the Formula 1 team. Today the company supplies complex and time-critical precision parts for in total eight teams. Racing stables from other series have also approached the experts from Middle Franconia, for example teams from the Le Mans prototype Class 1 (LMP1), which compete in the FIA World Endurance Championship (WEC).

Precision components for the Porsche 919 hybrid

The LMP1-class Porsche team is among the most recent customers from the motorsport sector. Only very experienced and competent suppliers are allowed on board for the development and construction of the Porsche 919 hybrid.

Speaking about the cooperation, Christoph Hauck says: "Our strengths are really given free rein here, so we can participate directly in the team's success."

The toolcraft portfolio encompasses the entire range of machining. Again and again the company gains a technological edge with innovative manufacturing solutions such as metal laser melting as well as the use of pioneering methods in quality control such as fluorescent surface inspection in the field on non-destructive testing and optical measurement.

He sees the success of the cooperation with Porsche and other customers in the corporate philosophy of giving employees responsibility for whole projects: "Our experts accompany the complete development phase of a component, from construction and programming to production on the machine and on through to final quality control."

In view of the extreme complexity, the demands on quality and time pressure this requires a high degree of expertise.

"This also motivates every single employee to give his very best", explains Christoph Hauck. "It is only if the workpiece is produced in a medium-sized series that the support of production assistants is needed."

In addition to tactile measurement the extensive quality control also includes surface testing under UVA light

This process orientation is one of the reasons that toolcraft puts a lot of energy into training its staff. Currently 30 trainees are learning the craft here from the bottom up.

"Everyone must first get a feeling for the materials and the different machining options before they can exploit the full potential of modern CNC technology", explains Christoph Hauck.

Technological pole position with state-of-the-art machine tools

The toolcraft machine portfolio certainly does offer enormous potential. As well as other machines, the 15 from DMG MORI include CTX beta lathes, DMU duoBLOCK® 5-axis machining centres, DMU eVo series and travelling-column machines from the DMF series.

"High-performance and high-precision machine tools are a must for the efficient production of precision components", comments Christoph Hauck on the choice from the leading machine manufacturer. What is more, the extensive product range from DMG MORI enables maximum diversity and flexibility in production. Good examples of this are the automatic machining centres at toolcraft: the DMU 60 eVo is equipped with a WH 150|8, which in this case increased the standard number of eight pallets to ten, while the DMC 125 U duoBLOCK incorporates a rotary magazine that guides a total of six pallets through the system.

Wheel mount; milling with the DMC 125 U duoBLOCK The material: special variant aluminium

Diversity and flexibility are also reflected in the component portfolio at toolcraft. From rotary slides for air regulation in the carburettor to temperature-resistant manifold flanges in nickel-base alloys and on to heavy-duty wheel mounts, there is virtually no mechanical component that cannot be manufactured.

"In motorsport as well as in other

toolcraft uses high-precision and efficient 5-axis machines to manufacture complex precision parts such as this wheel mount

Above and below: Additive manufacturing: DMG MORI combines laser deposition welding and milling in a single setup with the LASERTEC 65 3D

branches we are mostly challenged with complex single parts or very small series" continues Christoph Hauck.

"This very often includes components for the research and development sector.

"But what all our products have in common is their high standard of quality, for which extremely advanced methods are usually required in production."

At this point Christoph Hauck mentions another key factor, namely the high degree of innovation, which makes CNC technology from DMG MORI the obvious choice: "As we regularly update our machine park, we are always one step ahead where production is concerned."

For this reason, he also sees the latest new developments, such as the LASERTEC 65 3D, in a positive light. "Metal laser melting has long become part of our everyday operations, but for the further milling operations we still need a second machine", explains Christoph Hauck regarding the current operational sequence.

The LASERTEC 65 3D with its combination of laser metal deposition and milling on a single machine could constitute another step forward in future in the field of complex geometries.

Customer satisfaction thanks to faultless products

toolcraft has consistently pursued a path that promotes progressive ideas. Its sights are always on the future, both on the side of technology as well as on an economic level.

Company founder Bernd Krebs already established a proprietary software company for complete CADCAM solutions back in the 1990s. Since then Unicam Software GmbH has been the distribution partner for Mastercam and Solidcam in Germany, Austria and Switzerland. toolcraft has also continuously expanded its production area, most recently in 2012 when the floor space was enlarged by another 3,000 m².

The orders received from the motorsport sector are a prominent flagship for toolcraft. They are a clear indication of the high level at which that company also works for leading companies from other sectors. Whether safety-relevant structural parts for the Airbus A350, A400M or the Eurofighter are concerned or filigree housing components for the Leica M9 Titanium, one of the most expensive digital cameras in the world, toolcraft seeks the challenge in the high standards of its customers and convinces with faultless products. For Christoph Hauck this goes without saying: "Our target is the absolute satisfaction of our customers."

DMG MORI and Porsche

Since 2014 DMG MORI has been the Premium Partner of the Porsche team in the FIA World Endurance Championship (WEC). Under the motto "Mission 2014 Our Return," Porsche returned to the LMP1 class of the FIA World Endurance Championship

(WEC) after an absence of 16 years. DMG MORI will again be supporting the Porsche team as a technology partner in the coming 2015 season in the top class of the World Endurance Championship for sports cars.

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New products galore at 600 UK Open House

600 UK unveiled a range of new products at a special three day Open House event last month. Visitors were also provided with the opportunity to tour 600 UK's manufacturing facility that was significantly reconfigured and modernised through a £750,000 investment project completed last year.

Included in the raft of new product offerings were exciting additions to the Colchester and Harrison lathe ranges, Pratt Burnerd International workholding and the introduction of the hugely successful North American Clausing range of machine tools to the European market for the first time.

Chief among the many new product launches are brand new designs of the 'market benchmark' variable speed centre lathes, the Colchester Master and Triumph VS series that now incorporate a newly introduced ergonomic design to give customers even greater value in the training and subcontract workshop environment.

The new Colchester Triumph variable speed centre lathe

Additionally, the event saw the relaunch of the updated Harrison M390. This geared head version of this ever-popular centre lathe gives highly accurate cutting performance and productivity with minimum setup times.

Another new product from Harrison is the EziTurn 330 lathe. The EziTurn 330 has been designed to bridge the gap between conventional and CNC lathes by combining the capabilities of the centre lathe, with the added capability of automated cycles on a simple, easy to use touchscreen control.

Primarily aimed at the education sector, the EziTurn lathe could easily be utilised in the workshop environment, with the absolute minimum of training for operators and fills the gap between conventional and CNC, so needed by many.

Pratt Burnerd International launched a new chuck force measurement gripmeter that can accurately measure chuck gripping forces on all makes of chuck effortlessly and within seconds. The Gripsafe gripmeter has been developed to help customers comply with health and safety legislation and for many lathe users in both industrial and educational establishments is already proving to be a huge asset, ensuring that their chucks remain fit for purpose.

Harrison Alpha XC Combination CNC lathe with C-axis capability

If all this wasn't enough, 600 UK also launched the US market leading Clausing brand to the UK and Europe, starting with the introduction of a variable speed drilling machine and a manual surface grinder that was in operation and on display during the Open House. These machine tools retain the build quality and great value of every other 600 UK machine and are sourced from 600 Group's North American subsidiary, Clausing Industrial of Kalamazoo, Michigan. The drill and grinder that have been introduced are perfect examples of this high quality workshop equipment.

All these new products were exhibited alongside Taper Roller Bearings from Gamet Bearings, Pratt Burnerd International's manual and power chucking ranges and laser marking systems from Electrox, all market-leading brands from 600 Group Plc.

The new Harrison EziTurn lathe with automated cycles and touchscreen capability

Mike Berry, 600 UK managing director said "These are exciting times at 600 UK and we are really proud of the efforts that our staff have put into bringing these products to market. The addition of new products does not stop here and we are already developing further significant additions to all product ranges to satisfy and better fulfil our customers' future demands".

New Harrison Alpha XS combination lathes fulfill heavyweight turning demands

As part of its comprehensive new product development programme, 600 UK has introduced two new heavyweight additions to the hugely successful Harrison Alpha XS Manual / CNC lathe range.

The heavy duty Harrison Alpha 1660XS and 1760XS models have been specifically designed in response to increased customer demand for turning larger diameter components accurately, efficiently and more cost-effectively. These new Alpha 1660XS and 1760XS large capacity lathes are designed to fit perfectly into the existing range, offering customers even more choice when choosing the bestselling combination lathe in the world. They perfectly complement the hugely successful Alpha 1350XS, 1400XS, 1460XS, 1550XS and super heavyweight Alpha 2800XS.

Both the Alpha 1660XS and 1760XS machines offer a high powered 18.5 kW motor with 105 mm spindle bores (1760XS model has an optional bore of 155 mm), outputting a spindle speed of 2000 and 1400 rpm respectively. Both models are of cast iron construction to give maximum stability and can be specified with a centre

distance from 1.5 metres up to 4 metres, giving class leading heavy duty turning performance and accuracy for even longer and larger diameter components.

The Alpha 1660XS and 1760XS models are fitted with the same unique Fanuc 0iTD / Harrison Alpha control system as the rest of the range. This Alpha control offers customers huge flexibility through the unique Harrison control, allowing four ways of working for the operator, from manual turning through to full CNC production incorporating Harrison's well-established Alpha System, which is widely acknowledged as the most simple and intuitive system in the world to use.

600 UK sales director, Howard Bamforth says: "Through our product development programme, we are constantly looking to improve and expand our existing product offerings. Our Harrison Alpha combination lathe range is exceptional and we have listened to our many satisfied customers whose feedback demanded increased capacity whilst retaining the unique, operator friendly, Alpha control flexibility. We are delighted to satisfy this demand for higher specification products and to extend the Alpha range in the shape of the new Harrison Alpha 1660 and 1760XS models."

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NCMT displays its impressive portfolio

The extensive range of machine tools, tooling and ancillary products offered in the UK and Ireland by NCMT under numerous sole agency agreements, mainly with Japanese companies, was presented at an Open House held at the company's Midlands showroom and technical centre in May.

From the Japanese manufacturer, Okuma, there were three machining centres, including a 5-axis model with an integral torque table for turning components in the same setup and four CNC lathes, two being Multus multi-tasking mill-turn centres. All machines were under power producing demonstration components that illustrated the strengths of the machines. Every exhibit had a related video running adjacent to it, three of which captured live footage from a camera in the machining area.

The Okuma MA600HII horizontal-spindle machining centre (HMC) is a twin automatic pallet change model on show for the first time in the UK. It was equipped with a 45 kW spindle capable of cutting with 1071 Nm of torque for three minutes (680 Nm continuous). On one pallet, it was demonstrating its high power by taking a
15 mm depth of cut from a steel block (EN8) with a 150 mm diameter face mill at 800 mm/min feed rate.

On the second pallet, Okuma's novel TurnCut software for generating rotational features on its HMCs was explained during production of an EN8 manifold-type test piece.

Turn-cutting was introduced by Okuma at EMO 2007 in Hannover, but many UK manufacturers still do not understand its advantages. The process is different from conventional turning operations on a machining centre, which normally involve a static turning tool in the spindle and a component rotating on a torque table. Instead, the component remains stationary on the table of an Okuma HMC while a lathe boring bar mounted in the machining centre spindle describes a 360° motion to effect the turning action.

This is achieved using circular interpolation of the X and Y axes to generate almost any size of feature, while feeding the tool forward in the Z axis. At the same time, the tool tip is continuously orientated by the spindle, which turns at the same rpm as the interpolated circular motion to maintain the correct rake angle.

The big advantage is that a standard boring bar for a lathe can be programmed to turn outside diameters and bores, which can be

straight, tapered, stepped or profiled, as well as radiuses, chamfers, grooves and faces, eliminating the need for special tooling or attachments. Fixturing costs are also lower. The process may be seen in action at the following URL: **www.youtube.com/watch?v=6HDMoafaRWc**

While large diameters can be turned in this way, at the Open House small ports were generated during Op 1 by first through-drilling with an indexable-insert drill and then using the same cutter in Op 2 to machine the inside diameter, including a thread and groove, in turn-cut mode. Op 1 also included pocket milling, followed by finish milling during Op2 and finish turn-cutting of the ports with a second turning tool.

The same MA600HII machining centre was used to demonstrate Okuma's established Thermo Friendly Concept, based on temperature sensors built into its machining centres and lathes, which allows them to achieve high accuracy machining in a normal shop floor environment. Tests have shown thermal deviation to be less than 10 microns over a 24-hour period, despite a variation in ambient temperature of 8°C. The Thermo Friendly Concept is applied to both the machine structure and the spindle, and requires the use of 0.1 micron resolution linear scales (manufactured by Okuma) in the orthogonal axes.

The other top-end machining centre at the open house was the Okuma MU-6300V-L vertical-spindle 5-axis mill-turn model, launched in the UK at MACH 2014. With a working volume of 925 x 1,050 x 600 mm, the machine is designed to accept large workpieces up to 830 mm diameter, 550 mm in height and weighing 600 kg. It is ideal for multi-sided machining of complex parts in one hit, especially in the energy and aerospace industries. Rapid traverse of 50 m/min in the orthogonal axes minimises non-cutting times and promotes high productivity.

A rigid and accurate double column structure supports a +90 / -120° trunnion table, which provides two rotary CNC axes. Twin roller gear cam drives on the trunnion (A-axis) and a direct drive motor for the 630 mm diameter rotary table (C-axis) deliver smooth movements for top quality machining at high speed. The centre of gravity of the trunnion table and hence of the workpiece is low, enabling both heavy duty cutting and high speed finishing. The -L variant of the machine includes the ability to turn components on the torque table at up to 700 rpm using a static tool in the spindle.

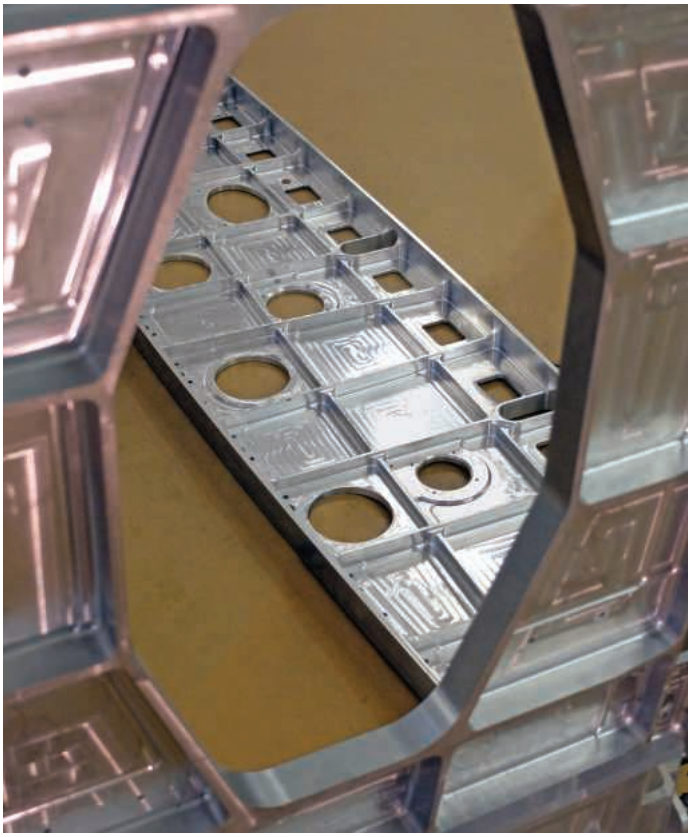
The OSP-P300M control provides fully interpolative 5-axis machining. At the show, the machine was devoted to demonstrating Okuma's 5-Axis Auto Tuning System for geometric error measurement and correction. It was introduced to UK customers in early 2014. When the operator instigates the auto tuning cycle, the machine automatically measures geometric error using a touch probe and datum sphere and performs compensation, using the measurement results to tune the movement accuracy.

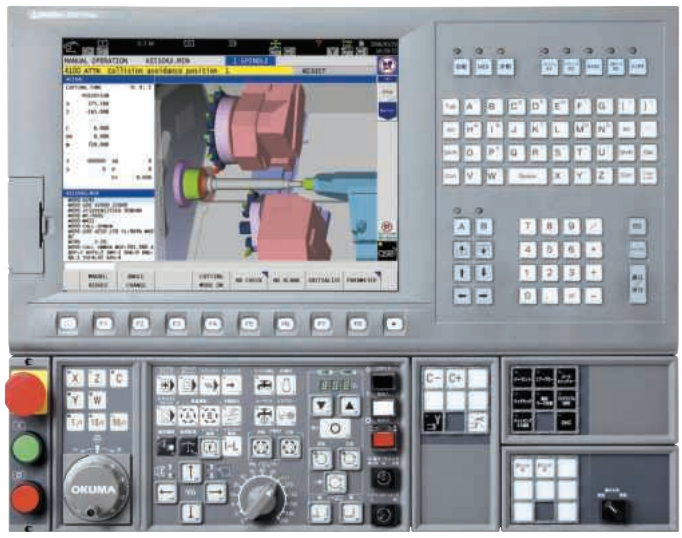
The third Okuma machining centre in the showroom was the Genos M560R-V, a vertical-spindle machine that includes Thermo Friendly Concept sensors with data feedback to the control, despite it being an entry-level model.

This machine's main role was to demonstrate a new photo-activated adhesive workholding system called Blue Photon, never seen before in the UK. It was developed at The Pennsylvania State University to fixture difficult-to-hold parts for tight-tolerance machining and inspection. NCMT announced at the open house that it has been appointed sole agent for this workholding system in the UK and throughout Europe, with the sole exception of Spain.

New software on show included the Okuma OSP Suite user interface, launched at the JIMTOF 2014 show in Tokyo, for Okuma's proprietary CNC system. It is a suite of premium applications designed to increase the efficiency of each manufacturing process by increasing status visibility and digitising shop floor production instructions, set-up information, machine utilisation and maintenance information.

Makino's highly capable T-Series of 5-axis machining centres for milling and drilling titanium was represented by an impressive machined component, namely the inner ring for a Rolls-Royce aero engine. Data was presented which showed that a Makino T2 with HSK125 taper, 150 kW, 1,500 Nm spindle halved the cycle time for producing the component compared with the previous Makino MCD2016 machine, with big reductions in tooling costs as an added





benefit. The formidable array of Makino 5-axis MAG-series machines, capable of highly productive milling of medium to large structural parts from solid aluminium, was represented by sample aircraft ribs. There was an Airbus A380 rib measuring 3 metres by 1.75 metres, produced in 2001 at Filton on the first ever MAG4 machine to be installed in Europe. Other ribs exhibited were for an A319 and an A300, produced on a MAG3-EX using HSK-F80 taper tooling in a 120 kW / 33,000 rpm spindle.

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Wealdpark expands machining capability in under a year

Such was the success of the decision by precision subcontract machinist Wealdpark to expand its production capability and invest in a range-topping Miyano ABX-64SYY2 fixed head turn-mill centre that within weeks of the new machine's installation and commissioning the company took the opportunity at MACH 2014 to order a duplicate machine from the Citizen Machinery UK stand.

Wealdpark's business had been largely based on 12 CNC sliding head lathes that were beginning to limit the majority of its customer base to components made from up to 32 mm bar size. The business already had two Miyano BNE-51SY fixed head turn-mill centres, which extended the bar capacity to 51 mm diameter, but the company's three directors could see far greater opportunities by increasing capacity to 65 mm bar and having the flexibility to quickly change from bar to chuck, to machine parts direct from billets up to 165 mm in size.

Celebrating its 50th anniversary this year, continuous investment has proven to be a strategic move by the family-owned business based in St Helens, Merseyside. Director Phil Smith says: "In 2014, we invested over £500,000 in the two Miyano machines plus a vertical machining centre. By installing additional capacity and/or replacing equipment on a regular basis, we are not only able to profit from the latest developments but also feel this is being repaid by the fact that over 80 per cent of our work is repeat business."

He forecasts an even brighter future with the addition of the two Miyano machines giving such high levels of flexibility for setting to optimise machining cycles: "Additional work is being won and the company has the capability to take on more complex and therefore higher margin contracts."

Managing director and Phil's father, Jim Smith adds: "Guaranteed delivery, competitive pricing and, most importantly, maintaining consistent quality standards are our winning points. Last year we never received a single customer complaint or reject even though we were exceptionally busy. In fact, the company was so active that we beat all previous records for turnover and profitability with two months still to go in our financial year."

Two Miyano ABX-64SYY2s expand multi-axis fixed head turn-milling capability at Wealdpark

Wealdpark's apprentice machinist Jack Smith (right) gets a guiding hand from father Phil (left) and foreman Neil Ireland (centre)

Wealdpark's customer base spans the electrical sector with the supply of components such as specialist fuses, battery terminals, thermocouples, safety lamps and connectors; the fluid power (hydraulic and pneumatic) industry, producing piston bodies and control blocks plus the production of parts for instrumentation, defence, aerospace, oil and gas and fasteners.

Currently 25 per cent of production and rising fast, is shipped throughout Western Europe, the USA, Mexico, Turkey, Bulgaria and Hungary as well as Thailand. Jim Smith says: "With our new capacity and working knowledge of these areas, we know we have now created more opportunities to increase our export order book."

The decision to buy the first Miyano ABX was drawn out over some 12 months, even though the company maintains that as soon as a new machine is installed, it tends to quickly fill the capacity. Based on the existing installations of 12 CNC sliding heads, a Miyano fixed head BNE-51SY5 installed in 2007 followed by a used BNE-51SY, Wealdpark drew up a list of requirements based on its production practices involving unmanned running at night and single operational cycle overlapping techniques that make maximum use of the flexibility and productivity gains from two spindles and two Y-axis turrets.

As a lot of work would involve milling being a key operational requirement, power and torque was high on the agenda and the machine had to satisfy the cutting of 303, 304 and 316 stainless steels and alloy steels as well as a growing need for machining aluminium.

However, the larger machine investment and complexity of the type of work the company was planning to produce meant that it spent time to be sure of the purchase, while keeping existing customer promises against a steadily rising order book. An initial six possible contenders for the machine sale were quickly reduced to three.

The three directors Jim, Phil and Stephen paid visits to existing users of the different shortlisted machines, taking on board their experiences before finally agreeing to order the Miyano

ABX-64SYY2. The order package included FMB Turbo 5-55 bar feed, Hainbuch quick-change fixturing on each spindle, LNS Turbo swarf conveyor and Hydrafeed Rota-Rack rotary parts accumulator in order to prevent parts being marked or damaged, especially when running unattended overnight.

The Miyano ABX-64SYY is designed for simultaneous machining using its two 15kW, 4,000 revs/min main and 5,000 revs/min secondary spindles. Each spindle is supported by Y-axis cross feed turrets able to service both spindles when needed with 12 tool stations. Each turret can accept any combination from 48 fixed or 24 tools driven by 4.5 kW, 40 Nm of torque and 6,000 revs/min motors.

Wealdpark was set up in 1965 operating out of a disused toilet block in a former mustard works producing electrical industry parts such as switch gear, plugs and sockets. Jim Smith joined in 1968 as a cam auto machine setter. The company moved to the existing purpose-built machine shop that was filled with 53 cam machines and at that time employed 55 people producing volume parts such as 120,000 grubscrews a week.

The Smith family acquired the business in 1995 and purchased its first CNC machine in 2001, as Jim Smith recalls: "It so dramatically changed our business that it quickly led to CNC taking over and progressively leading to the 12 sliding heads we have today." The workforce also progressively slimmed down over time to 24 people and now includes both Phil and Stephen's sons and two other lads serving true production apprenticeships where they are being trained to run the sliding heads, Miyanos and two vertical machining centres.

For Wealdpark, a priority now is to find new premises close by in order to retain valuable skills of the workforce and to provide room for further machine installations. As vice president of the BTMA, Phil Smith will be taking further responsibility too when he becomes BTMA President in November 2016.

Twin turrets enable opposed head milling on Wealdpark's Miyano ABX-64SYY2 turn-mill centre

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The end of an era and the start of another

Mills introduces the new Puma 4100/5100 range of heavy-duty turning centres to replace the Puma 400/480 series

Mills CNC has introduced a new range of high-rigidity, heavy-duty turning centres into the market.

The new Puma 4100/5100 series replaces the popular and successful Puma 400/480 series, and is primarily aimed at precision component manufacturers machining large parts for the oil and gas, power generation and large automotive sectors.

The new Puma 4100/5100 lathes provide superior machining performance, excellent process reliability and are equipped with a number of new productivity-enhancing features that surpass their predecessors.

There are a total of 22 different machines in the new range, with customers not only able to specify different chuck size models, i.e. 12", 15", 21" or large bore, but also different machine functionalities and capabilities, for example long-beds, driven tools etc. The machines' performance and capabilities can be increased quickly and easily, without modifications, via special thread functions, tailstocks, steady rests and long boring bars.

The new Puma 4100 has a one metre maximum travel/turning length and a maximum turning diameter of 550 mm, while on the new Puma 5100 machine these are two metres and 650 mm respectively.

The new Pumas are the most powerful machines in their class. They have been designed to take tough machining operations in their stride, including heavy duty, interrupted cutting, but can also be relied upon to deliver excellent accuracies and surface finishes.

The machines are equipped with powerful, high-torque 2-speed gear-box driven main spindles, up to 45 kW and up to 3000 rpm depending on the model. Puma 4100/5100 models with driven tools are equipped with a 7.5 kW 4000 rpm milling spindle.

The new machines also feature a high-resolution BZi sensor that delivers

improved C-axis indexing accuracy, and a servo-driven indexing tool post ensures fast and reliable tool post rotation. 2-axis machines are equipped with a 10-tool position turret whereas machines with driven tools have a 12-position turret as standard.

The new lathes are packed with performance boosting features that includes the EOP (Easy Operation Package) and EZ (Manual Guide i).

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XYZ gives Omex the confidence to expand

Omex Technology has been the 'go to' designer and manufacturer of electronics for high performance road and track cars for the past 20 years, providing customers, both OEM and owners, with everything from the simplest system for limiting revs through to full electronic management ECUs for powerful V12 engines. While this remains the core of its business, the past 18 months have seen the winds of change blowing through its Cheltenham workshop, which have seen employee numbers double.

Managing director, Richard Wragg decided the time was right to expand the company's portfolio, with the first step of this development being on fairly familiar territory in the electrical field, when it set up a department to design and build full wiring harnesses. This was quickly followed by an engine build facility to provide a service to niche motor manufacturers, who wanted to use standard engines such as the Ford Zetec or Duratec, but who also needed consistent increased power. Once the wiring harness and engine build departments were up and running it was time to look at the next step in Omex's development, bringing machined parts manufacture in-house.

"For manufacturing to move forward, we knew we had to bring manufacturing in-house," says business development manager, Simon Joyce. "Having control over the machining process would allow us to guarantee quality and delivery and also give us the flexibility to develop products quickly without the delays that a supply chain brings."

However, the team at Omex were electronics experts and had no experience at all in machining, so they needed a supplier that they could trust and one that would work with them in the early stages of development.

With their extremely limited machining knowledge, Omex was reliant upon the machine suppliers to give them the confidence that it was doing the right thing. It was here that XYZ Machine Tools came to the fore.

"The conversations that Richard Wragg had with Mark Matthews, XYZ's area sales manager, reassured him that what was being proposed was the right solution for him and that the back up in terms of applications support and service would be there if it was required. Added to that, the fact that the XYZ 1020 VMC would come with a package of spindle and cutting tools from WNT (UK), a free fill of coolant from Jemtech, and Omex was also provided with the latest Renishaw Primo tool and workpiece probing system as part of the deal, made it into complete ready-to-go package, taking away any of the doubt that was there initially," says Simon Joyce.

A Zetec engine fitted with Omex's new throttle bodies and fuel injection system, with most parts being machined on the XYZ 1020 VMC

This package is fairly standard for XYZ customers as every machine comes with a tooling voucher from WNT (UK) and a free first fill of coolant from Jemtech and, for a limited time, each machining centre in the range is supplied with a free Renishaw Primo probing package.

The first machining project for Omex was the production of its own design of throttle bodies, including the machining of all of the patterns

The XYZ 1020 VMC with Paul Bate at the control

required for the aluminium castings. The brief for designer Paul Bate, who also operates the XYZ 1020 VMC, was to take throttle bodies to the next level, using lightweight castings that have material where it is needed.

"The XYZ 1020 VMC meets our needs perfectly; the 1120 x 500 mm table allows the use of a fourth axis and the ability to set up multiple parts if required. By applying modern, precision, machining techniques to what is a mature product we were able to bring it up to date and create throttle bodies that were more efficient and easier to work on and install," says Paul Bate.

Initially Omex was looking to purchase the smaller XYZ 710 VMC, but took the decision to go for the larger 1020 variant as it gave them greater adaptability when it came to fixturing parts and multi-loading components. The additional cost for the larger machine was insignificant in comparison to the productivity gains that the larger capacity gave. With its optional 12000 revs/min, 20 hp, spindle combined with traverse rates up to 20 m/min in all axes, the XYZ 1020 VMC has the agility needed to machine the variety for relatively small, but complex parts that make up the throttle body assemblies, with the high speed spindle helping achieve the high levels of surface finish required by Omex. Within a very short space of time Omex was producing 95 percent of all of its machined parts on the machine.

A wide range of parts are machined, making use of the XYZ 1020 VMC's 12000 revs/min spindle

Also making the transition from non-machinists to production machinists easier for Omex was the use of the Siemens 828D ShopMill Control on the XYZ 1020 VMC. The control's Job Shop software replicates the knowledge of an experienced machinist and puts that knowledge into basic steps that guide the operator through the programming and machine operation stages. The conversational prompts take the operator through each step of the work plan, with the control creating all of the code in the background.

"Thanks to the confidence we have gained through the combination of high quality machine tools, with the back-up of applications and service teams from XYZ, we now have the confidence to further develop the plans we have for manufacturing, with XYZ being central to those plans," says Simon Joyce.

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Victor provides turning capacity to Scottish subcontractor

Airdrie-based RMK Engineering has recently acquired a VTurn 40 turning centre from Victor CNC to provide additional capacity for its growing subcontract business.

The successful manufacturer has a history steeped in providing subcontract machining solutions to the oil & gas industry. When the machine shop needed a turning solution to extend capacity and also open the doors to turned parts opportunities beyond the 300 mm diameter of its existing lathes, Victor CNC delivered with its VTurn 40 CNC turning centre.

RMK Engineering's Bob McKechnie says: "The Victor machine proved good value for money for our business and it has given us the opportunity to take on a lot of larger work with the large capacity that we were looking for. Since buying the machine it has enabled us to take on more customers because of the capacity it gives us."

The company can now produce parts in the region of 650 mm diameter with a length of up to 2.2 m.

The Victor VTurn 40 was chosen as it is the ideal choice for machining difficult materials that demand heavy cutting. With a Fanuc 50 hp spindle and a Z-axis power of 9.4 hp, the VTurn has a two-step gearbox to further enhance the cutting torque at low rpm. This delivers power on a robust platform that provides the optimum machining performance for companies like RMK Engineering.

With a machine platform that has been created for heavy duty machining, the VTurn 40 has a 45° single block slant bed for maximum structural rigidity, which also ensures the chips fall away from the work envelope when conducting heavy machining. To further bolster the robust platform, Victor has developed this machine with box slideways that are hardened to HRC 55 for heavy cutting applications to dampen vibration.

The VTurn 40 has a rapid feed rate of 20/20m/min and a 10 tool turret as standard. This reduces non-cutting times and set-up times for the end user. Further enhancing the ease of use and setting-up, the VTurn 40 has two sliding doors at the front to provide accessibility for large parts and subsequent loading via gantry cranes.

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Deeper hole solutions from Sumitomo

Chip evacuation, the reduction in built-up edge around the drill point and a predictable and consistent life are important areas that Sumitomo Electric Hardmetal's development team are constantly improving, and this has even greater relevance when deep-hole drilling operations are involved.

Here, point and flute geometry have proven to be keys to successful applications coupled with the development of high performance coatings giving a greater surface lubricity with low levels of surface adhesion and a hard tough layer which helps to maximise wear resistance.

Three recent additions to the Sumitomo drill range, available from the Princes Risborough UK headquarters, have focused on these objectives. The SumiDrill SDP Type Power-Series is for hole sizes between 3 mm and 16 mm with depth-to-diameter ratios up to 7xD, the Super Multi-drill XHT is ideal for depth-to-diameter ratios up to 30:1 across hole diameters between 3 mm and 12 mm and the SMD Multi-drill, which is a detachable replacement head tool, for holes between 12 mm and 42.5 mm with effective drilling depths up to 244 mm.

The SDP Power-Series introduces new flute geometry which is created in an elliptical form to further improve chip evacuation from the cutting zone. The drills have a hard, tough layer PCX70 AlCrTin coating which results in extremely low levels of surface adhesion for high penetration drilling cycles on materials including

Sumitomo's SumiDrill SDPis designed for holes up to 7xD between 3 and 16 mm diameter

hardened steel up to 45 HRC, cast iron as well as aluminium and copper. SPD drills have a curved lip with positive geometry and a 140° point angle to accommodate lower cutting forces making them ideal for lower powered spindle machines.

The incorporation of Sumitomo's 'double margin' concept in the SPD drill series reduces the contact area of the tool with the material by creating more than one margin on each land of the cutting edge and on the heel of the tool which is adjacent to the 30 deg helix angle fluting.

In the Super Multi-drill XHT, Sumitomo has applied its totally new 'HT' cutting geometry to reduce the amount of thrust required. It creates smaller chips and improves chip flow in deep hole applications up to 30:1 ratios aided by a special design of fluting. In conjunction with the company's Super ZX low friction, multi-layer nano-coating, which has a 40 percent higher hardness value, the TiAlN/AlCrN PVD coating requires lower volumes of coolant supply during the drilling operation and like the SDP incorporates the 'double margin' concept.

In customer trials using the Super Multi-drill on forged steel automotive crankshafts, four oil feed holes 5.7 mm diameter by 83 mm deep were produced at 100 m/min with a feed rate of 873 mm/min to achieve a tool life of 200 parts. Further successful trials on cast iron connecting rods

Sumitomo Super Multi-Drill XHT is suitable for depth-to-diameter ratios of up to 30:1

drilling 5.8 mm holes by 130 mm deep recorded the doubling of parts produced from 120 to 300 despite penetration rates being increased by a factor of six from 164 mm/min to 998 mm/min.

Meanwhile, for hole sizes between 12 mm and 42.5 mm and hole depths up to 8xD, the Sumitomo Multi-Drill SMD detachable replacement head system has the economic advantage enabling up to five sizes of drill to be accommodated by just one drill body. The new drill is also able to achieve hole tolerances normally only met when using a reamer. Due to the balanced design of the tool vibration and noise generated under-cut are reduced.

There are two variants of drill head: the ultra-hard and smooth PVD coating MTL ACX70 is for use in general purpose drilling and MEL ACX80 enables higher performance on lower powered machines accommodating a cutting force some 25 percent lower, thus enabling materials such as stainless steel to be effectively drilled.

The SMD multi-drill has effective drilling depths up to 244 mm for holes between 12 mm and 42.5 mm

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Hone-All completes £650k investment programme

Subcontract machining specialist Hone-All has now taken delivery of its second new deep hole boring machine from TIBO Tiefbohrtechnik. This latest addition to the plant list is a TIBO B80 deep hole boring machine that will enable the Leighton Buzzard company to increase capacity and reduce production costs at a time when the UK oil & gas industry is demanding greater efficiencies from its supply chain to counteract the falling oil prices.

In February, a German built TIBO B250 machine arrived to enable Hone-All to increase its capacity for large work whilst providing a work envelope to process parts previously beyond the scope of the existing plant list. The most recent addition, the TIBO B80 is the final stage of a £650,000 investment program that has been implemented to improve lead-times and efficiency for the subcontractor. Whereas the TIBO B250 will give Hone-All a 250 mm diameter capacity with 3.2 m machining length, the latest TIBO B80 acquisition has been added for machining up to 80 mm diameter with a machining length of 3.2 m.

Highlighting the importance of the investment, Hone-All Director, Andrea Rodney says: "The fluctuating prices in the oil & gas industry are creating an impact on the complete supply chain. Listening to our customers increasing 'cost-down' approach, these acquisitions are a rapid response by Hone-All and it will enable us to meet these demands without creating an impact upon our business. Furthermore, the new machines will enable us to alleviate any capacity issues whilst giving us the opportunity to win new business beyond the scale of our existing plant list."

Hone-All has carved a niche as a market leading manufacturer of components beyond the capacity range of most subcontract manufacturers. This is emphasised by its plant list that offers gun-drilling services from 3 to 25 mm diameter with a maximum length of 2 m, honing from 1.5 to 500 mm diameter to depths of 3 m and its large capacity turning up to 550 mm diameter with a maximum length of 4 m. With this extensive and sizeable plant list of highly productive machine tools, the two new TIBO boring centres will complement the existing plant list and take productivity and capacity to new heights.

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Enhanced subcontracting operations

Mollart streamlines subcontract and deep-hole drilling with ERP system

Mollart Engineering has commissioned a fully integrated SAP Business One ERP system across its group of three divisions and in particular, to help streamline its fast growing sub-contract production operations at the Chessington headquarters and production facilities in Resolven, South Wales.

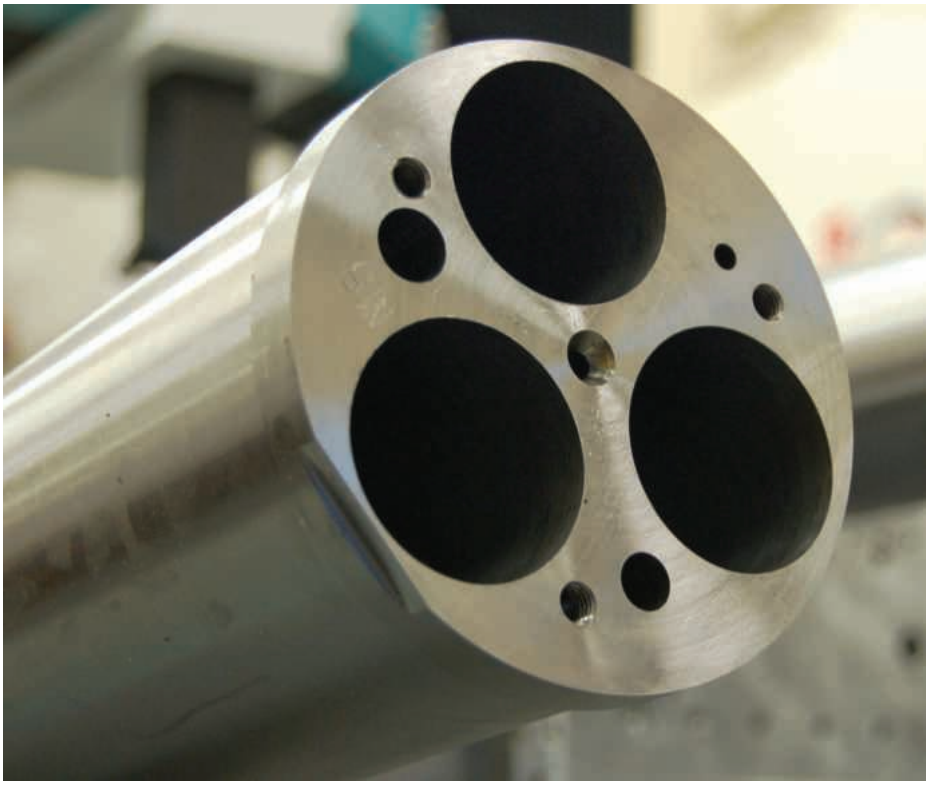
The group supplies a number of growing sectors of industry including aerospace and defence, oil and gas, subsea, medical and metrology, nuclear, semiconductor and telecommunications giving sales of over £17 million in 2014. It employs 150 people across its deep hole drilling machine tool build, drilling and surface finish tooling and the fast growing subcontract operation that achieved sales of £6 million last year.

In line with the expansion of contract machining 80 people are now employed across the two sites where some 50 CNC machine tools are installed. Several are very recent purchases including a Mazak VTC 800-30 SR6, a Doosan Puma 700LY 3.5 m bed and a Mazak Nexus Long Series Bed 1500 each capable of deep hole drilling cycles that were part of a commitment of over £3 million during the last two years.

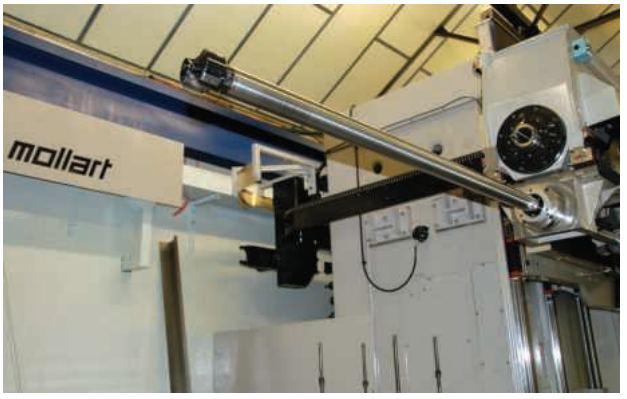
The deep hole drilling capability of Mollart's operation spans micro-machining from 0.5 mm diameter to large bores up to 300 mm diameter by 3,000 mm deep. These capacities can be applied from special purpose equipment including multi-axis single and dual spindle combined deep hole and conventional machining centres to advanced 5-axis fully integrated turn-mill centres.

While adding value to deep hole drilling processes is largely carried out using its specialist equipment at Chessington alongside the machine tool build and tooling operations, Resolven is geared to accommodate more high value complete assembly, turn-milling and machining centre tasks.

However, these too can often involve deep hole boring operations and gundrilling from solid that is carried out on its seven Mazak Integrex and the recently installed large capacity Doosan turn-mill centre and Mazak vertical machining centre, all of which are capable of producing holes upward from 1.5 mm diameter.



'Close encounters of a hole kind'. Mollart's deep hole drilling technology enables close pitch hole drilling



Mollart reaches greater depths with Centeplex

Both operational centres of Mollart provide a design for production service due to the often complex nature and combination of hole sizes in components to be machined. Here, the multi-seat 3D SolidWorks CADCAM on both sites help to close-the-loop with customers when prototyping, machining and assembly is carried out on-site. Work processing also can include the in-house facility of an ISO 7 standard clean room. This has proven critical with specialist assemblies that can include ultrasonic clean and abrasive flow deburring of very complex intersecting holes, for instance, which can almost be buried into the internal confines of high value components.

SAP took several months to effectively replace and integrate data and the various management systems that have progressively evolved over time at both facilities and is now able adapt the system to accommodate future changes to the organisation. It is also able to acknowledge and streamline existing working practices into a single accounting hub around the three operating divisions which have different agendas and demands on the system around sub-contract manufacturing, machine tool build and tooling. It provides a vital, single platform for collating and measuring profitability in terms of contract, project, customer and parts produced.

Visibility of material, work and stock flow

is important in providing early detection of shortages for final assembly. And in particular, with the production cycle time of some parts where machines installed are now able to perform what were a series of individual mutli-operational and resetting sequences into one single operation, often involving very complex hole drilling cycles. Here machine availability is critical.

Typical of the projects underway is the recent capture from the Chinese of a reshoring contract for an initial 100 batch of high pressure X-ray head units each of which involved some 45 mechanical components with several having a series of inter-connected deep holes.

These parts and especially their internal features had to be finally cleaned using the ultrasonic facility and purged with nitrogen as part of the clean room assembly routine.

An initial project for heart pumps, which are currently under customer trials, involved micro drilling of deep holes in medical grade titanium. These were produced on 5-axis machining centres followed by cleaning and assembly at Resolven. At the other end of the size scale, large chambers for use in wafer disposition machinery for microchip processing in the semiconductor industry

Mollart Prismabore combines gundrilling and conventional machining centre spindles in one machine.

have been produced and deep hole drilled on the recent Mazak VTC 800-30 travelling column machining centre.

An on-going project at Chessington involving the company's Prismabore PRB40 5-axis combination drilling and machining centre is the production of a main 114.5 mm diameter bore from solid by 1,800 mm deep through nickel chrome steel. The component has a multitude of external features including a series of angled porting holes of 7.6 mm diameter set on a pitch circle diameter each with a 7/16-20 NF thread.

Multiple hole deep hole drilling for oil and gas sector

Every port requires a deep flat bottom hole feature with several sealing conical features which are produced using one of the Prismabore's two spindles which is powered by an 11 kW, 6,000 revs/min motor. Meanwhile the gundrilling spindle, which has a two-speed gearbox develops speeds between 1,500 revs/min and 6,000 revs/min and is used to finish the 114.5 mm diameter through bore.

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Vibration damper for deep hole machining

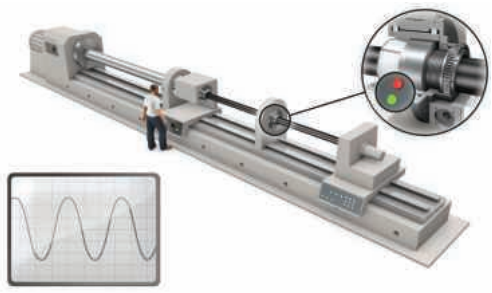
Sandvik Coromant enables high machine tool utilisation

Sandvik Coromant has introduced a new vibration damper that helps to maintain stable production during Deep Hole Machining (DHM) operations and support increased machine tool utilisation. Using the machine control adjustment unit, the new device allows operators to step away from the machine and manage process modification without hand tools or the risk of personal injury.

High material removal rates and precision are the defining characteristics when it comes to DHM, along with hole straightness, dimensional tolerances and surface finish. With this in mind, it comes as little surprise that security is paramount to success.

When producing long parts on STS (Single Tube System) machines, operators face a number of process-critical challenges. Many DHM operations are extremely demanding, pushing machining performance to the limit. This can generate higher forces and stresses within the tooling system, which in turn can become problematic in terms of vibration. As a consequence, operators are often faced with manual adjustment of the clamping unit on the vibration damper. When a large workpiece is rotating, adjusting the clamp by hand is not a straightforward operation; it is difficult to get right immediately because of the accuracy needed. What's more, the risk of injury is elevated considerably.

The Sandvik Coromant vibration damper provides the solution. The device dampens vibration, leading to first class precision and surface finish. In addition, it does this using the machine control, facilitating a stable production process, safely. There is even a self-locking unit in the event of a power loss. Of course, when vibration is under control, another benefit arrives in that excessive tool wear is no longer an issue. The result is increased machine uptime and a safer working environment. The new vibration damper from Sandvik Coromant offers bi-directional functionality, ensuring that it can be deployed for both push and pull applications.



New vibration damper from Sandvik Coromant improves efficiency and guarantees security during deep hole machining (DHM) operations

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3D Systems' latest software solutions

Wide-ranging product line provides the most advanced, all-inclusive 3D digital design-to-manufacturing solutions available today

3D Systems enables an integrated 3D digital thread covering all aspects of design to fabrication by providing a comprehensive suite of software solutions that cover everything from scanning, parts and tool design, milling, turning and MTM manufacturing, to 3D printing and inspection.

When it comes to CAM for production software, industry-leading GibbsCAM 2015 is now powered by its new Universal Kinematic Machine (UKM) engine, developed to enable greater accuracy in toolpath verification and machine simulation, while retaining its iconic and well-known shop-friendly interface.

GibbsCAM UKM is a complete re-engineering of the CAM engine and how it relates to machine definitions and machine tools, blurring the line between the definition of mills and lathes. GibbsCAM UKM was created from the ground up with no limitations so it can handle any number of axes in any direction, with multiple tools cutting simultaneously. It was designed to enable users to program and accurately simulate virtually any machine today, even machines that haven't been invented yet.

Dramatic improvements to rendering and machine simulation such as the dynamic 3D viewing of tools and toolholders in the tool dialog provide the most accurate simulation available, giving customers the confidence that what they see on the computer screen is what will happen at the machine. An entire new category of tooling has also been added called Intermediate Tooling. Also new is integration with Sandvik Coromant's Adveon Tool Library. In addition, customers will be able to program and simulate the most complex machines on the market, including machines from Bumotec, Citizen, DMG MORI, Doosan, Matsuura, Mazak, Nakamura-Tome, Okuma, Star, Tornos, Willemin-Macodel, and many others.

When it comes to integrated CAD/CAM software for mould, tool and die makers, the latest release of CimatronE 12, delivers significant productivity improvements across the board. The new and enhanced tools can dramatically ramp up productivity and minimise outlays in the design and NC programming of moulds, dies and discrete parts.

The highly-regarded NC Programming process manager gets a more customisable setup process, the ability to cut calculation time by setting the machining head before programming, and post programming visualisation.

VoluMill, the integrated Ultra-high performance toolpath brings a virtual revolution to roughing speeds with typical time savings of over 50 percent. Together with the new Rest Milling procedure and an accurate visualisation of remaining stock at any stage, a safer, more robust process can now be attained with smoother machine motion, reduced vibrations and jerks, better surface quality and longer tool and machine life.

Significant improvements have also been achieved regarding insert design, motion simulation and 3D cooling analysis. CimatronE 12 also offers new cooling design and analysis capabilities that support both traditionally drilled cooling channels as well as the conformal cooling channels that are typically manufactured using 3D printing technologies. The AMF (Additive Manufacturing File) format, a new standard for converting 3D models into digital files is also supported.

A powerful new EDM (Electrical Discharge Machining) setup can fully control the burning process of any type of machine and delivers an impressive ROI by slashing machine supervision and project completion time while operating 100 percent error-free.

3D Systems Geomagic software solutions and scanning hardware enable a complete 3D 'Digital Thread' by delivering integrated tools for scanning of physical objects direct to CAD, design, sculpting and engineering of new parts ready for manufacture through both traditional and additive methods. Geomagic Control delivers intelligent and automated 3D scanning and inspection of production parts for measured accuracy to the design data. Geomagic software solutions are tuned to work within existing CAD/CAM and manufacturing workflows as well as delivering the unique Touch haptic design tools.

To find out more about the software products, go to:CimatronE: **www.cimatron.com; GibbsCAM: www.gibbscam.com and Geomagic: www.geomagic.com**

3D Systems provides the most advanced and comprehensive 3D digital design and fabrication solutions available today, including 3D printers, print materials and cloud-sourced custom parts. Its powerful ecosystem transforms entire industries by empowering professionals and consumers everywhere to bring their ideas to life using its vast material selection, including plastics, metals, ceramics and edibles. 3DS' leading personalised medicine capabilities save lives and include end-to-end simulation, training and planning, and printing of surgical instruments and devices for personalised surgery and patient specific medical and dental devices. Its democratised 3D digital design, fabrication and inspection products provide seamless interoperability and incorporate the latest immersive computing technologies. 3DS' products and services disrupt traditional methods, deliver improved results and empower its customers to manufacture the future now.

Leadership through innovation and technology

3DS invented 3D printing with its Stereolithography (SLA) printer and was the first to commercialise it in 1989. 3DS invented Selective Laser Sintering (SLS) printing and was the first to commercialise it in 1992. 3DS invented the ColorJet Printing (CJP) class of 3D printers and was the first to commercialise 3D powder-based systems in 1994. 3DS invented MultiJet Printing (MJP) printers and was the first to commercialise it in 1996. 3DS Medical Modeling pioneered virtual surgical planning (VSP) and its services are world-leading, helping many thousands of patients on an annual basis.

Today 3D Systems range of 3D printers are ideal for production-grade manufacturing in aerospace, automotive, patient specific medical device and a variety of consumer, electronic and fashion accessories.

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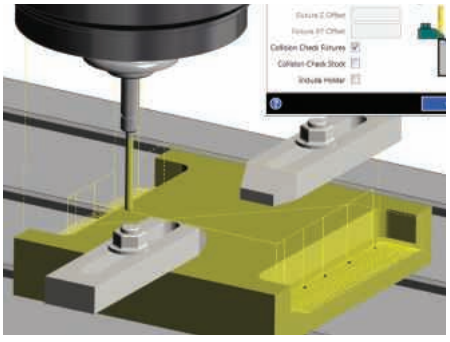
Edgecam 2015 R2

A step forward for milling, turning and wire EDM

The latest release of Edgecam's game-changing manufacturing software contains a number of important new and enhanced items of CAD and CAM functionality for milling, turning, and wire EDM.

Highlights include an upgrade to the multi spindle lathe setup, a new port machining module for its renowned 5-axis cycle, and significant time savings through the enhanced hole cycle.

Overall, Edgecam 2015 R2 has around 50 items of new and enhanced functionality. The lathe setup command has been enhanced, allowing for clearer definition of main and sub-spindle components. This leads to a better understanding of which machining features are active, and means multiple transfers can be made between spindles.

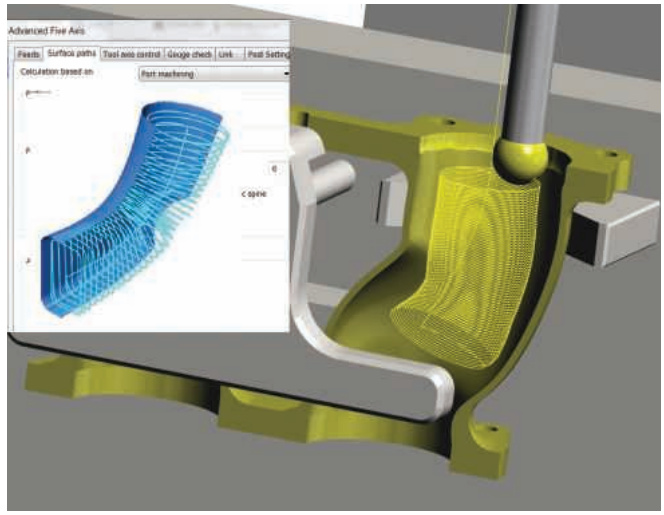


And the new spindle setup command makes it easier to edit the sequence window. Also, the sub-spindle part can be machined away from its home position.

The advanced 5-axis cycle capability has a new port machining module, offering both roughing and finishing strategies. The toolpath reaches the full area with a single path, offering two types of cut pattern.

Using the enhanced hole cycle in Edgecam 2015 R2 gives significant time savings. Where voids or intersecting holes are detected, the toolpath is automatically adjusted, increasing the feedrate while the tool is not cutting. The NC output is adjusted using the high feedrate of the machine tool.

Numerous enhancements have been made to Edgecam's internal modelling software, Edgecam Workflow Solids. For the rapid creation of uniform profiles, EWS has introduced a slotting tool command, which quickly and easily adopts any profile shape, adding width and depth to the feature. Fillets and corner blends are also supported.



Edgecam 2015 R2 introduces the ability to automatically add dimensional constraints in EWS, through the sketch analysis command. Users save a significant amount of time when creating sketches extracted from DXF/DWG files.

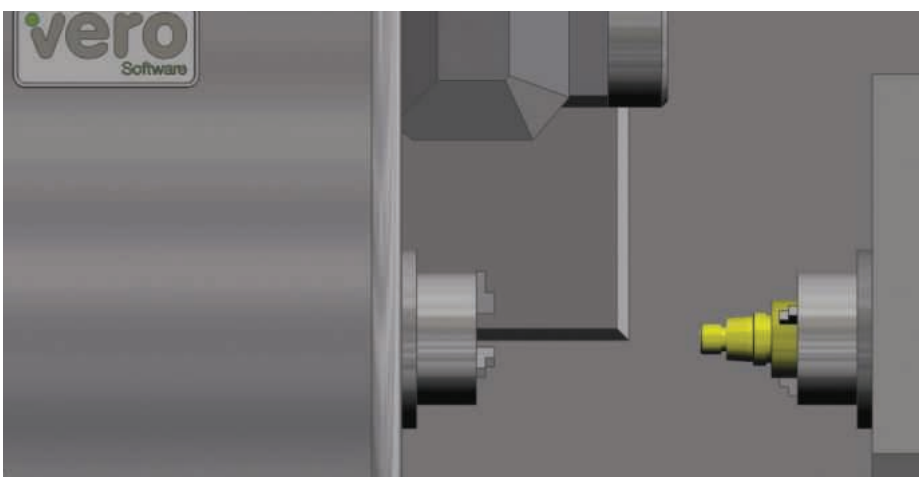
Wire EDM benefits from further advanced controls for Edgecam's 2- and 4-axis Wire EDM machining cycles. Not only has corner relief been added, but the system now offers four variants of the command. For example, where a razor sharp edge is required on external corners, the Loop control is selected...while choosing circle creates relief on an internal corner.

Since its initial release the Edgecam Wire EDM cycle has supported interruptions to the wire path in order to introduce glue stops, or tags. This command has been enhanced in 2015 R2, automatically producing multiple tags for large, heavy or complex parts.

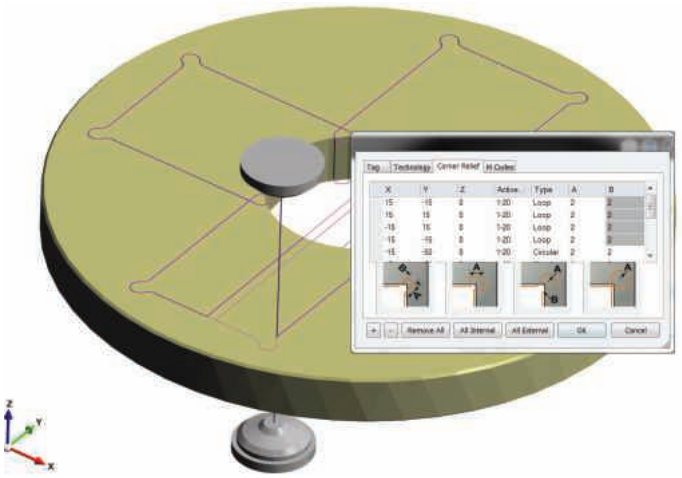
The latest release delivers additional collision avoidance by checking link moves between all milling cycles. Link moves are now automatically checked against stock and fixtures, with the tool retracting to a safe height where collisions are detected. In addition, the items of new and enhanced functionality include support for M & H probing, simulation of screw threads, new machine tool configuration for turning on milling machines, CAD links for Creo Parametric files, and support for lathes with sub spindles offset from centreline.

Edgecam 2015 R2 supports touch probes from M & H. Users can measure workpieces and simulate the probe movements with six individual probing cycles. Each cycle has also been enhanced with eight new functions, giving a wider choice of inspection data.

Machine simulation of thread cutting has been introduced into the new release, allowing users to view and analyse thread forms created by the thread turn cycle. It gives a choice of viewing an accurate



representation of the thread, or a pictorial image. Enhanced machine tool configuration ensures manufacturers can avoid potential collisions while machining on lathes with main and sub spindles – the sub spindle locations can be repositioned using the new 'Offset X location' function. And with the increasing popularity in mill-turn machines, further evolution in machine tool configurations means users can now create 'table-table,' 'head-table' and 'nutated table-table' machines, including TNC control.



Finally, thanks to new support for Creo Parametric files, users can now launch Edgecam from within Creo Parametric, and the resulting file contains valuable manufacturing information, including thread data.

For the production machining market Edgecam solutions combine the power of sophisticated toolpath generation with seamless CAD integration. Used globally within a multitude of industries, Edgecam consistently produces high quality toolpaths to ultimately improve productivity.

Vero Software is a world leader in CAD CAM software with a proven track record of reliable product delivery. Vero develops and distributes software for aiding the design and manufacturing processes, providing solutions for the tooling, production engineering, sheet metal, metal fabrication, stone and woodworking industries. The company's world-renowned brands include Alphacam, Cabinet Vision, Edgecam, Machining STRATEGIST, PEPS, Radan, SMIRT, SURFCAM, VISI, and WorkNC, along with the production control MRP system Javelin. Despite the diversity of application, these solutions have one thing in common: they all address the rising challenges of achieving manufacturing efficiencies and bring huge value to the operations where they are deployed.

The company has direct offices in the UK, Germany, Italy, France, Japan, USA, Brazil, Netherlands, China, Korea, Spain and India supplying products to more than 45 countries through its wholly owned subsidiaries and reseller network.

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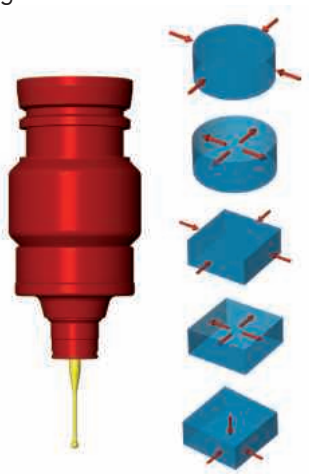
OPEN MIND launches hyperMILL 2015.1

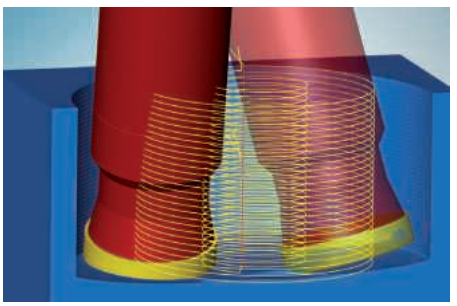
At the recent Advanced Manufacturing show, which took place at the Birmingham NEC in June, OPEN MIND Technologies AG provided the UK marketplace with the first opportunity to see the 2015 version of hyperMILL®.

The latest version of OPEN MIND's market leading CAM/CAD package includes a host of new optimisations, machining strategies and intuitive features that can further exploit the possibilities of modern CNC machines whilst enhancing ease of use. There are five outstanding highlights in the latest package that include new functions for 2D and 5-axis machining. These features can considerably reduce programming times and enable efficient machining whilst numerous powerful extensions in hyperCAD®-S, the CAD system for CAM users will deliver real added value.

The most important expansion in hyperMILL 2015.1 is a 5-axis helical drilling strategy. This helical drilling cycle generates helical tool paths with the tool plunging into the material quickly. This eliminates the need for pre-drilling operations. By setting the milling tool inclination based on 5-axes, the user can benefit from efficient and tool-friendly machining with rapid swarf removal. Particularly suited to difficult to cut materials, this strategy improves cycle times and tool life considerably.

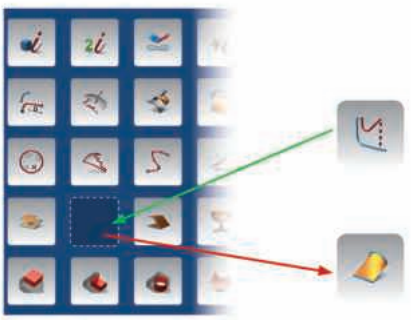
With internal process quality control becoming increasingly important, there are three new probing cycles featured in hyperMILL 2015.1. These include the measurement of rectangle and circle elements as well as measuring parallel to the axis. The touch probe is easy to program in all cycles, just like a tool in hyperMILL. Enabling users to choose between three





measuring functions, the Informative Process Control, Active Process Control and Zero-Point Definition, OPEN MIND will drastically improve process reliability for customers. With the 'Informative Process Control' feature, it is possible to create measuring data for the individual component geometries and access it from the controller, a major plus for any machine shop.

The 'Active Process Control' feature allows probing cycles to be integrated into the machining process in order to actively control parameters. Deviations in dimensional accuracy can be processed in the controller for actual machining based on the off-set value. This exceptional benefit is complemented by the new 'Zero-Point



Definition' tool. This new addition makes it possible to quickly and reliably define the component zero-point, providing more precise and efficient machining. In addition to this, all movements are checked for collisions on both 3 and 5-axis machine tools.

The CAD element hyperCAD-S, within the hyperMILL suite, is also unveiling new innovations. Toolbars can be individually customised and the desired commands can be pasted into or deleted from the toolbars via a drag and drop facility. This enables the programmer to personalise the system for streamlined operation and programming times. Another new feature is the improved clipping plane. The clipping plane function is used to generate a planar section through a component. The selected clipping plane remains active within other functions, but does not affect the existing geometry of the component. This function makes it easier to analyse components whilst tool and tool paths remain unaffected.

Another hyperCAD-S highlight is the 'Print box' function. This is a powerful tool for creating manufacturing plans. Users can compile or print out individual views as well as clipping planes and areas to create manufacturing documentation. Component dimensions and text information are automatically adopted into the view and can be moved, hidden or shown there. All these functions have been developed to make hyperMILL work even faster and smarter for the end user.

OPEN MIND Technologies AG develops and sells innovative CAD/CAM solutions that generate optimised NC milling and turning programs for machine tools from digital models.

Manufacturers from a broad range of industries around the globe have decided to go with OPEN MIND products because they enable cost-effective and efficient manufacturing.

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TTL launches new website

The launch of a redesigned website is part of TTL's ongoing efforts to enhance the quality and availability of information to customers worldwide. The new website boasts a modern design and provides detailed information on all aspects of products and services.

With nearly 30 year's experience in Adaptive Technology for both new part manufacture and component repair, naturally this features heavily in the new site as well as other computer aided manufacturing solutions. Working as Siemens Industry Software specialist CAM partner, information on the sales and support services TTL provides on NX CAM through their professional, dedicated and expert team is also highlighted.

Managing director, Rob Pope says: "We feel the new website represents our expertise and makes us more approachable to new and existing customers in both adaptive technology and NX CAM software. We hope that it will be a useful resource for customers to learn more about our capabilities and our unique approach to manufacturing based software solutions."

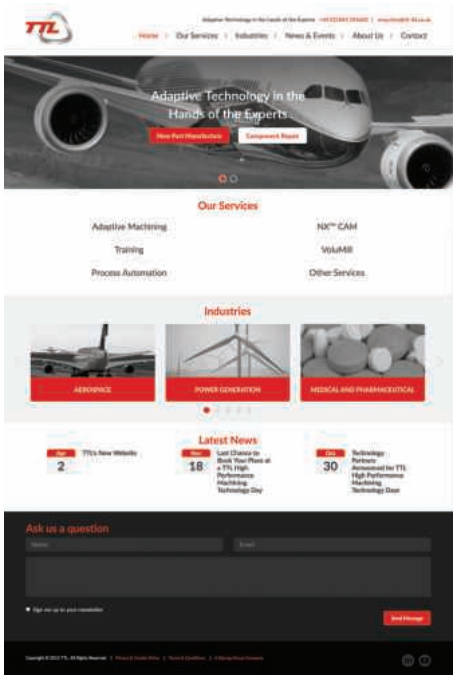
Created with the user experience in mind, the website has been designed using the latest web technology and is optimised for mobile devices. Keeping the design clean, simple and easy to navigate was also an important factor in the development of the site, to ensure user friendly functionality across TTL's network of customers in over 20 countries across the globe.

The new TTL website will be updated on a regular basis with details on latest news and events and also provides direct links to TTL's LinkedIn and YouTube pages.

Established in 1987, TTL has spent over two decades at the forefront of CAD/CAM and CNC machining technology.

As specialists in complex multi-axis CAM applications and automated CNC machining systems the company understand key customer requirements. Our software development and applications engineering resources are underpinned by well-equipped in-house manufacturing, process development and testing facilities.

TTL are a Solution Partner for Siemens PLM software products, specialising in computer aided manufacturing solutions.



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Partners in THINC welcomes newest member

CGTech and its product VERICUT® with Okuma America Corporation, a world leader in CNC machine tools, has announced that CGTech, a leading developer of CNC software specialising in simulations, verification, optimisation and analysis technology for the manufacturing industry has joined Partners in THINC.

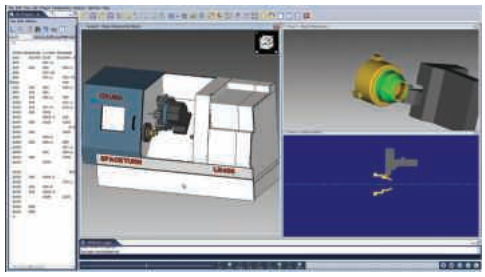
Members of Partners in THINC provide superior technologies that are integrated with Okuma's CNC machines and controls to deliver advanced manufacturing system solutions.

Since 1988 CGTech's product, VERICUT software, has been the industry standard for simulating CNC machining in order to detect errors, potential collisions, or areas of inefficiency. VERICUT enables users to eliminate the process of manually proving-out NC programs. The program also optimises NC programs to both save time and produce higher quality surface finish. VERICUT simulates all types of CNC machine tools and runs standalone, but can also be integrated with most leading CAM systems.

"CGTech is excited to be a member of Partners in THINC so that we may help end-users improve their manufacturing efficiency. By partnering with Okuma and Partners in THINC, CGTech can provide users with accurate machine simulations of Okuma machine tools to ensure that their CNC programs are right the first time, every time," says John Reed, managing director, CGTech Ltd.

"Okuma America is very pleased that CGTech has joined Partners in THINC. VERICUT will provide that next level of CNC program and toolpath verification prior to cutting the part. The use of VERICUT, along with a highly capable CAM package, allows Okuma's customers to fully apply the capabilities and efficiencies of 5-axis machining," says Jeff Estes, director of Partners in THINC.

For more information on VERICUT software, CGTech, and other members of Partners in THINC, visit **www.okuma.com/partners-in-thinc** and watch Okuma Machine Tool CNC Simulation with VERICUT video on YouTube.



Okuma America Corporation is the US-based sales and service affiliate of Okuma Corporation, a world leader in CNC (computer numeric control) machine tools, founded in 1898 in Nagoya, Japan. The company is the industry's only single-source provider, with the CNC machine, drive, motors, encoders, spindle and CNC control all manufactured by Okuma.

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Walter offers a great deal on inserts

Leading tooling manufacturer Walter GB is offering a special 'buy 20 inserts and get another 10 free' incentive on its Tiger.tec Silver range of indexable inserts for ISO P steel and M stainless steel applications.

The limited-period offer applies to both WPP10S and WPP20S grade inserts in FP4, MP4 and RP4 positive style geometries, as well as the MP5 and RP5 negative inserts, for all steels. The offer also covers the WMP20S grade positive inserts FM4, MM4 and RM4 targeted at small/medium batch work in both steel and stainless steel.

Tiger.tec Silver inserts promise performance increases of up to 75 percent compared to competing products. For example, a WPP10S MP4 insert has machined 60 components compared to 35 and only one dimensional correction was required instead of the usual five for maintaining correct size.

The WPP10S and WPP20S positive inserts are recent additions to the Tiger.tec Silver range, where the MP5 and RP5 negative styles in those grades have proved their worth in a variety of universal applications. The newer positive styles have been introduced for small diameter ISO P steel applications at low cutting pressures, in particular.

The FP4 geometry is for controlled chipbreaking when finishing; MP4 for machining particularly long-chipping materials; and RP4 for roughing.

Also designed for controlled chipbreaking, the MP4 geometry is available with two clearance angles, 7° and 11°, for example, CCMT and CPGT, respectively, as well as in precision-sintered and precision-ground designs. The higher clearance angle of 11° enables the machining of smaller diameters. Precision grinding provides an indexing accuracy of +/- 25 microns, which is twice as accurate as sintering and is ideal for precision finishing.

The positive inserts feature two to four cutting edges and, compared to a negative insert which has double the number of cutting edges, users may initially assume that the positive insert is less economical. However, the positive basic shape offers lower cutting pressures and a softer cutting action for machining smaller diameters, from 8.5 mm internal diameters, or very long, unstable components, situations where the positive insert makes economic sense. On multi-spindle machines, users can, for example, achieve higher feed rates due to the reduced cutting pressure and gain excellent chip control.

The WMP 20S inserts, which can machine both steels and stainless steels, include FM4 for finishing, MM4 for medium cutting on long-chipping materials and RM4 for roughing.

GPS tool selection software

Walter GB has announced version 2.20 of its renowned GPS tool selection software that offers new functionality for selecting the correct milling tool, new search options for drills and an improved graphical user interface for product-related searches.

Available for use on PC, notebook, tablet and smart 'phone, GPS also contains Walter's latest (since 2014) drilling, threading and milling tools, and offers an interface to the Walter Tool Shop for online ordering.

The new functions for selecting milling tools, shoulder, face and pocket, as well as for the milling of closed grooves, covers all milling operations. A user-friendly interface guides users through the application requirements, prompting entry of relevant information at each stage of the search. Users can also enter details of their own machines into the system, so that searches work within existing capacity parameters. GPS then presents the most efficient options, advising of all technical and cost alternatives.

For drilling, users can search with or without diameter tolerances or regrind length, or according to complex pilot drilling strategies where deep hole applications are required. GPS will then recommend possible tools as well as the appropriate machining strategy including cutting data.

In cases where users already have a tool but require the associated cutting data, GPS also has a simplified tool-only search interface that enhances the search process.

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LEGENDARY PERFORMANCE

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Cutting tool training pays dividends at Pneumatrol

Established over 50 years ago, Lancashire-based Pneumatrol has become a leading manufacturer and solution provider of pneumatic and electro-magnetic valves, with customers across the globe using its products across the Process, Rail, Energy and Industrial market sectors. Like many companies with such a history Pneumatrol employs a mix of skilled people, ranging from highly experienced setters, through adult NVQ trainees, to young apprentices. Each of these groups has a different approach to the application of cutting tools, so the decision was taken to bring them all together for an intense training session provided by WNT (UK).

To ensure that it meets the demands of its global customer base Pneumatrol has a policy of ongoing training as an integral part of its business model. During a review of its machining processes it came to light that much of the application knowledge of the older skilled setters needed updating, and concerns were raised that the younger apprentices were not being taught the best way to utilise modern cutting tools. The solution was to work with WNT (UK) to provide up to date knowledge of cutting data for all staff responsible for programming and setting the various turning and machining centres. "Bringing all of our people together at the same time enabled WNT to present the training in a structured way, which made perfect sense to us. The result is that we are already seeing the benefits," says Paul Brammer, Pneumatrol's machine shop manager.

The initial training, with further sessions planned for the future, consisted of a full day session splitting into two groups at Pneumatrol's factory. As a starting point the groups worked through the WNT catalogue, gaining an insight into the vast amount of cutting data that is available there. This was followed by more detailed specific examples, using Pneumatrol's own products to see how the cutting data could be improved.

Since the training day, Pneumatrol has started working through its portfolio of pneumatic valves and reviewing all of the cutting data, the results so far have generated significant savings in both consumable tooling costs and more specifically cycle times. "Our first task was to look at specific long-running jobs and without changing any of the tools that we use, simply looking at the cutting data on these first 12 components we have reduced the average cycle time per component by around 84 seconds. Given the volumes involved that equates to almost 1,800 hours/year saving, simply by applying the optimum cutting speeds and feeds," says Paul Brammer.

The task now is to work through the rest of Pneumatrol's catalogue of parts and replicate these savings where possible. The reduction in cycle time is only one part of the benefits gained from the WNT training. Applying the correct cutting data has also seen improved surface finishes, with Paul Brammer explaining that on one part a burnishing operation used to be

undertaken, now the finish is to the correct standard after boring. The machine tools are also faring better as they are not working as hard and tool life and swarf control has also improved, reducing consumable costs and also having an impact on the lights out weekend running that Pneumatrol operates.

A second round of training provided by WNT will be undertaken in the near future that will look at methodology and how processes can be improved through better implementation of existing and new tooling solutions. The training from WNT is a part of its technical support activities and depending on the size of customer it can be delivered at the customer's premises, as in the case of Pneumatrol or, if they prefer, customers have the option of attending regular training days held at WNT's Technical Centre in Sheffield and at various other locations around the country.

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ITC launches high precision face grooving system

To extend its product offering to turned parts manufacturers, Industrial Tooling Corporation (ITC) has now launched a new line of insert holders for face grooving from KAISER Precision Tooling. The new insert line has been specifically designed to fit KAISER's series 318 and SW twin-cutter boring heads that is also in the ITC armoury.

The new additions are aimed at a broad range of applications across mechanical engineering, aerospace, energy and the automotive sector. These are all industries where ITC is exceeding market expectations with regard to performance, productivity and innovation.

Face grooving with boring tools is generally more efficient than milling with circular interpolation, especially when manufacturing bores with large diameters. Additionally, whenever a surface for a sealing application is required, there is no other option than to use boring tools with face grooving accessories.

The new face grooving system offered by Tamworth cutting tool specialist ITC, can be used as either a single or twin grooving tool

for diameter ranges from 53 mm to 3,000 mm. The new innovation can accommodate these diameters with a grooving depth up to 12 mm and a width up to 9.5 mm (5 mm with a single cutter). Using the boring tools as twin cutters with a simultaneous adjustment in radius and length, allows the feed rate to be increased. Using the cutters in the diameter offset operation enables a groove width of up to 9.5 mm to be achieved. This enables both inside and outside diameters to be adjusted separately within the smallest tolerances. Thus ensuring precision, productivity and surface finishes a manufacturer would expect from market leading names such as ITC and KAISER. The two cutting edges can be adjusted easily to the same length and this is credit to an eccentric bolt mechanism with a clear direction indication.

KAISER can also manufacture specific solutions to meet the demands of the end user and for further details, contact a technical member of the ITC engineering team.

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Quickgrind rethinks tool management

If you think tool costs are the least of your problems and believe there is little to be gained by switching suppliers, Quickgrind has some news that will make you think again.

The internationally renowned carbide cutting tool manufacturer chose Southern Manufacturing 2015 as the stage to present its novel vending solution under a new name: the Quickgrind Tool Management System. As visitors discovered, the system is offering tool users a unique, low-risk strategy that substantially reduces costs for businesses while avoiding headaches for managers.

Managing director Ross Howell explains: "Quickgrind is about much more than making and selling tools. It's about innovative thinking which creates tooling solutions. We call it 'total solution engineering'. The Quickgrind Tool Management System is a risk-free way of cutting costs and increasing productivity while assuring quality."

Operating successfully for a number of customers both in the UK and overseas, the intelligent Tool Management System is based on secure, convenient, point-of-use vending machines which hold and dispense stocks, managed by Quickgrind, of every tool needed by the business.

The first key advantage of this system is that the right tool is always available, immediately, so jobs are never held up by time-consuming tool searches, visits to a manned store or, worse still, emergency reordering. The second is that there is no need to tie up company cash in tool stocks or to carry out the related, and often frustrating, forecasting, auditing and managing.

The dispensing machine contains intelligent software that monitors and reports on who is using what tools, and in what numbers. Each type of tool is always replenished ahead of being required and you don't pay for any tool until it is used. The tool prices are very competitive too and are the same as you would pay if ordering from Quickgrind conventionally.

Ross adds, "The Quickgrind team will be also be talking to potential customers about the high-quality remanufacturing process which has been in the news recently as a result of helping businesses improve their performance by halving tooling costs, without compromising on quality."

Quickgrind is an internationally renowned carbide cutting tool manufacturer whose unique approach and innovations make customer processes quicker, more convenient and more profitable.

Quickgrind's 'total solution engineering' approach matches customer requirements with the ideal tool. In addition, sophisticated computer software and processing technologies maximise the speed and cost-effectiveness of design, manufacturing and administration, resulting in improved business performance.

Delivered by a highly trained and motivated workforce, Quickgrind products and services reflect the very best in British engineering heritage, quality and innovation. They include: immediate delivery of high-quality off-the-shelf tools; advice on tool selection and handling to increase efficiency; design and delivery of tailor-made tools with the market's shortest lead time; point-of-use tool vending for added security and productivity; remanufacturing of tools to 'as new' standard, up to seven times

Engineering in the blood

Quickgrind has been at the forefront of tool design and manufacture for almost 50 years. Its founder, Eddie Howell, saw a pressing industry need for shorter lead times for specialised tool production. His company made steady improvements, in line with the technology of the time. In the years since his son Ross came on board, further technological advances have helped Quickgrind take massive strides forward in innovating the cutting tool manufacturing industry.

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YG-1 develops 4G Mills series for mould and die industry

An innovative range of milling cutters called 4G mills are now available from Cutwel Ltd, a leading supplier of Engineering Cutting Tools.

In an increasingly competitive global market, productivity is at stake, especially in the mould & die and automotive industries where cost reduction and productivity gains are the main challenges.

In order to tackle these issues and to offer the best solution to highly demanding industries such as the mould and die industry, YG-1 Co. Ltd, a global leader in advanced cutting tool manufacturing has developed the 4G Mills series.

The 4G Carbide Mill series are high speed cutting end mills designed to cut materials including medium and low hardened steels, cast iron alloy, carbon steel and pre-hardened steels up to HRc55.

From material to geometry, the 4G Mills series includes various innovations that are optimised for exceptional performance. Made with high quality ultrafine carbide substrate and coated with a YG-1 special tailored coating, the 4G Mills demonstrates an enhanced heat and oxidation resistance that contributes to a longer tool life and an excellent surface finish at higher speed.

Available with two, four, six flute, with and without corner radius, or ball nose, the 4G Mill diameter sizes range from 0.03 mm to 25 mm in metric size and from .004" to 1" in inch size. Various lengths are also available: short and long length, long reach, regular and long shank as well as extended neck for rib processing.

Furthermore, the four flute end mills have been designed with a multiple helix to reduce vibrations at higher speed and to optimise results during heavy cutting operations and close tolerance applications.

4G Mills are particularly recommended for wet and dry cutting as well as for high speed and high precision machining processes of HRc30 to HRc55 materials. Cutwel was established in 1996 and was appointed as the sole UK agent of YG-1 Cutting tools of South Korea, The company started in a small office in Mirfield, West Yorkshire with the aim of supply engineering cutting tools direct to end users purely through telesales.

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Guhring delivers productivity gains for HepcoMotion

Recognised as the originators of the V slide and bearing guide system used worldwide for the control of linear, rotary and continuous motion, HepcoMotion is the largest manufacturer of linear motion products in the UK. With 75 percent of the company's production now being exported to foreign shores, the family business is a UK manufacturing success to be envied.

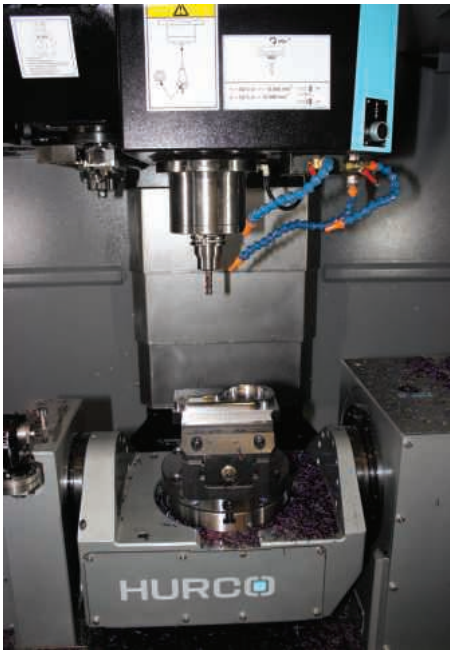
Formed in 1969, the family owned business has retained its market leading position for developing innovative products by investing in the latest technology on its shop floor. As the third generation of the family to take charge of HepcoMotion, Giles Forster, chairman of HepcoMotion says: "We have to invest to stay ahead of the game and at Hepco, we have invested over £3 m in plant and equipment in the last three years to remain at the forefront of technology. We are putting our money where our mouths are because that is what we have to do to stay ahead of the competition. We are planning on doubling the size of the business over the next 10 years, so double the size of turnover and double the size of our profitability."

A major contributor to enhancing productivity and reducing costs in the production department has been provided by cutting tool specialist Guhring. Initially taking delivery of its first Guhring cutting tools some five years ago, the successful implementation of Guhring drills, milling and threading products has resulted in the Tiverton company now retaining a consignment stock of Guhring products. The continued hard work and attention to detail of the Guhring representative working with Hepco, now sees the tooling cabinets of the Devon company stocked 80 percent with Guhring products.

One such product that has proven particularly fruitful for HepcoMotion has been the RF line of milling tools. The unequal helix of the RF tools has benefited HepcoMotion with its geometry that improves chip flow, surface finish and above all, it reduces vibration to extend tool life and consistency. Despite the Guhring RF milling line saving HepcoMotion thousands of pounds in productivity, capacity and tool life over the last three years, the company has now taken delivery of a new line of cutting tools from Guhring, the new high performance Guhring RF Diver milling line. Launched at the end of 2014, the Guhring Diver has been developed as a genuine 'all-rounder' that is capable of everything from rough to finish machining on an extremely diverse range of materials.

To further enhance the removal of chips during high speed and high feed machining, the sub-micro grain solid carbide Diver line incorporates Guhring's innovative Signum coating technology that dissipates heat as well as the build up of swarf.

In essence, the new Diver line can be used to rough and finish machine as well as plunge, ramp and interpolate, making it an ideal multi-purpose end mill. For manufacturers with machine tools that utilise a large number of tools and the respective tool positions, the capability of the Diver can reduce inventory and tooling costs. Additionally, its flexibility can reduce tool changeovers when machining components that require numerous milling tools.



At HepcoMotion the RF1000 Diver is used to machine profiles on tool steel parts on the company's Hurco machining centre's at a cutting speed of 5442 rpm and a feed rate of 1088 mm/min at a 1XD depth of cut. Once the profile is machined, the same 11.7 mm diameter cutter demonstrates its versatility by performing trochoidal milling at a feed rate of 360 m/min with a spindle speed of 9745 rpm. Previously, this process was taking 20 minutes to rough machine at Hepco. However, the new RF1000 Diver from Guhring has slashed this cycle time to just five minutes.

These productivity benefits have been achieved throughout the milling department at HepcoMotion on a vast array of components. The savings created by the new Guhring Diver line have been staggering in terms of productivity benefits, increased machine capacity and improved machine utilisation. Furthermore, tool life, surface finishes, and consistencies have all been improved.

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Thread milling range offers multiple benefits

Dormer Pramet has launched a comprehensive thread milling program to provide a reliable and versatile threading option. Available under the Dormer brand, each of the new cutters is recommended for machining most materials, including steel, stainless steel, cast iron, titanium, nickel, copper, aluminium and plastics.

An Alcrona Pro coating and solid carbide substrate provides a tough and wear resistant structure, offering security and reliability, as well as increased performance and longer tool life.

A total of ten versatile milling cutter (J2xx) families have been developed with a mix of popular thread forms including, M, MF, UNC, UNF, G (BSP) and NPT, with or without internal oil feed.

Thread milling offers numerous advantages compared to conventional threading, including increased reliability, smaller chips, supporting continuous machining, improved tool life and accurate tolerance adjustment, whilst it is also suitable for dry machining.

The same cutter can be used for many materials and diameters, as long as the pitch is the same, while Dormer's J200 and J205 ranges offer the additional possibility to chamfer, providing better quality and accuracy compared with conventional taps.

Ricky Payling, Dormer Pramet's application specialist for rotary tools, says: "Thread milling is a relatively slow process with measurable time savings on larger diameters. However, the quality of finish and level of accuracy can greatly compensate for the speed of machining.

"The new range of thread milling cutters provides numerous options for the end-user, whether it's left or right hand internal threads for the vast majority of thread forms and for any material.

"A controlled machine that can make circular paths is required, but our online product selector will suggest the most appropriate thread milling cutter with the relevant data and CNC programme, to make the choice as easy as possible."

The introduction of the thread milling cutters is part of a wider product launch by Dormer Pramet on 1 April 2015. This will be the first combined unveiling since Dormer and Pramet merged last year.

The merger of round tools manufacturer Dormer Tools and cemented carbide tooling specialist Pramet Tools was instigated in 2014. The combined product programme now encompasses a comprehensive range of rotary and indexable drilling, milling, threading and turning tools for the general engineering sector. An expanded sales and technical support service extends to over 30 offices serving more than 100 markets worldwide. These are supported by state-of-the-art production facilities in Europe and South America and a global distribution network consisting of five strategically placed hubs.

The company recognises the need to be versatile and flexible. In excess of 600 people are actively employed in sales activities, meaning Dormer Pramet can be responsive to customer needs, sharing experience and knowledge exactly when and where required.

Dormer Pramet takes pride in always being there with a range of products that are uncomplicated, honest and consistent.

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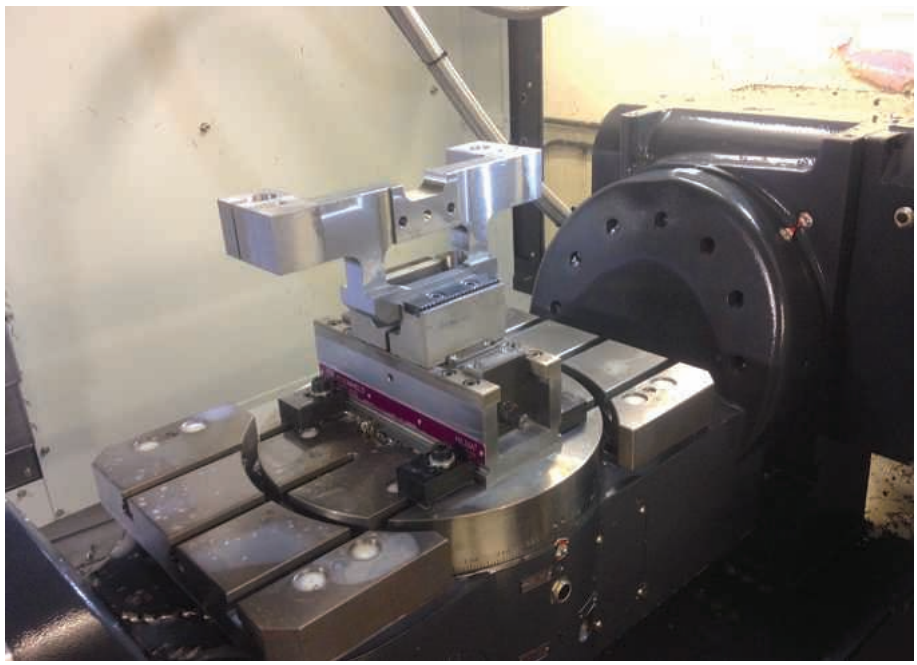
CDM (UK) invests in 5-axis capability

When CDM (UK) Ltd invested in its first 5-axis machine at MACH 2014, the precision engineering company quickly turned to Roemheld to supply a 5-axis vice that would meet its manufacturing needs.

Having installed the 5-axis machine, CDM found that the vice that they had purchased at the same time was proving unreliable and kept slipping. The company then approached Roemheld who supplied them with a MC100 5-axis vice from its Hilma range. Having used the Roemheld vice since October, CDM has been impressed with its accuracy and reliability. Stephen Townsend, co-owner and director of CDM Precision Engineering says: "The Roemheld vice is working brilliantly and all the operators are very impressed with it. We've been able to machine parts in 304 stainless steel with a 4 mm depth of cut. The vice we had on the machine before was not a patch on the Roemheld one."

Blackburn-based CDM Engineering has been producing a wide range of high quality precision components for the motor, carpet tufting, textile and food industries since 1987. The company has grown from humble beginnings in a 1,000 sq ft rented unit to its current 8,500 sq ft premises, housing 12 members of staff. CDM offers a wide range of subcontract machine services including CNC turning and milling, boring, grinding, welding and gear cutting. The company prides itself on the quality, precision and adaptability of its service whether producing 20 components or a batch of 500.

CDM has built its reputation over the years by offering innovative solutions and problem solving. It was this commitment to providing the best possible manufacturing solutions for customers that led to CDM to purchase its first ever 5-axis machine.



Stephen Townsend says: "We were being increasingly approached about more work that needed 5-axis capability so we decided to bite the bullet and invest in a 5-axis machine. We have since found that even doing our conventional 3-axis and 4-axis work on the 5-axis machine is quicker and more accurate. For example, one job that would normally take seven separate operations can be done in a single pass on the 5-axis machine."

CDM has had to upgrade its programming software to enable it to cope with the intricacies of 5-axis machining. An operator has already been trained up on the new software and there are plans to carry out further training for shopfloor personnel. Being able to access 5-axis step/CAD files from Roemheld has also proved useful during the planning of the manufacturing process.

Although it is still early days, CDM has already found that the 5-axis machine with Roemheld vice has enabled them to achieve increased productivity and produce better value work. Now fully up and running alongside the company's existing three 3-axis machines, this 5-axis machining capability is enabling CDM to take on more complex and demanding precision engineering projects.

Phil Cable, northern area manager for Roemheld (UK) Ltd says: "We are seeing more and more companies like CDM investing in 5-axis technology so that they

can increase their manufacturing potential. Our 5-axis vice range has been designed to help companies of all sizes to maximise productivity while delivering the highest levels of accuracy."

Roemheld is committed to researching and developing products designed to meet not only the demands and expectations of today's discerning buyer, but also emerging markets and applications. Through continued improvement of products and services, the Roemheld Group intends to remain an innovator at the forefront of technology providing 'All your workholding needs from a single source'.

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Secure boring bar toolholding solution

Gewefa has introduced a unique toolholding system for single point boring bars that utilises the proven tool grip features of a hydraulic chuck with the added advantage of guaranteeing fixed orientation when positioning the bar.

By eliminating the previously accepted method of securing boring bars by fitting an adaptor reduction sleeve into a VDI mechanical boring bar holder the opportunities for inaccuracy and bar deflection during boring operations are now greatly reduced.

With the new Gewefa solution the bar shank is directly clamped into a hydraulic chuck with the ground angle on the back end (of the bar) locating against a stop pin at the base of the toolholder. This ensures precise central positioning and orientation with the bar then locked into the hydraulic chuck.

The advantages are a 50 percent increase in cutter life due to the more secure grip, guaranteed repeatability when changing like-for-like bars and a simple, fool proof fitting process.

The bar is precisely clamped at the all-important centre height by the hydraulic chuck clamping system which, with its vibration absorbing features, contributes significantly to improved surface finish and longer insert life.

As with all Gewefa toolholders, it is a universal solution and to accommodate various manufacturer's back end configurations of boring bar, Gewefa has introduced the toolholder with ARNO, System Dieterle, DTS/HOBE/MAS/ SUMITOMO/SANDVIK/ SIMTEK and VARGUS screw orientation options.

System ARNO is supplied with a 30 degree stop pin while system Dieterle has a 90° stop pin.

Gewefa UK Ltd was established in 1990 and has rapidly established itself as a leading independent supplier of toolholding and allied equipment.

Based in Corsham, Wiltshire, Gewefa UK is a subsidiary of Gewefa GmbH, a family owned business established 60 years ago in Burladingen, Germany.

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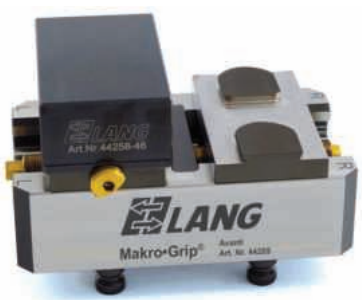
Exceptional workholding characteristics

The popular Lang Makro.Grip Avanti range of universal vices, available from workholding and automation specialists Thame Workholding, have recently been expanded and upgraded to offer exceptional workholding characteristics and very competitive add-on jaws prices.

Featuring a patented clamping interface, the Avanti range offers precise jaw positioning with double guided jaws and a centring accuracy of +/- 0.02 mm. Although the vice is light enough to be handled without fatiguing the machine operator, the rigid and sturdy base has been designed to withstand the high cutting forces it will encounter. Available in three sizes to suit a wide variety of raw materials and machine sizes, the range starts with the new Avanti 46. Available in two base lengths, 77 mm and 177 mm with a maximum opening range of 5 mm and 45 mm respectively it has a maximum clamping force of 6,000 N. The mid-sized Avanti 77 is offered in three base sizes 130 mm, 170 mm and 210 mm with maximum openings of 15 mm, 55 mm and 95 mm and a clamping force of up to 14,000 N. Avanti 125 has a maximum clamping force of 20,000 N and comes in four base lengths, 210 mm with a 55 mm opening range, 260 mm with a 105 mm range, 310 with a 155 mm range and the largest option at 360 mm long and a 205 mm opening range.



Thanks to its innovative quick jaw change system, the Avanti universal vice range provides enormous setup time savings. The whole volume of the competitively priced aluminium and steel jaws can be used for profile clamping of pre-machined, cast or forged components and they can be rapidly changed with a half a turn on a single cam screw clamping and unclamping the jaw.

Like every product available from Thame Workholding the Avanti universal vices have productivity and efficiency designed and built in. Thame managing director Maurice Day says: "All Avanti vices are equipped with clamping studs for precise fixturing (<0.005mm) to the Lang Quick. Point clamping system, making the next logical step towards efficient manufacturing that much easier."

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Thin and powerful magnetic clamping plates from AMF

Andreas Maier GmbH & Co. KG (AMF) has introduced a new magnetic clamping system for milling. The core is the unusually thin Premium Line magnetic clamping plate with full-metal surface and powerful electro-permanent square pole technology. With it, you can achieve very high holding force. Used in combination with an intelligent controller, with and without channel selection, as well as fixed and mobile pole extensions, the system gives users the greatest possible flexibility. And that's not all.

"With a height of only 43 mm, our new full-metal magnetic clamping plates are extremely thin and around 25 percent lighter than comparable products," emphasises Johannes Sayler, product manager at AMF. Despite this unusually low height, the new Premium Line magnetic clamping plates can be reworked by up to four millimetres if the support surface has been damaged. This can be done by the users themselves. The monoblock construction of the plates ensures outstanding stability even after being reworked. The very flat surface, with a tolerance of only +/-0.02 mm, clamps ferromagnetic workpieces securely and firmly for five-sided machining. The low weight takes a load off the machine table. Due to the full-metal design, hot chips or aggressive cooling lubricant can't hurt the plates.

Holding force equivalent to almost 40 tonnes

The permanent magnetic plates are designed with square-pole technology and have extremely powerful magnets, which transmit 4 kN of clamping force per pole. They clamp workpieces with up to 384 kN. That equals almost 40 tonnes of holding force for the largest plate of 950 x 575 mm. Linking several plates together lets the clamping surface be expanded to any size desired. An intelligent controller with channel selection can activate individual plates selectively and ensures energy efficient operation. An electric pulse is needed only for clamping and unclamping. The cable with waterproof design can be unplugged after activation.

AMF offers fixed pole extensions with 30 mm height for even more flexible 5-sided machining. They transmit the holding force of the magnets and take up flat or pre-machined workpieces directly. In combination with the mobile pole extensions, which are also available, uneven workpieces can also be clamped firmly and without distortion. Flexibly adjustable, they compensate for height differences by adapting to the contour of the workpiece.

The new Premium Line full-metal magnetic clamping plates from AMF are available in 16 different sizes. In the Eco Line version, the magnetic clamping plate is also available with synthetic resin fillings. Premium Line and Eco Line are especially suitable for bench type, gantry and fixed table milling machines as well as for machining centres, interchangeable pallets and cube tooling. They are clamped on the machine table with grooves on the front faces. In combination with the AMF Zero Point Clamping system, additional enormous advantages in setup times can be achieved.

Andreas Maier Fellbach (AMF), originally founded in 1890 as a lock manufacturer, is now considered a market leader in clamping, hand tools and locks. With more than 5,000 products and numerous patents, it ranks among the top innovators in the industry. With its worldwide market presence, the company and its employees always have an open ear for the problems of their customers. By listening to these needs and through professional advice, intelligent engineering and high production quality, AMF develops standard and customised solutions that succeed in the market again and again. Speed, flexibility and 230 well-qualified employees guarantee success at Andreas Maier GmbH & Co. KG. In 2014, achieved a new record with €40 million in revenue.

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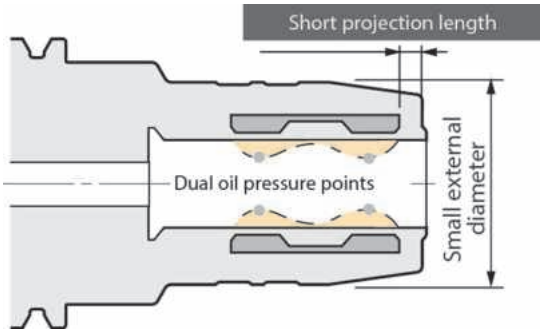
World's first hydraulic chuck for 3 mm diameter tools

Now available from Industrial Tooling Corporation (ITC) is the new HDC super slim hydraulic chuck for clamping tool diameters down to 3 mm. Just launched by KAISER Precision Tooling and available in the UK from ITC, the HDC super slim is claimed to be the world's first hydraulic chuck for clamping tool diameters as small as 3 mm without a reduction sleeve.

The new chucks can directly clamp ultra small end mills and drills without a reduction sleeve, making it ideal for use in demanding finishing operations in confined areas. For clamping diameters of 3 mm, the external diameter of the chuck nose is only 14 mm and at a length of 90 mm, the diameter is 25 mm. This now means that interference contours should no longer be a problem for machine shops.



Thanks to the hydraulic clamping system with dual oil pressure points, the hydraulic chucks provide highly accurate, repeatable clamping with less than 1.5 microns variance. Furthermore, the chucks have a run-out accuracy of less than 3 microns at 4XD. This outstanding precision can be combined with rotation speeds up to 35,000 rpm to help to improve the surface finish of workpieces as well as extending tool life. In addition, the HDC super slim is available for HSK-E 32/40/63 and BBT 30/40/50 machine spindles.

The new KAISER chucks from ITC are easy to use and permit rapid tool changes with only one wrench required for clamping and unclamping. The KAISER hydraulic chuck range includes clamping diameters from 3 mm to 12 mm as well as various projection lengths to fit nearly any application in

automotive, aerospace, medical, and die and mould. This diverse range is all available from ITC

ITC offers an unbeatable combination of first class service, rapid response, huge stocks, plus access to a diverse and ever growing product line. Continued investment in state-of-the-art CNC grinding equipment gives the company capacity to rapidly manufacture specials to customer requirements, and to return tools to "as new" condition.

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Maximise workholding productivity

Kurt's HD and HDL vices maximise workholding productivity. These two-station vices are ideal for clamping parts of the same size or dissimilar size and can perform first and secondary operations simultaneously.

The HD and HDL series vices are new, patented designs providing more options for faster setups, larger workholding capacity, greater flexibility and precision to handle the broadest range of part configurations.

Kurt HD and HDL vices have new quick-change jaw feature and fewer components for faster job changeovers. With a half-turn of a hex key, the stationary jaw on these vices lifts off the vise. The jaw resets and self-aligns quickly without special tools. Spring preload design insures fast and easy loading of parts. Kurt HDL two-station vices have repeatable clamping to 0.0002 inch.

These new HDL two-station vices are extremely rigid delivering up to 7,460 lbs. of clamping force at 70 lbs of torque. They are designed on an 80,000 PSI ductile iron body

with precision machined steel components and have a full 4 inch opening (6" vise) in each station using Kurt's standard hard jaw system. The manual model easily converts to hydraulic operation using a simple conversion kit.

Kurt HD and HDL cluster towers also available for larger workholding capacity

The Kurt HD and HDL series is also available in Cluster Tower models providing more options for faster setups, larger workholding capacity, greater flexibility and precision. They are ideal for horizontal machining centres or vertical machining centres with indexable tables. These towers achieve workpiece immobility while damping cutter induced vibration.

Kurt's 84-page catalogue contains complete information on all HD and HDL vices, towers and options including Kurt's new DoveLock jaw system. For a free catalogue download the brochure from the Kurt website: **www.kurtworkholding.com**.

Kurt vices are recognised for their quality and reliability for your machining or other application requirements. The vices offer variety and precision. Among the Kurt vice products are: general purpose vices; high density vices; high precision single station vices; modular vices; hydraulic vices and specialty vices.

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Javelin a "major factor" in Brick Kiln's ISO accreditation

The Javelin advanced production planning and control system played a major role in a Formula 1 specialist gaining an automotive industry ISO accreditation.

Brick Kiln Composites is a long-established manufacturer of carbon fibre components for Formula 1 and a sports car team, with around 50 of their parts on a car in each race, ranging from electrical trays to aerodynamic aids directing air past the vehicle.

The Oxfordshire-base company currently produces thousands of different parts per year using three autoclaves, a 5-axis Haas vertical mill and a Bridgeport 3-axis machine and is now looking to expand into manufacturing components for road cars.

"With fuel economy being a priority nowadays, high end vehicle manufacturers are incorporating lightweight composite components into their build, especially luxury cars such as Bentley, Rolls Royce, McLaren, BMW and Jaguar Land Rover," says general manager Ronnie Dean. "Everyone's looking to make their vehicles lighter."

In order to add this new work to its existing portfolio,the company is planning a mezzanine floor across the entire 12,000 square foot facility and building new workshops to double its manufacturing capacity, along with employing additional staff and setting up a training programme.

Although they adopt one of the most advanced techniques for making composite components using prepreg carbon fibre reinforcement cured under heat and pressure to produce quality parts with a high structural performance, many companies will not even accept a quotation without ISO accreditation.

"We needed the ISO 9001:2008 quality standard for the manufacture of parts and accessories for road vehicles and their engines, in order to be considered," continues Ronnie Dean. "Thanks to Javelin, we were already operating to ISO standards, so our audit only lasted two days. Javelin enabled us to demonstrate all our systems onscreen in the office, proving our traceability, how we know exactly what's happening on the shop floor and who's working on which parts."

He states that Javelin was a major factor in achieving ISO accreditation and will grow with the company, keeping it in total control of all of its procedures.

"Javelin is all set to play a vital role in our automotive business. It can support a company with 500 staff just as easily as it does a company like us, currently with around 20 employees."

Shop Floor Data Capture is used extensively throughout the manufacturing process, with terminals sited in seven departments, including clean room, inspection room and trim shop. Crystal Reports also prove invaluable in giving live updates on a component's progress through the factory, especially for motorsport customers who have short lead times.

"We often receive the mould tool in the morning and the customer wants the component the same day."

As the company develops its automotive business, production manager Nick Brew says it anticipates needing to make full use of Javelin's powerful production control functionality: "With the automotive industry's longer timescales, we'll be using Javelin's planning and scheduling modules all the time."

In particular he expects the 'What if?' finite and infinite integral scheduling capabilities to come to the forefront. The same workload can be tested using various scenarios and manufacturing rules, and the results compared either graphically or tabular. Based on Brick Kiln Composites' own factory model, the system provides the key to minimising Work-In-Progress, keeping lead times to a minimum, and improving delivery performance as well as reducing costs.

The Works Order is a core element of Javelin, as it controls the progress of work through the entire process, with a full set of monitoring and tracking routines ensuring complete visibility at every stage.

Another massive plus for Brick Kiln Composites is how Javelin improved its invoicing system, along with overall traceability. Invoices are sent from the Group's head office in Wantage and were previously typed by hand. Javelin now generates them automatically, and quickly.

Nick Brew says that any query about delivered parts is easily resolved: "As soon as we need to find something, we can trace it extremely quickly with Javelin. We are also able to look back and see what materials went into everything, who made it, and when it was made.

"We've got the full material history.

Everything about every component is on the Javelin database, so we can go back and look at the date of manufacture, how it was manufactured, and what material went into it."

The uncured prepreg carbon fibre used by Brick Kiln Composites is ideal for the type of lightweight components which are becoming more important to the automotive industry. It is easy to handle, and can be cut and laid precisely into detailed and accurate moulds, making the process ideal for the complex parts that are becoming increasingly more important to the automotive industry. The ease and accuracy with which the material can be templated and cut significantly reduces waste compared to other manufacturing methods.

Part of the Vero Software Group, Javelin is a flexible, scalable and intelligent production planning and control system offering advanced functionality and value in the key areas of manufacturing and assembly. Javelin allows SME organisations to successfully compete in difficult economic and market conditions, through direct productivity improvements and lower IT infrastructure costs.

Vero sells and supports its range of products through its direct offices in the UK, Italy, France, Germany, Netherlands, USA, Brazil, India, Japan, Korea and China, and through a comprehensive global reseller network across more than 45 countries.

Vero is part of Hexagon (Nordic exchange: HEXA B), a leading global provider of design, measurement and visualisation technologies that enable customers to design, measure and position objects, as well as process and present data.

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Light years ahead

Hersham-based leading laser marking and laser etching subcontract specialist, Fimark Ltd has recently invested in a new, state-of-the-art 5-axis laser texturing machine from GF Machining Solutions. The machine, a LASER 1000 5AX, was installed at the company's facility in April 2015 and is the first GF Machining Solutions' Laser Texturing machine to be installed anywhere in the UK.

The machine's arrival not only significantly strengthens the company's existing laser marking and laser engraving capabilities but, more importantly, opens up new opportunities for Fimark in the relatively new and emerging laser micro-texturing (aka laser surface texturing) markets.

Charles Dean, managing director at Fimark, comments: "Laser texturing is a fully-digitalised surface engineering process that has huge potential.

"The technology enables precise 2D and 3D textures to be machined accurately and directly onto complex parts or moulds and its application is being investigated, trialled and used by manufacturers across the world serving a diverse range of industry sectors, for example automotive, medical devices, watch making and jewellery etc.

"Fimark is an innovative company and our 'early adoption' of laser texturing technology, achieved through the acquisition of the LASER 1000 5AX reflects our ambition to become a market-leader in this specialism."

A sample spherical part showing numerous laser textured surfaces 5-axis machined by Fimark on its LASER 1000 5AX

Technology application

The 3D textures created using laser texturing machines have many purposes and can be applied to parts and components to alter and improve their functionality and performance. Specific textures can be created for example to enhance tribological properties of surfaces to improve their load bearing capacities or to reduce friction and wear rates.

Applications include micro-hydrodynamic bearings, debris traps and lubricant reservoirs.

In addition to 'functional textures,' surface texturing can also be used to enhance the aesthetic look and feel of numerous components and parts.

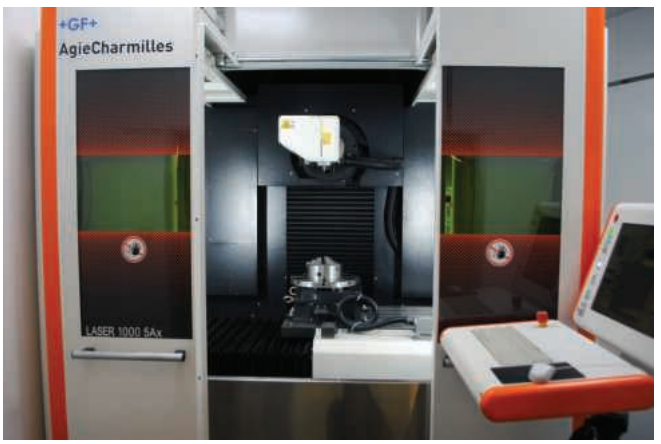
Charles Dean continues: "In many aesthetic and functional applications laser texturing has a number of undoubted advantages over more conventional surface etching processes. For example, they are less harmful to the environment; less labour intensive and therefore 'relatively' quicker; and delivering a more reliable and repeatable process.

"Despite such obvious advantages the hard part is in persuading and convincing manufacturers to consider and try an alternative to their more established and conventional manufacturing methods.

"However, once they see exactly what laser texturing can achieve and the opportunities it presents in terms of new product design they quickly become converted."

The LASER 1000 5AX, like all GF Machining Solutions' laser machines, is designed and built on the company's proven 5-axis vertical machining centre platform and therefore delivers machining reliability, accuracy and repeatability.

The machine features a 50w pumped-diode YAG Ytterbium fibre laser, with the laser beam being moved and controlled by a configuration of Galvo mirrors, located in the machine's head, that direct the beam onto a workpiece, via a self-focusing F-theta lens. The laser beam itself can be focused to a spot size (25, 40 or 70 microns) on the workpiece.



The LASER 1000 5AX state-of-the art 5-axis laser texturing machine in operation at Fimark's factory

The machine's 5-axis capabilities are provided by an A-axis tilting head and a 380 mm diameter B-axis rotating table and, similar to conventional 5-axis machine tools, provides manufacturers with a number of advantages over 2- and 3-axis machines, for example reduced job setups, reduced cycle times and improved part accuracies due to less work handling.

The laser texturing process starts with a CAD image (i.e. a digital bitmap / gray-scale file) of the pattern or texture required. The machine's on-board design software then automatically and intuitively calculates how to achieve/machine the desired result and includes transition-free patching, UV mapping for applying random and over-lapping textures, and full 3D simulation of the machine programme.

For ease of setup and process control, the machine's head features a sophisticated Cognex In-Sight HR vision system camera and a Renishaw 3D Touch probe.

To ensure part accuracies Fimark has installed its machine in a purpose-built, temperature-controlled room.

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New research project on advanced materials

Huntsman is joining a research programme combining industry and academic expertise

Spring 2015 heralded the start of a new research project for Huntsman Advanced Materials on Toughened Thin Ply Composites for Aerospace Applications (TPCA).

Partially funded by the Commission for Technology and Innovation (CTI) of the Swiss Confederation the TPCA two-year programme will see Huntsman work alongside academic and industrial partners taking part in thin ply research for aerospace applications.

Huntsman was an obvious choice to partner in this aerospace research programme

The goal of this research is to improve the toughness of thin ply composites in order to meet or exceed aerospace requirements.

The project will benefit from a multitude of skills, as each business inputs its specific proficiencies. North Thin Ply Technology (NTPT), manufacturer of the world's lightest prepreg tape, will produce the prepregs using its unique, thin-ply technique. Two prestigious educational establishments, Ecole Polytechnique Fédérale de Lausanne (EPFL) and the University of Applied Sciences Northwestern Switzerland (FHNW) will also support the programme by carrying out testing on the composites and on the neat resin.

With renowned expertise in the aerospace industry, Huntsman will be supporting NTPT to improve the toughness of its system.

Further to this, other partners working on this research are RUAG Aerostructures and Decision SA. RUAG Aerostructures specialises in the manufacture of aerostructure components and Decision SA brings over 30 years' experience in the fabrication of composite materials structures, specifically in aeronautics.

A previous CTI research and development study in 2013 and 2014 revealed that thinner ply laminates demonstrate significantly higher strengths than laminates using conventional plies. The purpose of this research is to further enhance the toughness of thin ply composites in order to meet and potentially exceed aerospace requirements.

With such a clear aim for this project, Huntsman was an obvious choice to partner in this research. As a leading global supplier of advanced, high performance materials for the fabrication and repair of aircraft components, for more than 60 years its expertise has seen leading aerospace companies turn to Huntsman Advanced Materials for innovations in composites as well as for tooling, syntactics, adhesives, laminating, and repair systems.

Phillipe Christou, head of European Technical Support at Huntsman Advanced Materials says that the company¹s reputation for innovation has always acted as a catalyst for projects with the academic community: "Our business philosophy is strongly influenced by the belief that pure and applied research go hand-in-hand. Working with partners of this calibre we ensure that advance of our knowledge is rapidly exploited for the benefit of our customers and the market sector that they serve."

Timely research such as this study in TPCA can only benefit the industry over the years to come, anticipating the increased role of composites in the sector.

For over 60 years, leading aerospace companies have turned to Huntsman for innovations in composites, tooling, syntactics, adhesives, structural and semi-structural systems.

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Renishaw bares its teeth

Renishaw, the UK's only manufacturer of metal additive manufacturing (3D printing) machines, offers a new product for the dental market. The company is now supplying its AM250 metal 3D printing machine fully optimised for producing dental parts, meaning that it will not require further adjustment to achieve the production of high quality frameworks. To further enhance this offering Renishaw will also supply cobalt chrome powder that can be used in the manufacture of dental frameworks.

These exciting new developments have only been made possible due to Renishaw's extensive experience of 3D printing dental frameworks, which has been gained by supplying hundreds of thousands of high quality dental devices and frameworks to European dental laboratories.

Suitable for 3D printing of a large variety of metal dental devices, the optimised AM250 is a high volume 3D printing machine specifically aimed at the dental market. Fine tuned to the intricacies and challenges of dental devices, it is a popular alternative for those aiming to reduce the costs associated with milling operations and can replace traditional wax casting techniques by building dental frameworks from STL data as part of a digital workflow. Renishaw has conducted its development with an emphasis on accuracy and quality of frameworks, quality and traceability of raw materials, and speed and reliability of manufacture. The key aim is to allow a rapid return on investment for its customers.

As with any large scale manufacturing equipment, 3D printing machines would typically require further process development before they meet a company's quality criteria. In addition there can be further operational and intellectual property issues that may need to be addressed. Renishaw limits the need to carry out such activities by optimising the AM250 to produce dental devices to the requirements of its customers, meaning that they are able to produce production quality frameworks from the moment their machine is signed over. Renishaw can also offer assistance on all peripheral items such as IP licences, materials and part handling.

Renishaw's dental CAD system

Renishaw supplies the unique Renishaw Dental Studio (RDS) CAD package that combines the speed and flexibility of the company's DS30 blue light scanners with the accuracy of the Renishaw DS10 contact scanner. Using Exocad, RDS allows a wide range of dental devices to be designed. The ability to add to the software's capability through additional modules makes the package flexible and scalable for the expanding dental laboratory.

About the AM250

The AM250 features a vacuum chamber evacuation followed by high purity argon gas in order to create a high quality atmosphere, crucial when building in reactive materials such as titanium, where oxygen content must be minimised. Gas consumption is minimised by the use of a fully sealed and welded chamber that also contributes to robustness. It is also possible

to run the system with non-reactive materials under nitrogen gas.

The AM250 features an external powder hopper with valve interlocks to allow additional material to be added whilst the process is running. It is possible to remove the hopper for cleaning or to exchange with a secondary hopper for materials change, using the universal lift. The powder overflow containers are outside the chamber and feature isolation valves so that unused materials can be sieved and reintroduced to the process via the hopper while the system is running. The safe change filter and system powder handling, via the glovebox, help to minimise user contact with materials and process emissions.

The AM250 has been designed with the manufacturing industry in mind, with a simple touch screen user interface and robust construction. From series production of implantable devices to complex lattice structures or detailed aerospace geometries, the AM250 is capable of fulfilling the requirements of a manufacturing system. With the extended Z-axis option it is possible to build parts up to a maximum height of 360 mm.

All file and data preparation is done off-line in an office environment and whilst the system can be a tightly controlled manufacturing cell, the file preparation software also features useful process development tools for high level users.

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Fylde CNC's success is built on solid admin foundations

When Fylde CNC Specialists relocated to its new facility in Kirkham, Lancashire, the platform had been established to further develop this precision turning and milling subcontract engineering business. Long before the move, the company had started to lay the foundations through investment in PSL Datatrack production management software.

"Having recognised our customer and supplier administration procedures as areas of weakness, we knew we needed to address them," says office manager, Julie Fairclough.

With a large base of global customers from various sectors, the company's success had been based around its ability to listen carefully to customers and deliver on time exactly the solution needed. With typical batch sizes ranging from hundreds to hundreds of thousands, control needed to be maintained and managed carefully as the business grew. The search for a solution led to PSL Datatrack, with its long track record in modular production management software systems for engineering subcontractors.

"We were looking for an off the shelf system with the flexibility to be customised and to grow with us," explains Julie Fairclough.

This initially meant a package that could cover the fundamentals such as generating customer quotations professionally, cost centre reporting, raising purchase orders, monitoring goods in/out, works orders and generally helping to manage and track key information in the manufacturing processes.

Once the initial system was providing benefit to the business, the company invested in Gauge Calibration and Non-Conformance. With automotive sector customers, quality and traceability are absolutely essential, right back to the raw materials used.

Other advantages of PSL Datatrack are its ability to provide real time and management information such as feedback on machine tool performance. The Time and Attendance module has allowed the company to dispense with analogue clocking in and out by staff and manual calculations of hours worked. PSL Datatrack is a flexible, modular production management system designed for both small and medium size manufacturing businesses. The system helps to manufacture quality parts, right first time, sold at the right price and delivered on time. PSL Datatrack can give your business the means to do this, as well as provide vital information to management and the shop floor in the most efficient way possible.

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HK3D chooses 3D Systems to drive additive manufacturing growth

3D Systems has announced that it has entered into a reseller agreement with HK 3D, a leading supplier of 3D printers and additive manufacturing in the UK and Ireland. Under the new agreement, HK 3D, part of the HK Holdings Group, will immediately begin to offer the full line of 3D Systems 3D printers, materials, perceptual devices and design tools to its customers as part of its integrated 3D print offering.

In the UK, HK Holdings is at the forefront of advanced manufacturing techniques that include 3D printing, laser marking and electro discharge machining (EDM) technologies as well as high specification machine tool and manufacturing solutions.

HK 3D will distribute all of 3D Systems products in order to broaden its customer offerings and support the full range of applications in 3D digital fabrication. This includes 3D Systems ColorJet, MultiJet, selective laser sintering, stereo lithography and direct metal 3D printers, as well as its consumer and desktop printers. HK 3D will also offer 3D Systems scanning and software solutions to round out its portfolio and meet its customers' growing needs for end-to-end engineering applications and support.

Commenting upon the new agreement, Steven Wilcox, managing director of HK Holdings says: "We are thrilled to partner with 3D Systems and to offer their entire portfolio of 3D digital design and fabrication solutions. This gives all of our customers access to the broadest range of 3D tools and technologies on the market. It will also help them meet the most demanding applications, particularly those in aerospace, automotive and healthcare."

"As we progress, we will be targeting sales growth of 50 percent year on year as we widen the remit of HK Holdings to cater for the additive manufacturing and reverse engineering marketplace. What this new product line gives end users is 'freedom of design', whereby the complexity of product design is not constrained by the parameters of a machine tool. We can already print 15 metals such as titanium and steel with a range of different printing processes. This new technology will bring a step change to the UK manufacturing landscape and we are delighted to represent the most technologically advanced 3D printing products available."

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Speed and accuracy of the Aberlink CMM impresses Ardor

Ardor Engineering Ltd specialises in the production of high-quality, precision machined components and boasts particular expertise in manufacturing parts from super alloys and other exotic materials. Ardor's customers operate across a wide variety of demanding sectors, including the nuclear, oil & gas, petro-chemical, industrial pumps, valves & controls, power generation and defence industries. Formed in 1974, the well-known precision engineering business has earned an excellent reputation for the quality of its output, and for the scope of the services it provides.

Prompted through ever increasing demand from both its long standing clients and new customers, Ardor recently substantially expanded its capacity and further extended its range of in-house capabilities by relocating to a custom designed 8,500 square feet manufacturing and administration facility in Huddersfield. Located close to the M1 and M62 motorways, the company's impressive new HQ is situated virtually half way between the East and West coasts and equidistant from the Northern and Southern limits of the company's diverse customer base.

Doubling the company's previous shop-floor space, Ardor's state-of-the-art 'green' headquarters was specified with power saving in mind. The large environmentally friendly building has allowed Ardor's comprehensive range of advanced machine tools to be accommodated, new CNC machines to be installed and enabled a significant increase in output.

To help the company's busy quality department keep-pace with raised production levels, Ardor Engineering managing director, Michael Kilbride recently searched for a Coordinate Measuring Machine (CMM) that could meet the company's accuracy standards and help to guarantee the continued quality of the company's increased output. In addition, the new CMM needed to have the ability to perform rapid, automated measuring routines that could handle the large volume of high precision work passing through the company's quality department.

Michael Kilbride says: "The nature of our demanding customers and the challenging work we undertake necessitates the administration of a rigorous quality policy. This is implemented through the operation of an all-inclusive quality management system that encompasses all of Ardor's activities from admin functions, through manufacturing, to final inspection and component delivery.

"As part of our quality program we are accredited to Quality standard ISO 9001:2008, Environmental standard ISO 14001:2004 and the Health and Safety standard OHSAS 18001:2007. In addition, we have integrated our management system and achieved accreditation to PAS99:2012.

"In accordance with our commitment to quality, and to help maintain our position as a leader in the demanding field of precision machining, we remain committed to a program of continuous improvements and a 'right first time' production philosophy. These aims are supported by investments in equipment such as our recently purchased Coordinate Measuring Machine.

"Having considered several alternative CMMs, an impressive demonstration of Aberlink's Axiom Too convinced me that the machine had all of the attributes we needed. In addition to having the accuracy specification we were looking for, the Axiom Too was also able to perform the quickest, automated CNC measuring routines of all the CMMs we looked at. The machine's generous component support meant that we would be able to measure a single large part, or load multiple smaller components. Given several other factors, not least Aberlink's excellent reputation, the ease of use of the CMM's software and its cost effective price, we were happy to place an order.

"Now installed in our temperature controlled metrology suite, due to its ease of use, our operators have quickly mastered our new Aberlink CMM and it is proving to be an invaluable tool in ensuring the quality of our output. The machine's impressive speed has removed the possibility of inspection bottle-necks and its ability to generate comprehensive inspection reports is much appreciated by our customers."

The Axiom Too is the best-selling CMM from Aberlink Innovative Metrology, the largest UK owned Coordinate Measuring Machine manufacturer. Available in manual and CNC variants and in a range of capacities, the recently upgraded CMM can truly be described as the complete Inspection Centre; high measuring accuracies are achieved through the use of the latest metrology techniques and advanced in-house manufacturing methods.

The Axiom Too boasts an aluminium bridge with a very low thermal mass, rendering the machine ideal for use either in controlled environments or within less than perfect shop-floor conditions. Thanks to the Axiom Too's use of advanced materials, the machine's reduced inertia results in class leading speed of operation. For increased accuracy air bearings of optimised stiffness are employed on all axes, whilst a granite Y Beam allows preloading of bridge bearings in both directions. Borrowed from the aerospace industry, the CMM's sturdy component support consists of an advanced granite/aluminium honeycomb construction, this technology, provides natural damping and further improves the

machine's thermal properties. Despite the Axiom Too's generous measuring volume 640 x 600 x 500 or 640 x 900 x 500, the machine's compact design occupies a relatively small footprint, with the controller and all peripherals housed within the Axiom Too's workbench.

The easy to use Axiom Too utilises Aberlink's famous, intuitive 3D software, ensuring greater user productivity and profitability. A welcome bi-product of any Aberlink CMM inspection routine is that a simultaneous picture of the measured component is created on the computer screen. Dimensions between the measured features, mirroring those that appear on the component drawing, are then picked off as required. In essence this 'smart' software represents an intelligent measuring system that is able to automatically recognise and define the various features being measured. Aberlink 3D is claimed to be the easiest to use CMM software currently available, as a result a complete novice is usually able to perform relatively involved measurement routines after just 5 minutes training.

Michael Kilbride concludes: "It remains the goal of Ardor Engineering Ltd to provide products of a quality which not only meet, but exceed the needs of our customers and in doing so, remain a leader in the field of product quality. As it has the high precision capability to measure our most demanding parts and the speed to perform rapid CNC measuring routines, our new Aberlink CMM is now making an excellent contribution to enabling us to maintain our reputation for the quality of our work."

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New system for simple length setting of tools on CNC machining centres

Global engineering technologies company Renishaw has launched the Primo™ LTS (length tool setter) at CIMT, Beijing, China. The Primo LTS is a single-axis tool setter which allows users to set tool length, check for breakage, and compensate for thermal growth on a CNC machining centre. The Primo LTS eliminates the need for time-consuming, error-prone manual tool length setting which can lead to scrap, rework, and reduced productivity and profit levels.

Automated on-machine tool length setting with Primo LTS is up to ten times faster than manual methods, resulting in immediate and significant cost savings. It is suitable for use on small to large CNC machining centres and helps guarantee "right first time" parts, reducing waste and increasing profits.

During a machining process, dimensional accuracy is dependent on a number of variables, including tool length and tool breakage. The Primo LTS monitors these variables automatically, enabling users to compensate for variations which may occur and benefitting the overall machining process. The Primo LTS is a hard-wired product featuring a fully integrated interface for straightforward electrical connection: the hardware can be bolted onto the machine table and is immediately operational, with no additional set-up required. The Primo LTS is designed to operate in the harshest of machining environments, so it is resistant to swarf or coolant ingress and prevents false triggers caused by shocks or vibration. An integrated air blast provides effective swarf removal when necessary.

Easy to install and use, Primo LTS provides an accessible solution for increasing the productivity and profitability of a machine tool.

For further information on Primo LTS visit **www.renishaw.com/primo-LTS**
Renishaw is a global company with core skills in measurement, motion control, spectroscopy and precision machining. The company develop innovative products that significantly advance customers' operational performance, from improving manufacturing efficiencies and raising product quality to maximising research capabilities and improving the efficacy of medical procedures.

Renishaw products are used for applications as diverse as machine tool automation, co-ordinate measurement, additive manufacturing, gauging.

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Mitutoyo puts precision into mould tools

Precision Moulds & Tools Services Ltd was formed in 1991 by two partners who shared a passion for high-precision machining and a vision of the future of high quality tool making. Over the past 25 years the company's founders have used their in-depth experience, gained in some of the most advanced tool rooms throughout the world, to create what is now an internationally renowned business.

Reflecting Precision Moulds & Tools Services Ltd pursuit of the highest standards of dimensional accuracy, throughout all production processes the company's toolmakers inspect manufactured components using advanced Mitutoyo Toolmakers Measuring Microscopes that are located in dedicated, climate controlled inspection areas. In addition, on completion, each tool undergoes detailed final inspection. If requested, comprehensive inspection reports can also be created and submitted with delivered tools.

Precision Moulds & Tools Services Ltd, sales director Joe Boscarini says: "As well as our ability to design and manufacture on-time and at the right price, our international reputation is based largely on the consistent, premium quality of the mould tools that we produce. The use of state-of-the-art inspection technology helps to ensure levels of consistency that give our customers the confidence that replacement inserts or repeat orders will be absolutely identical to those originally supplied.

"To help ensure the continued quality of our ever increasing output, several years ago, we undertook a search for an easy to use, highly precise measuring technology that would allow our toolmakers to perform rapid, in-process dimensional checks at each stage of tool manufacture. After witnessing several practical demonstrations and considering other alternative systems, we decided that the Mitutoyo MF Toolmakers Measuring Microscope was the ideal metrology instrument for our needs, and our first unit was purchased.

"Not only did this multifunctional Measuring Microscope have the required accuracy specification, we were convinced that its ease of operation would mean a short operator learning curve and also enable inspection routines to be carried out quickly.

"The use of Mitutoyo's binocular stereo measuring microscopes provides us with advanced optical inspection and measuring capability. Extended depth of focus, long working distances and wide field of view minimise operator eye fatigue whilst increasing our inspection efficiency and productivity."

Initially serving the domestic connector market, the quality of Precision Moulds & Tools Services Ltd work soon attracted clients from other equally demanding industrial sectors, such as the medical, pharmaceutical, automotive and electrical, industries. The procurement of contracts for the production of single and multi-cavity plastic injection mould tools, for use in conventional, twin-shot, strip fed and overmould applications, has allowed the Stoke Mandeville, Buckinghamshire based company to grow rapidly..

From Precision Moulds & Tools Services Ltd inception the company has employed a highly skilled workforce and has consistently invested in the best available design, production and inspection aids. This policy ensures that premium quality moulds and tools are delivered on-time and on budget and has also enabled the range of in-house services provided to be considerably expanded.

The ISO 9001:2008 certified business now boasts more than 38,000 sq ft of purpose-built manufacturing space. In addition to closed-cell climate controlled tool manufacturing, the Stoke Mandeville facility accommodates administration functions, design & development, a dedicated climate controlled inspection facility and a mould shop that houses advanced moulding machines that are used for first-off sampling and initial batch runs. Clients are also able to deliver their own machines for closed cell tool validation.

Reflecting the international experience of the company's founders, in 2004 Precision Moulds & Tools Services Ltd opened a factory in Sri Lanka that mirrors the busy UK plant. Mindful of the excellent accuracy standards that are assured by the use of Mitutoyo Toolmakers Measuring Microscopes in the Stoke Mandeville facility,

further units were purchased for the company's new venture.

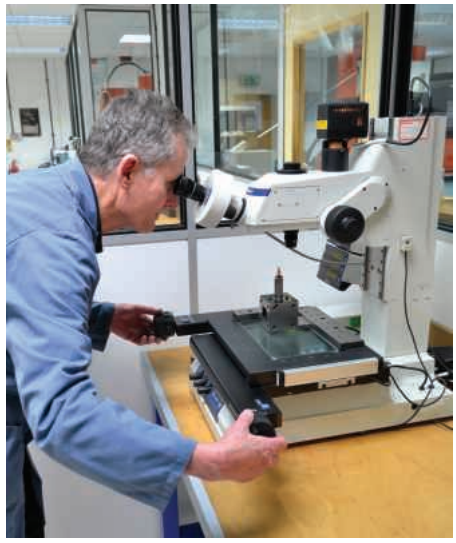
Joe Boscarini says: "As our first Mitutoyo Toolmakers Measuring Microscope proved to be the perfect measuring instrument for ensuring the accuracy of our tools, as our business has expanded and our workload has increased we have purchased additional models and located them in strategic locations throughout our Stoke Mandeville site. Our recently purchased unit means that we now have six Mitutoyo Toolmakers Measuring Microscopes. In addition, mindful of the advantage these high quality inspection aids have provided in the UK and the excellent service we had received from Mitutoyo, when we established our Sri Lankan facility, we equipped it with further models.

"The inherent accuracy of our Mitutoyo microscopes and their ease of use ensures that our Toolmakers, in both company facilities, are able to achieve the highest standards of precision. The first word in our company's title illustrates the importance we place on the accuracy of our work. Our Mitutoyo microscopes continue to be a vital element in our precision mission."

The Mitutoyo MF Toolmakers Measuring Microscope, as used by Precision Moulds & Tools Services Ltd, is a high power, multifunctional measuring microscope offering monocular or binocular observation with a clear, non-flare image and a wide field of view. Measuring accuracy is the highest in its class. The ML series, high-NA objectives provide a long working distance and the illumination source, reflected or transmitted, is selectable between high-intensity LED or halogen, with a variable aperture diaphragm to suppress diffraction. A quick-release mechanism allows the stage to be moved around quickly and coarse/fine feed handles on both sides allow precise focus and observation regardless of handedness. Optional eyepieces enable observation up to 2000X magnification.

Mitutoyo is the world's leading manufacturer of precision measuring equipment, offering a huge range of products from micrometers, calipers and dial gauges to hardness testers, vision measuring systems and 3D coordinate measuring machines from sales offices in more than 40 countries, supported by aftersales representation in more than 100.

In the UK, in addition to providing top-quality products for manufacturing



industry, Mitutoyo offers machine-specific training for customers as well as general metrology training courses for companies wishing to upgrade staff skill levels.

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Affordable laser scanning solution for portable measuring arms

Hexagon Metrology launches new 3D scanner to extend ROMER Absolute Arm measurement functions

Hexagon Metrology has unveiled a powerful new non-contact sensor, the HP-L-8.9 laser scanner. Positioned at a very affordable price point, the new scanner promises to make handheld 3D laser scanning accessible to users who until now were unable to justify investment in this technology.

Installed in minutes on any 6-axis model of Hexagon Metrology's ROMER Absolute Arm portable coordinate measuring machine (PCMM), the HP-L-8.9 offers high-speed point cloud capture, ideal for customers looking to expand their metrology capabilities. Giving reliable results even on complex freeform surface shapes, challenging surface types (like carbon fibre) and delicate materials, it extends the measurement capabilities of the ROMER Absolute Arm into new application areas including benchmarking, product design and reverse engineering.

Laser scanning offers customers the opportunity to gather more data, more quickly, improving quality and productivity in the manufacturing process. With simple plug and play functionality and user-friendly features including a totally new range finder concept to guide operators to the correct measurement position, the HP-L-8.9 delivers the advantages of high-density 3D point capture to users in no time. The scanner is compatible with all major PCMM software and thanks to the automatic probe recognition of the ROMER Absolute Arm there is no need to calibrate the sensor, reducing training requirements to a minimum so operators can be up and running as soon as possible.

"In the past, laser scanning has been seen as an expensive high-end technology that is hard for some companies to justify expenditure on," comments Stephan Amann, product line manager at Hexagon Metrology. "With the HP-L-8.9 we really wanted to change this perception and enable more operators to gain access to this

fantastic technology. Laser scanning is a step-change for productivity and the HP-L-8.9 offers an affordable entry-level option that will benefit all kinds of manufacturers."

HP-L-8.9 is available worldwide, with orders accepted immediately through Hexagon Metrology and authorised dealers.

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New range of multi-mode ultrasonic thickness gauges

Cygnus Instruments Ltd, the leading manufacturer of Multiple-Echo digital ultrasonic thickness gauges, used for measuring remaining metal thickness without the need to remove protective coatings, has unveiled the latest range of surface instruments. The new range of thickness gauges was launched following extensive customer engagement, working within industry standards and following careful / exhaustive design reviews.

Versatile Measuring Modes as Standard with Latest PLUS Models

Cygnus has now incorporated two additional measuring modes in to its latest range of thickness gauges. Single-Echo and Echo-Echo modes, both using twin crystal probes, can assist in obtaining measurements in areas of extreme corrosion or back wall pitting: Single-Echo measuring mode is ideal for measuring uncoated surfaces with heavy front face and/or back-wall corrosion and attenuative materials such as cast metals, plastics and composites; Echo-Echo measuring mode is used for measuring painted metals but with heavy back wall pitting for improved back wall detection.

Additional new features

The range consists of five new models offering a comprehensive array of new features including: A-scan and B-scan displays; hands-free units for climbing or rope access; simple sequential data logging or comprehensive data logging with features including Grid Format, offering 16 directional formats; vibrate alert to warn the operator when the measurement is out of tolerance; Bluetooth data transfer capability; and MSI™ (Measurement Stability Indicator).

MSI is both clever and simple. Used in Single-Echo and Echo-Echo modes, this trademarked technique samples returning

echoes to ensure they are all identical. If the returning echoes are identical the display changes colour or format which indicates the reading is stable and reliable.

Sequential and comprehensive data logging

There are two data logging models in the range, one offering simple sequential measurements to be recorded while the other offers comprehensive data logging where the user can add defined text comments, create templates and add radial measurements around a last logged measurement point. Both models record up to 5,000 measurement points, including A-scans.

Data logging models are supplied with the Cygnus CygLink Software. CygLink is a Windows® application for PC's running Windows 7 and above and is used for uploading data from a data logging gauge. The information can then be analysed, stored, reports can then be created and the data can be exported as a .pdf or .csv file.

Extremely rugged enclosure

Designed for use in the most severe operating conditions, the purpose designed enclosure is both extremely tough and strong while small and light weight.

Manufactured using a twin shot injection moulded enclosure which has a soft but durable TPE outer skin, making them both comfortable and extremely durable, while the inner shell is strong, keeping the electronics totally sealed from the outside environments.

This new instrument enclosure has allowed Cygnus to achieve the tough American Military Standard MIL SPEC 810G for environmental protection. These new gauges will survive the harshest operating conditions including drop, vibration, dust and water ingress (IP67) together with low and high temperature cycling.

While the new range from Cygnus offers many new features, the simple to use menu structure means that these new gauges are quick to learn and simple to use.

Cygnus has concentrated on providing the user with key measurement functions for a wide range of thickness gauging applications, in a tough instrument designed and tested for the most severe operating conditions.

30 years ago Cygnus was the original pioneer, developing digital multiple echo technology to obtain accurate materials and corrosion thickness measurements through coatings. With successful diversification, The company now carries three ultrasonic product lines, thickness gauges, hatch cover/water-tight door leak detector & industrial leak detectors.

Cygnus manufacture and supply ultrasonic thickness gauges which are employed in almost every industrial application around the world.

Cygnus gauges are all robust and simple to use. They are engineered to withstand the harshest environments.

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New generation of touch probes to be launched

HEIDENHAIN, which develops and manufactures linear, angle and rotary encoders, digital readouts and numerical controls for demanding positioning applications, will exhibit a new generation of machine tool touch probes for the first time in the UK at Manufacturing & Engineering North-East 2015.

Designed for aligning and measuring workpieces, tool setting and detecting cutter wear and breakage, the range includes hybrid models that are able to be switched between infrared (IR) and radio transmission of signals. The same unit can therefore be swapped between different machine tools on a shop floor, irrespective of whether they are equipped with IR or radio communication, saving the cost of buying extra probes.

A further advantage, mainly applicable to larger machines, is mixed operation using both forms of data communication. It allows the long range of radio transmission to reach the tool changer so that a workpiece probe can be activated, ready for use. Subsequently switching to IR during probing

exploits the increased speed and accuracy of data transmission at infrared frequencies. Another new and in this case patented feature is the inclusion of an optional rubber coupling in the body of the workpiece probes, positioned between the stylus and shank to protect the unit in the event of an axial collision. The probes also have wear-free optical sensing, thermal decoupling and smart battery standby.

HEIDENHAIN Interactive Training (HIT) software will be promoted. The modules, with information, exercises and simulations, provide an on-line training environment for programming CNC machine tools and are ideal for schools and colleges.

TNC 640 CNC will also feature. The latest control in the HEIDENHAIN range, it offers both milling and turning capability as well as enhanced accuracy and surface finish of the machined part.

Based in Burgess Hill, West Sussex since 1969 HEIDENHAIN (GB) Ltd. is a wholly owned subsidiary of DR. JOHANNES HEIDENHAIN GmbH. Employing 21 people, the company is a sales, service, and distribution centre for the UK and Eire for the complete range of products manufactured by HEIDENHAIN. Product application and customer service support is provided on CNC control systems, digital readouts, linear and rotary encoders, length gauges, measuring probes and machine calibration equipment.

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Proximity probe system with universal driver

Condition monitoring specialist Sensonics has introduced a new range of proximity sensors suitable for measuring shaft vibration, position and speed on rotating plant. Building on the established Senturion proximity probe range, the new series offers a configurable universal driver suitable for all probe cable combinations and offers new features including a separate socket for gap voltage monitoring.

Proximity probe systems are made up of a calibrated probe, extension cable and driver. Utilising the eddy current principle, this combination forms a tuned circuit with the target material and variations in probe face to target distance are detected in this circuit by the driver. This provides a linearised voltage output proportional to target gap with a nominal sensitivity of 7.87 mV/um. This type of measurement system provides highly accurate (resolution typically less than one micro-meter) vibration and relative positional measurements, for harsh environments up to 180°C.

The driver unit offers selectable system lengths of 5 m, 7 m or 9 m, with a front panel green LED indicating the selected option. This provides flexibility on-site when installing the system, where in most cases different system lengths are required on the various machine locations, with the additional benefit of minimising the spares holding.

The gap voltage monitoring socket assists with commissioning the probe system; a volt meter can be connected directly to the driver through the 3.5 mm standard audio socket to display the gap voltage at the point of installation and the probe mechanical gap can then be adjusted to suite the application.

The cable system incorporates snap lock connectors which require no torqueing and provide a shake proof solution important for heavy industrial applications. The double screened cable offers robustness in combination with high immunity to interference and optional stainless steel convoluted armour is available for applications or environments where cable protection is paramount.

The universal driver concept follows on from other universal hardware platforms developed by Sensonics, such as the Sentry G3 monitoring and protection system which offers a single hardware platform for all the necessary turbine and pump vibration and supervisory measurements

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Alchemy expands into total waste

21st Century scrap metal merchant Alchemy Metals Group has officially launched its total waste arm 'Alchemy Solutions'.

The Alchemy Solutions waste arm is headed up by Sam Corrigan. Supply Chain key account development manager, Sam brings with her many years operational experience over a wide range of waste related fields and specialises in the manufacturing and industrial sectors.

The Alchemy ethos of traceability and transparency has been carried over to Alchemy Solutions and the company will be embracing a 'zero waste to landfill' mentality whilst utilising efficient energy recovery from chargeable waste streams wherever possible.

Alchemy Solutions aims to maximise the revenue from profitable waste streams such as metals, plastics, and cardboard, whilst minimising the costs of chargeable waste streams such as general waste, mixed recycling, food, oil and wood. In addition a visual audit trail on profitable waste streams will be utilised.

Every customer will have a dedicated account manager within the Alchemy Solutions team, meaning that clients will benefit from a one stop, cost-effective, environmentally friendly, legally compliant solution for all of their waste streams, achieved with a single phone call.

The Alchemy Solutions team will be working with its clients to ensure they are compliant with the Waste (England and Wales) regulations, in particular when applying the waste hierarchy. All businesses must take every reasonable step to prevent and reduce waste. However, where it does arise, the Solutions team will ensure that it is dealt with in the most environmentally efficient manner. All customers will be provided with quarterly waste audit reports allowing them to fully analyse their environmental performance, a particularly useful tool for companies that are committed to justifying their CSR.

Alchemy Solutions is offering free zero waste and compliance audits to assist UK businesses in ensuring they are following best practice across all waste streams.

Alchemy Metals Group operations director, Karen Greasby says: "Alchemy is committed to best practice within the scrap metals industry. Our customers frequently ask whether we can handle their total waste and we have been able to do this for a select few however we are now delighted to roll out this service to all companies within the UK. Many waste streams are a frequent headache for the manufacturing sector and the Solutions team has the experience to source alternative, environmentally efficient and compliant options for our customers".

Alchemy Metals Ltd was established in 1985 through a management buyout of the founding company Hugh H Fisher Ltd. The company has over 50 years' experience of trading secondary metals waste, as well as purchasing new production and surplus scrap direct from the manufacturer.

Alchemy Metals Group is one of the UK's largest buyers of tooling direct from manufacturing companies and tooling suppliers, we are interested in all solid (Hard Scraps) Carbide, Cobalt, (HSS) High Speed Steels & Tool Steels as well as all carbide/cobalt soft scraps from sludges, slurry & powders.

All metals waste is purchased by grade then processed for onward sale to end-users.

Alchemy Metals prides itself in providing a tailor-made service to fulfil customers' specific needs.

It provides solutions to efficiently manage your scrap metal, coupled with complete accuracy on the weights and grades of scrap metal, to significantly benefit your company.

Due to its high scrap value, tooling theft from industry is prolific.

Alchemy Metals therefore recommends that within your company's current recycling policy you state clearly that all metal whether new, used or scrap is the property of your company and that any employee who is found to be "pocketing" the scrap without the permission of senior management will be liable for disciplinary action.

Alchemy can arrange to improve your control of this income stream by putting a Logging Action Plan into your tool stores to control all used tooling out with new tooling in.

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STATE OF THE ART

TOTAL WASTE MANAGEMENT

The Alchemy Metals Group is an independently owned recycling specialist. Based at our state of the art facility in Hertfordshire, we offer tailored waste management solutions to clients all over the country.

Whilst all of our customers have different requirements, we guarantee to provide each and every one with the same level of unprecedented service, quality, integrity and traceability. Quite simply you will get from us the best total waste service you have ever experienced.

Alchemy Solutions aims to maximise the revenue from your profitable waste streams whilst minimising the cost of your chargeable waste streams.

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Pay it forward with payback

An efficient approach to metalworking fluids disposal

Keith Allen, business development manager at process water recycling expert Lancy Technology (part of NHE), discusses the treatment and disposal of metalworking fluids

The metalworking sector is currently valued at around £100 billion in the UK, split across approximately 80,000 metal machining companies and providing almost 1.5 million jobs. The majority of these businesses rely on metalworking fluids (MWFs) in the machining process and disposing of the resulting wastewater can be problematic. Not only must companies dispose of waste responsibly but there are many factors to consider including the type and volume of waste, different methods of treatment or disposal, the cost of those methods and the environmental impact. This myriad of considerations often means a solution can be difficult to determine and a bespoke approach is required.

Alongside this, increasingly stringent regulations governing wastewater discharge and greater quantities of wastewater being produced means there is a growing need for more efficient and cost-effective methods to remove metals and other contamination from process wastewater.

Legislation such as the Integrated Pollution Prevention and Control Directive (IPPC) has also sharpened the focus for companies to dispose of their waste in a more environmentally-aware way. As part of the guidelines, it is now a requirement to take all measures necessary to ensure the safe collection and disposal of waste oils. As a result, businesses need to treat spent waste MWF before the water component can be discharged to sewers.

Metalworking fluids and waste treatment options

MWFs are a complex mixture of oils, detergents, surfactants, biocides and anti-corrosion agents used for a variety of applications. They can be used as coolants, lubricants and swarf or metal chip removers during machining. They are usually supplied as concentrates and diluted with water before use to produce an emulsion of (generally) 2-10 per cent by volume oil in water. After a period of time, the fluid needs to be replaced and disposed, mainly for contamination reasons or for something as simple as the fluid has become to oily or smelly. One of the most common methods for the disposal of MWF is to use an external waste management company to dispose of the contaminated wastewater rather than treating it on-site. Whilst discharging the responsibility to waste disposal specialists can be the simplest method, it can be prohibitively expensive, with haulage costs rising. It also means water cannot be recycled, which is one of the biggest disadvantages from an environmental and financial standpoint. The main factors to consider with this option are the type of waste and concentration, the volume of waste and the distance to the disposal site. If limited amounts of waste are produced (less than 10,000 litres per annum) and the facility is close to a disposal site, this can be an effective option. However on the most part and especially for larger volumes, there are now more efficient solutions available, both from a financial and environmental point of view.

For larger volumes, investment in a form of water treatment equipment will result in a waste stream that is less hazardous and, therefore, cheaper to dispose of or is easier to treat downstream.

Investment in water treatment equipment, while expensive in the short-term, can offer significant payback opportunities in the long-term, as well as being beneficial to a business' environmental policy by reducing the environmental impact of the metal finishing processes.

The three categories of water treatment:

- Primary Treatment - disposal of two waste streams, categorised by hazard level
- Secondary Treatment – disposal of water and oil separately
- Tertiary Treatment – further improvements to the quality of the waste water stream

Primary treatment typically is not a suitable option for many metalworking companies as it consists of holding waste in a quiescent basin to allow oil, grease and lighter solids to float to the surface and heavy solids can settle on the bottom. These materials can then be removed but the remaining liquid may require a secondary treatment before discharge.

Secondary treatment methods involve the separation of the emulsified oil from the spent MWFs. This has the effect of substantially reducing the Chemical Oxygen Demand (COD) and sometimes the Biochemical Oxygen Demand (BOD) in the fluid, which are contamination standards and measures. If these elements are sufficiently low following treatment, then it may be possible to dispose of water as waste water with correspondingly low charges. The final treatment stage is tertiary treatment to further improve the effluent quality and there are many different methods including filtration and disinfection.

The latest technology uses evaporation (vacuum distillation) for the treatment separation of MWF's from water. Installing a specialist wastewater evaporation system can virtually eliminate the need for regular wastewater collection and disposal by separating the MWF waste to leave only a very small volume for disposal, which significantly reduces carriage costs. The leftover water can then be either disposed of via the sewer network or recycled internally.

The main advantages of this method are that it is effective for all types of MWF, it is unaffected by fluid variations and contaminates and it produces quick results, meaning payback on investment in equipment takes typically less than two years.

It works by heating spent MWF in a specially-designed vessel to drive off water, typically leaving around five per cent volume of hazardous waste. Additional tertiary

water treatment techniques for the end stream water following secondary treatment can also be applied to reduce the COD level further. This allows recovered water to be reused on site within a manufacturing process or for low grade use such as floor washing or toilet flushing.

Alternative techniques to evaporation include reverse osmosis, nanofiltration and ion exchange, however these typically add cost to the treatment of MWF's that would render them economical or viable in only very particular circumstances.

Payback

Recycling wastewater can have a significant environmental and financial impact. As well as ensuring water entering the system is not hazardous and in a lot of cases can be recycled by the business itself, the return on investment can mean this can be a viable and beneficial MWF treatment option for many companies. Disposal costs can be drastically reduced, up to a factor of 100 and the average payback period following investment in wastewater evaporator equipment is two years.

The product can also comply with the Enhanced Capital Allowance (ECA) Scheme in certain circumstances. The ECA scheme means that a business can invest in energy-saving plant or machinery that might otherwise be too expensive. The first year allowances let businesses set 100 percent of the cost of the assets against taxable profits in a single tax year. This means the company can write off the cost of the new plant or machinery against the business's taxable profits in the financial year the purchase was made. An ECA is claimed through a business's income or corporation tax return in the same way as any other capital allowance. HM Revenue and Customs is responsible for the tax-related aspects of the ECA scheme*.

The Vacudest wastewater evaporator system

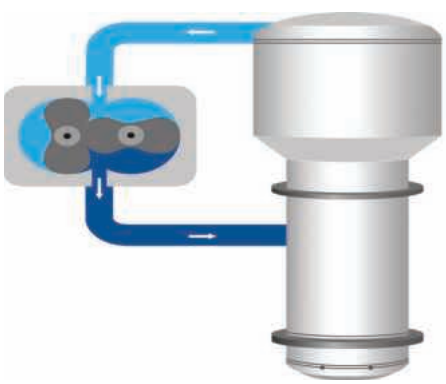
As part of NHE (Norman Hay Engineering), Lancy Technology provides a single resource for process water recycling requirements, including effluent treatment, wastewater processing and metal and chemical recovery. Lancy Technology is the UK and Ireland partner of H20, the company behind the innovative Vacudest wastewater evaporation system. The Vacudest system uses no expensive chemical for cleaning wastewater and has much lower energy consumption when compared to other types of product on the market; up to 95 percent less when compared to atmospheric distillation and five times less than heat pump distillation. Typically this equates to around a £15/m^3 cost saving compared with alternative treatment methods. Average annual savings can equal more than £70,000, with typical disposal costs reducing from more than £100,000 to just over £8,000**.

Cost type	VACUDEST evaporator	Disposal
Interest for raising of capital	£4,240 pa	
Operating cost (Electricity, consumables, man-power, spares, wear and tear parts)	£25,250 pa	
Fresh water	£420 pa	£6,350 pa
Disposal of evaporation residue/spent coolant	£8,500 pa	£106,000 pa
Total	£41,410 pa	£112,350 pa
Annual savings	70,940 pa	
Return on investment	1.9 years	

**Cost savings diagram

Each unit is based on a modular design which enables it to be tailored to meet precise installation requirements. Additional factors such as a maintenance-friendly design and simple control systems, including internet connection for remote diagnostic purposes, are other properties which help to produce the highest quality distillate from each Vacudest facility. The process is also clean and effluent free.

The Vacudest system forms part of the Lancy Technology solution to treat, recover and reuse waste water within the user's own premises, thereby removing the high cost and inconvenience of off-site disposal. Additionally, operational cost savings are delivered by helping customers to guarantee that discharge consent criteria are met, effluent streams are minimised and valuable materials reclaimed.



For more information, visit **www.nhe.uk.com/process-water-recycling/water-treatment.**

*Energy Technology List (ETL), part of the Enhanced Capital Allowance (ECA), see www.gov.uk

For a typical payback calculation go to: **www.nhe.uk.com/process-water-recycling/water-treatment/vacudest-vacuum-distillation-system/vacudest-process-compared-disposal-wastewater-management-company/**

NHE is a world leader in the design, manufacture, installation and management of process plant for Surface Treatment, Non-Destructive Testing (NDT) and Process Water Recycling. Its offering includes fully automated process plant to smaller manual lines, spares and specialist equipment. The company has more than four decades' of experience worldwide and operates through the joint expertise of Plasticraft, Ardrox Engineering and Lancy Technology. NHE provides a full service capability that consistently demonstrates the benefits of sourcing complementary services from a single supplier.
www.nhe.uk.com

Norman Hay plc is a global chemicals, sealants, surface coatings and engineering group with over 60 years trading history. Headquartered in the United Kingdom, the group operates four main divisions: Ultraseal, the market leader in impregnation chemicals and process equipment; Surface Technology, specialists in the development and application of surface treatments with well-known brands including Armourcote; SIFCO ASC, global leaders in selective plating; NHE, manufacturing bespoke process plant and equipment.

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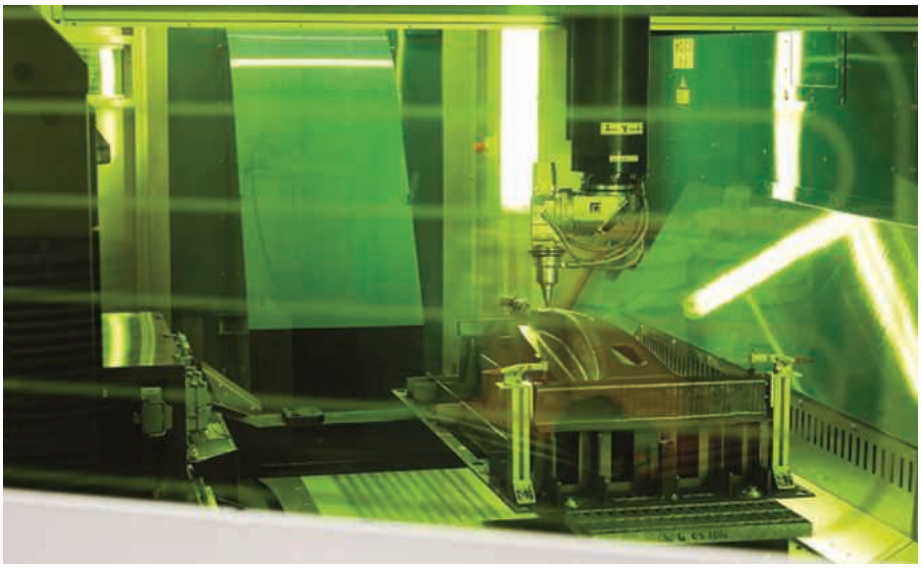
Better by design



Prima Power is one of the few laser companies that manufactures its own CO_2 laser sources. This is carried out by one of its group companies, Convergent Photonics. Acquired by Prima in 2010, the technology can be traced back to 1961, so the expertise available for Prima Power customers is extensive.

When it comes to fibre technology, Prima Power has chosen to partner with IPG as a source provider, the system being based on fibre laser generation and delivery rather than just fibre laser delivery. Prima Power's engineers believe that this solution offers customers some valuable advantages. The technology behind the system comprises broad-area multimode pumped diodes, which are highly energy efficient and long lasting with a life expectancy of 10 years or more. These emit light at a narrow wavelength which can be efficiently absorbed by the laser crystal with little lost to heat, resulting in high wall plug efficiencies of around 30 percent.

The construction of the laser source is relatively simple, without complex arrangements of mirrors, and by combining several of these fibre laser modules, a single laser fibre can deliver outputs of 1 kW, 2 kW, 3 kW right up to 50 kW at the cutting head, making the solid state design intrinsically more reliable and flexible.

With multiple light sources, Prima Power has been able to build source redundancy into its laser machines. With a single light source, if this fails, the laser stops completely while, with the multiple pumped diode arrangement, not only is the diode very long lasting, but, if one diode fails, the other diodes/modules can be operated to a slightly higher pumping current so that there is no loss of output power. At the same time, an error message informs the operator that maintenance is required. The solid state module can then be replaced during normal stoppage time without affecting up-time and productivity. The IPG single emitter diodes used in the Prima Power system are mounted on a heat sink with the same coefficient of thermal expansion as the diode chip. IPG also uses telecom-qualified hard solder, which is free of electro-migration effects which can sometimes cause sudden failure in other systems.

Finally, the diode light is delivered via fibre spliced directly to the active medium. This eliminates any air in the active medium interface, which can be a source of contamination. Prima Power is so confident in the reliability of its fibre sources that, in addition to the standard warranty, it also offers an option to extend it to up to seven years.

Prima Power fibre laser technology also delivers a higher quality laser at the cutting point. The beam shape is highly symmetrical, which results in improved edge quality and the beam parameter product (BPP), which is a measure of the quality of the laser beam and how well it can be focussed on a small spot, is virtually unchanged irrespective of the power of the laser. The benefit for the user is that it makes it easier to focus more power into a single spot for improved cutting performance and it offers greater depth of field so that laser head components can be kept at a safe distance from the workpiece, minimising the possibility of damage and making the system ideal for applications such as welding as well as cutting.

As well as its range of fibre laser cutting machines, such as the 5kW Platino Fiber, Prima Power has integrated its fibre laser technology into its range of LPef combination punch laser machines. These offer customers the advantages of fibre laser and highly efficient servo electric punching technology in one machine. Additionally, the Prima Power LPef can be integrated into a complete automated sheet metalworking system, connecting it to, for example, panel benders and automated storage to give users flexible and productive unmanned operation.

Ideal for components which need formed shapes and multiple holes as well as complex profiles, the Prima Power LPef can handle sheets up to 250 kg and 4300 mm x 1565 mm. With a power consumption of just 11 kW, the machine is able to punch and laser sheets up to 8mm thick with its 30 ton punching force and, the thick turret tooling makes it possible to implement upforming, special and multi-tools, further adding to the flexibility of the machine.

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Fibre laser cutting will help fight bacterial infection

Midlands-based SYSPAL Ltd is a specialist fabrication company that manufactures handling and other equipment mainly from aluminium and stainless steel. It has recently installed a flat-bed fibre laser cutting machine from Bystronic UK to expand the range of materials that it can process. SYSPAL specialises in supplying products and services to the medical, pharmaceutical, and food industries as well as other sectors where hygienic, durable materials are essential.

The fibre laser broadens the firm's capabilities to process antimicrobial materials such as copper alloys, which inactivate MRSA and other bacterial infections as well as micro-organisms like moulds, fungi, algae and even viruses. They can therefore reduce the spread of bacteria from touch-surfaces, which is especially important for hospitals, cruise ships and even public spaces.

SYSPAL's managing director Chris Truman explains: "We have operated a number of CO_2 laser profiling machines for many years and continue to do so, but that type of machine is not able to cut copper, as reflections can damage the optics and beam delivery system.

Chris Truman, managing director of Syspal, in front of one of the company's new hydrotherapy systems in the test department

"Fibre laser machines, on the other hand, are able to cut copper and its alloys such as brass up to 8 mm thick, which will allow us to produce components and assemblies from the latest antibacterial materials like KME Plus copper sheet.

"Due to its high reflectivity, even aluminium sheet, which is one of our main materials, is problematic to cut with a CO_2 laser, while processing stainless steel tends to be slow.

"We regularly cut both metals up to 10 mm thick, which are tackled efficiently by the fibre laser, while up to 15 mm can be processed if needed. The CO_2 machine is now mainly used for profiling thicker materials."

The BySprint Fiber 4020 with automated sheet handling

Another advantage of a fibre laser is its speed. When cutting aluminium and stainless steel sheets, Chris Truman says it is generally twice as fast as the CO_2 laser machine, while thin gauges in some other materials can be profiled three to four times faster. He also points out that running costs are lower, as the consumables are less expensive, and a fibre machine draws only about one-third of the power that a CO_2 machine needs.

"With the BySpeed Fiber, cutting parameters are more consistent over the different grades of material we process," he explains.

"It leads to more repeatable cut quality, helped by automatic nozzle change and alignment after a predetermined number of piercings.

"The drawbacks of CO_2 are that the focal length of the lens can drift and the mirrors become dirty, which means that while cut quality close to the source may be OK, it deteriorates as the nozzle moves further away, leading to loss of accuracy.

SYSPAL, located in Broseley, Shropshire, was an early adopter of CO_2 laser cutting and has long experience of the process, having installed its first machine more than 25 years ago. The fibre laser machine, a Bystronic BySprint 4020 fitted with the latest CNC system containing advanced nesting software, is not only faster but also results in increased utilisation of the 4 x 1.5 m sheets, which is the standard size at SYSPAL.

While so-called common-line cutting has theoretically been possible for some years, during which a single cut simultaneously produces one side of a component and another side of a second component, creation of suitable programs has hampered its adoption. Using the nesting software in the latest Bystronic control, such manufacturing cycles are now routinely programmed. Overall, between 10 and 20 per cent more product can be cut from any given sheet at SYSPAL, significantly reducing the area of wasted material remaining in the skeleton.

To achieve long periods of minimally manned running and maximise production output, the company has opted to automate the fibre laser machine with a ByTrans 2040 Extended sheet handling system. It receives its instructions from the program running in the machine control, delivering raw material to the shuttle table and unloading processed sheets.

It was the first of this large size of auto load/unload equipment to be installed in the UK, following its launch at the EuroBlech show last October. Nevertheless the footprint is relatively small, as is that of the BySprint Fiber machine. Compactness, together with robust engineering and simplicity of operation, were the main reasons for Chris Truman and his production team opting for this supplier.

When dealing with larger sheet sizes, which are significantly heavier than the more usual 3 x 1.5 metre stock, eliminating

manual handling avoids the risk of operator injury and also helps to protect material and components from accidental damage.

The automation equipment comprises two cassettes of three tonnes capacity each, one above the other, providing a range of possibilities for materials handling. Each cassette can be loaded by fork lift truck with a different type of palletised sheet material. Pallets are prepared at one of the output stations serving the 100-location Stopa automated sheet metal storage and retrieval system at Broseley.

Alternatively, the second cassette can hold cut parts or protective separators that are interspersed with cut sheets to prevent damage to sensitive material. The space beneath the bottom cassette can be utilised for temporarily holding a processed sheet or placing skeletons ready for recycling.

Subcontract services account for around 10 per cent of SYSPAL's turnover. Work carried out includes laser cutting on the fibre and CO_2 laser machines as well as on a CNC tube laser cutting centre, a four-metre automated press brake and other machine tools on the Broseley site.

SYSPAL aims to provide customers with an efficient service, whether it be a one-off custom solution or a high quantity of standard repeat products. The company's technical and production team, which has long experience in fabrication, takes full advantage of extensive in-house capabilities, while lean manufacturing raises productivity, consistency and quality and ensures prompt delivery to a widening market, both at home and overseas.

Another part of SYSPAL's business is the design and manufacture of hydrotherapy equipment, elements of which have been patented. The first version was designed for canines in consultation with vets and was introduced in 2006, followed a year later by a version for humans. More than 500 systems are now in use worldwide. They are fabricated to tight tolerances where the speed, quality and repeatability of the Bystronic system offers significant advantages.

The ByTrans 4020 Extended automated sheet handling system (right) linked to Syspal's BySprint Fiber 4020

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Prototyping shop orders TRUMPF 5-axis laser

Midlands-based Birmingham Prototypes Ltd (BPL) has ordered a TRUMPF TruLaser Cell 7040, a 5-axis machine that is the first of its type in this market to feature TRUMPF's fibre-guided TruDisk laser technology. It will be used by the company for trimming complex fabricated items for example in the aviation and automotive industry.

BPL was founded by Michael Adams in 2003 and has already grown to employ 15 people. Although the company considers itself a true prototyping shop, the scale of its work varies from 1-off bespoke parts to large projects containing multiple components through to scheduled low volume production parts. Predominantly serving the UK aerospace and automotive industries, the BPL portfolio includes CADCAM, 5-axis machining, toolmaking, press work, welding, 3D printing and inspection (including 3D laser scanning) services.

The company has always offered 5-axis laser trimming of fabricated components. However, with various issues in maintaining quality whilst outsourcing work, Birmingham Prototypes has now invested in its own TRUMPF TruLaser Cell 7040.

"Some of our work calls for 5-axis capabilities and we wanted to exert more control over this process by acquiring our own laser cutting machine," explains Michael Adams. "Our team, including myself, have experience in 5-axis laser cutting. With a combination of quality issues with outsourcing and the time we were losing waiting for parts, the investment was necessary. We now have full internal management control of our customers' requirements and that is key for us in delivering to them within tight delivery schedules."

"We did look at one other potential machine, but I couldn't find fault with the TruLaser Cell 7040," he says. "TRUMPF invited us to their headquarters in Germany to see the machine perform demonstrations and I was very impressed with the professionalism of the company, which gave me the confidence to invest. Furthermore, TRUMPF's reputation in the market is second-to-none."

Currently being commissioned, in the first instance the machine is being earmarked to produce one of BPL's own products.

"We have a client that specialises in aircraft interiors and we produce components that are eventually supplied to a multi-national manufacturer of small aeroplanes," explains Michael Adams. "The parts are made from 1.2 mm aluminium and are quite complex, featuring extensive curvature and cut-outs. In total there are six different parts that will require 5-axis laser trimming on the TruLaser Cell 7040, typically in batches of 100. These parts alone will not fill the capacity of the machine by any means, and we will be looking to source work from our existing customers as well as gaining new ones; establishing ourselves as a first choice supplier for sheet metal work products."

TRUMPF's comprehensive training facilities and extensive application know-how together with local support in UK was another important factor in the eventual selection process. TRUMPF has provided TruTops programming training to two BPL employees at its UK headquarters in Luton, and operator training on-site.

"In the UK there aren't that many pure prototyping shops, especially not many who can manage all processes in-house" says Michael Adams. "This investment will help drive our company forward as one of the top engineering companies who customers can rely on to outsource full projects, with the

confidence that we can manage every process. We work with our customers to provide engineering solutions in prototyping and assist in taking sheet metal products through production phases. Our overriding focus is always delivering unrivalled quality in the shortest lead-times. We are always working to improve the company's performance and ensure that BPL is at the forefront of the industry, by readily investing in the latest machinery and technology."

BPL is ISO9001 accredited and is currently working towards OHSAS 18001 and ISO14001.

Annette Doyle assumes role of managing director at TRUMPF Ltd

With effect from 1st July 2015, Annette Doyle will take on the role of managing director of TRUMPF Ltd. She succeeds Scott Simpson who will leave TRUMPF after more than 20 years to pursue his own individual projects.

Annette Doyle comes to TRUMPF Ltd from TRUMPF Inc. in Farmington, USA where she served as head of the Customer Training Centre and as Assembly Department manager for TRUMPF's TruLaser machines. Her department manufactures 350 machines a year and her production planning and lean manufacturing initiatives have enabled the company to increase production and quality goals during the economic rebound. In her role at TRUMPF Inc. Annette Doyle has been recognised by The Manufacturing Institute, Deloitte, University of Phoenix, and the Society of Manufacturing Engineers with a Woman in Manufacturing STEP (Science, Technology, Engineering and Production) Award for excellence and leadership in manufacturing.

"I lived in the United Kingdom before my time in the US and always look back very positively on this time. Having worked in the service and manufacturing side of the TRUMPF business, I feel confident and well-prepared for this transition. I look forward to officially joining TRUMPF Ltd as we enter the new fiscal year and strive to continue the positive growth and development of TRUMPF in the UK," she explains.

Annette Doyle holds a Bachelor degree in Business Administration and Mechanical Engineering as well as a Master of Science in Technology Management. In her new role as managing director, she will be responsible for all TRUMPF business operations in the UK, including product sales, customer service, technical training, product sales, and applications. She will report directly to Dr Gerhard Rübling, executive vice president of the TRUMPF GmbH + Co. KG and labour director, responsible for human resources as well as sales and services.

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Nitrogen generation for fibre lasers

The increase in popularity of fibre lasers in the UK market has resulted in a boom in business for MSS Nitrogen's Nitrocube Fiber nitrogen generators. In the first five months of 2015 the company sold 15 systems, 11 of which were for fibre lasers, generating over £1.1 million in sales.

First developed in 2004, MSS Nitrogen's generators use a modular design which is plug-and-play. Compressed air goes in to the system and high purity nitrogen comes out. The equipment is installed by MSS Nitrogen's engineers with just a power supply and by tapping into the existing nitrogen distribution pipework. Modules delivered in the morning can be up and running by the afternoon.

Because of its experience in the field of laser technology, MSS Nitrogen has become the leader in the field of nitrogen generation for laser cutting machines across the UK and Europe. The skills it has in laser cutting and the knowledge of the individual technology and requirements of all the makes and models of laser cutting machines in the market enables it to specify a Nitrocube to suit the individual customer's application.

Neil Jackson, sales director at MSS Nitrogen explains: "If you just look at the nitrogen consumption figures for each machine, this can be very misleading. When we size a system, we have detailed discussions with the client about how they run their manufacturing, including topics such as shift patterns, the type and thickness of material being cut and the purity of nitrogen required. We can then work out the nitrogen delivery rates and the gas storage requirements needed to meet the peak demands normally found in any production environment."

Fibre laser technology has resulted in much faster cutting speeds and much reduced energy consumption and hence, lower cost per part than is possible with CO_2 lasers. However, the flow of nitrogen as an assist gas can be as much as three times greater on a fibre laser as the nozzle at the laser head tends to be significantly bigger. These changes in the technology and the laser cutting market mean that the cost and logistics of delivering nitrogen to the machine is suddenly a high priority for uninterrupted and low cost manufacture. ES Solutions Ltd based in Beeston, Notts purchased a Nitrocube Fiber in 2014. Managing director, Eric Seymour says: "We purchased the very first MSS nitrogen generator back in 2004. The new Nitrocube Fiber is a fraction of the size, far more efficient and saves us a significant amount of money each month. Nitrogen generation is definitely the way forward, especially for fibre laser."

With a fibre laser, the net gas consumption can go up by two to three times, which will increase any problems in the footprint and capacity of gas storage and continuity of regular supply for delivered gas, not to mention the increased cost of the gas itself. With an MSS Nitrogen Nitrocube the system is designed to produce just the gas required, but with gas storage sized to meet peaks in production and to operate for up to 24 hours, even with the system switched off, allowing sufficient time for maintenance without disrupting production. Currently, over 250 laser machines depend on an MSS nitrogen generation system for their nitrogen requirements in the UK, demonstrating the reliability and effectiveness of the technology. Furthermore, by using the normal spend on consumable gas to fund the purchase of a Nitrocube, many companies have found that it can be self-financing with payback in as little as 18 months.

MSS Nitrogen has continually developed it's systems over the last 11 years and, with the new Nitrocube Fiber, it is able to deliver 50 percent higher flow rates using 30 percent less power than other systems thanks to improved air to nitrogen ratios and a smaller, more efficient high pressure booster. To ensure reliability, each unit is built and fully tested at the company's Rugby headquarters. Service and telephone hotline support, is provided by three dedicated engineers who can be on site within 24 hours if necessary. However, reliability is extremely good, with less than one breakdown on average recorded across all the installed systems in 2014.

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YSS orders UK's first Amada ENSIS 4020 laser cutter

YSS Ltd, a Halifax-based fabrication specialist, is the first in the UK to order a new Amada ENSIS 4020 AJ fibre laser cutting machine. The patented ENSIS variable beam control unit allows users to move between fibre and CO_2 style beams for cutting both thin and thick materials. This is in marked contrast to conventional fibre laser cutting systems that require higher power to cut thick mild steel.

A significant advantage which attracted YSS to the ENSIS is that profiling of both thin and thick materials is achieved using just 2 kW of laser output from the integrated, Amada-built ENSIS2000 oscillator. Needless to say, the resulting savings in energy and running costs are little short of dramatic. In trial cuts at last year's EuroBLECH exhibition in Germany, power monitoring equipment showed that a 20 mm thick mild steel part produced on a 4 kW CO_2 laser cutter drew 63 kWh of electricity, whereas the 2 kW ENSIS required just 15 kWh.

YSS was established seven years ago by current managing director, Darren Brown and, through the acquisition of other established metalwork businesses and continual investment in new technologies, has placed itself in a strong position to offer competitive solutions to diverse market sectors. Indeed, the company is currently in the process of extending its current manufacturing facility in Halifax. YSS also operates a powder coating and finishing plant in Dewsbury.

The new Amada ENSIS 4020 AJ complements two existing Amada flatbed 4 kW lasers, including an LC3015 F1 4kW with ASLUL tower. Together, the machines allow the company to offer an efficient and precise engineering service, at speed. Improved productivity means YSS can usually offer better lead times than its competitors; 24-hour capacity for the production of everything from one-offs and prototypes, through to large batch quantities, is available. With regard to laser cutting capacity, up to 25 mm mild steel, 5 mm stainless steel and 12 mm aluminium can be provided.

Complete with high torque motors and helical rack drives in the X/Y axes, and a carriage with a low centre of gravity, the ENSIS offers processing feed rates of up to 100 m/min. Amada's integrated AMNC-3i control also facilitates reduced setup time via its automated nozzle change capability. Ultimately, ENSIS allows for setup-free processing, regardless of what type of metal and thickness needs to be cut.

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HBE Dynamic Series on route for success

The new HBE Dynamic series launched in 2013 has been a resounding success. The series is now being lifted into a whole new league in terms of performance level with an array of features provided as standard. The existing models have now been joined by two new "big sisters" launched at last month's "World of Saws 2015" Open House.

"The HBE Dynamic series addresses increasingly stringent market demands for ever more efficient, more economical and more precise sawing machines. Increased performance coupled with reduced energy consumption, lower space requirement without compromising occupational safety or handling simplicity. These were just some of the stipulations followed by the development process", recalls CEO Christian Behringer.

Following the Open House, the new HBE Dynamic series is available in six model types: 261A, 321A, 411A, 511A, 563A and 663A with corresponding cutting ranges, covering an extensive field of applications in the steel trade, machine and tool building and in high-end metalworking businesses.

Smart features as standard

In a new departure, Behringer GmbH will be providing the HBE series complete with features designed to significantly enhance sawing process reliability as standard. The AFC (Auto-Feed-Control) is just one example: a computer-controlled high-performance cutting pressure control system supplies the data for cutting speed and servo-regulated downfeed. This

provides an effective protection for tools against overloading, by tracing the back of the sawblade in real time while sawing is in process.

"With this facility, we are offering our customers premium technology otherwise only available in high-performance sawing machines", says Christian Behringer.

Impressive economy and quiet running

With a superb service life of well in excess of 400 sawing cuts in 42CrMo4 200 mm dia. material, for example, the HBE321A Dynamic has significantly more to offer than comparable sawing machines, meeting even the most challenging of assignments without hesitation. A sturdy saw frame made of vibration-damping grey cast iron and double band wheel bearings work together to ensure quiet running and cutting precision. Trials confirmed a 30 percent longer service life of bandsaw blades alongside visibly better cut surface quality. The slight inclination of the band wheels helps prolong the life of bandsaw blades by reducing fatigue due to cyclical bending.

Minimum rest piece length with optimum fixing

Given the rising price of materials, achieving smallest possible rest piece lengths can also be a major benefit. Because achieving this key benefit should not be allowed to compromise clamping safety, the HBE Dynamic series from Behringer comes with a double vice as standard. The less movement occurs during machining, the better the alignment and angular accuracy. More even clamping also means a more precise cut. Material bundles and packages in particular, but also thin-walled pipes, are ideally fixed while an mechanical stop enables rest pieces to be almost completely sawn, so saving costly material.

No-compromise energy efficiency

Resource-saving production, sustainability and energy efficiency are currently on everyone's lips. The rising cost of energy is driving manufacturers to rethink their existing processes and make use of technological innovations to develop new solutions which will enable higher output to be coupled with lower energy input.

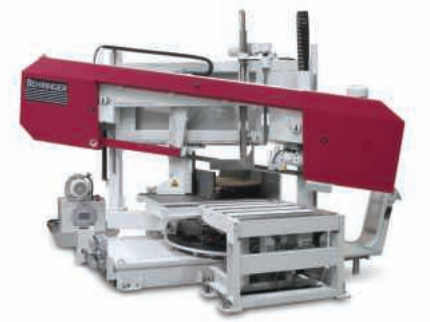
"With the new HBE Dynamic series, we have proven that energy efficiency and high-powered hydraulics are not a contradiction in terms", explains Christian Behringer. The use of modern frequency-controlled drive systems from renowned manufacturers and gearing ratios specifically configured for purpose mean that simply specifying the kW output of a motor is far from being a guarantee of high cutting output nowadays. In the HBE261A Dynamic, for example, a sawing drive of 2.6 kW enables a high machine throughput while requiring minimal energy input, which adds up to efficient production.

The HBE Dynamic's feed gripper is designed in a rugged gantry version and mounted in floating bearings. It moves along a closed roller conveyor, a key benefit when machining shorter cuts. As re-gripping is only necessary in this machine after a 600 mm cutting length, this saves valuable non-productive time.

Proven process reliability
Lowering the saw frame prior to the cut is performed in the HBE Dynamic using a proven technology which ensures the utmost process reliability. Instead of an electronic sensor or manual entry of the height information, the height is detected by a mechanical T-bar which brings the rapid lowering movement to a stop as soon as it senses the upper edge of the material. The engineers gave process reliability clear priority over the use of susceptible electronic systems, as these machines are frequently automated and need to guarantee trouble-free operation when operating unattended.

No-risk chip disposal
Because a carefully considered chip disposal system is vital following on from sawing cuts, this aspect was taken into consideration right from the design phase of the HBE Dynamic series. The funnel-shaped machine base enables good access for cleaning and maintenance. The chip conveyor itself can be supplied as a paddle style conveyor or worm and can be simply pulled out. To guarantee the most effective possible cleaning of the saw blade, the HBE Dynamic features electrically driven double chip brushes which clean the bandsaw blade of adhering chips synchronously while sawing operation is in progress. A quick-change device permits the brushes to be exchanged without excessive loss of time.

Functionality and design
Because the machine is fully enclosed, it not only complies with current CE directives but also addresses growing demands for user-friendly design, occupational safety and environmental protection. The benefits are evident: No contamination of the work environment, reduced noise coupled with an optimum view into the machine through the generously dimensioned viewing window. The easy-maintenance concept enables simple saw blade changeover and good access for repair or cleaning work.



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Kerf helps improve cycle times by 70 percent

When subcontract profile cutting company Patrick Steel Ltd was looking at possible ways to expand its well established business, it investigated the potential benefits of acquiring a plasma cutting machine to complement its existing cutting, grinding and fabrication capacity.

Established in 1986, Coventry-based Patrick Steel has the expertise, experience and industry insight that has seen the business continually grow for a generation. The company decided that the addition of a high definition plasma cutting machine, coupled with the four multi-headed flame cutting machines, would have a positive impact on lead times and quality. In addition, it would open up the potential to explore new markets, particularly with thinner material, allowing customers a viable alternative to the more expensive laser and waterjet cutting. The future potential to offer a non-ferrous cutting service, including stainless steel and aluminium would be a further benefit.

The automotive, aerospace, construction, fabrication and general manufacturing subcontractor fully investigated the potential benefits of a plasma cutting machine. Upon investigation, the clear benefits of adding plasma cutting to the existing flame cutting and grinding services were apparent. It was the recommendation of numerous independent steel profiling companies and service engineers that led the 12 employee company to Kerf Developments and its RUR2500 plasma cutting machine.

Patrick Steel's joint managing director, Jamie Bruce says: "Our flame cutting machines have the capacity to cut from 5 to 300 mm thick steel plate. After an in-depth analysis of our actual cutting habits we deduced around 50 percent of material sold was 25 mm thick and under, ideally suited for high definition plasma cutting.

"The Kerf machine will also enable us to drop below the 5 mm lower limit of flame-cutting to thinner gauge material, further enhancing our product range."

The Kerf RUR2500 was installed in the final quarter of 2014 and the new acquisition has instantly delivered results. Jamie Bruce continues:

"In general, flame cutting machines have a pre-heating period of 30 to 35 seconds prior to piercing, whereas the plasma machine is almost instant, with a fully automated cutting procedure. This has made an immediate impact on our productivity. Furthermore, the Kerf machine has improved the quality and precision of our parts with the Kerf RUR2500 achieving a cut precision of ±0.25 mm through most plate thicknesses in comparison to ±1.0 mm achieved with flame cutting. In addition, the edge quality has also improved and customers are recognising this and often requesting a plasma-cut finish."

Patrick Steel has always been aware that plasma cutting was faster than flame cutting for parts up to 25 mm and once the Kerf RUR2500 was installed and running the cutting speed advantage became apparent. The machine, with a 6 m x 2 m cutting bed proved itself to be 4.5 times faster than the flame-cutting machines and in some instances up to seven times faster.

Jamie Bruce adds: "The cutting speed is significantly faster and with no pre-heat time, the Kerf RUR2500 has been an excellent addition to our plant list. The setting-up of plates has also been improved and this also increases our throughput and capacity and decreases downtime.

The Lantek software and Burny control unit on the RUR2500 has contributed to throughput for Patrick Steel. Jamie Bruce continues: "The machine software has an automatic nesting feature that works on a database configuration. This improves the location and throughflow of repeat jobs from the office to the shop-floor. It also allows us to produce more parts from each plate by automatically utilising any remaining plate stock to produce components from any previous production run by digitally locating stock. This has further reduced our material costs. Furthermore, the control unit on the Kerf machine is very user friendly, easy to operate and enjoyable to use."

In the few short months since taking delivery of the Kerf RUR2500, Patrick Steel has improved productivity by 75 percent for almost 50 percent of its workload. By moving work to the more productive Kerf machine Patrick Steel has also freed up capacity for its four flame cutting machines allowing them to seek out heavier work better suited to the flame-cutting process.

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Power, reliability and precision

The new high performance MEBAe-cut bandsaw sets standards in energy efficiency, economic efficiency and power

For the first time, a high spec bandsaw operates without the need of a hydraulic motor, but purely on electrical drives resulting in a clean cut without compromise.

Electric systems stand for: quality, economic efficiency, energy efficiency and low power consumption

Advancements in automation and integration of sawing techniques within companies' value added chain require continuous increase in performance, very economic systems and customised complete solutions. At the same time we are responsible for our environment and committed to use energy and resource saving technologies. MEBAe-cut meets these requirements without compromise.

All the drives on MEBAe-cut models are powered by soft start motors, eliminating voltage spikes. Electrical axles are moved with high precision and accuracy resulting in efficient power consumption, improving cutting accuracy and increasing the life of the saw blade. Electrical driven systems have a significantly lower power demand when compared to a hydraulic based system. For example, material clamping: hydraulic clamping requires permanent pressure consuming energy during a cutting cycle; electric clamps only require energy for the vice movement (clamping and releasing) not during the cutting cycle. At the same time, there is no danger of leaks when using electrical clamps.

Noise reduction is another positive that the MEBAe-cut has over rivals. The only noise generated is the sound of the blade cutting the material resulting in a much quieter cut which can be a major consideration when purchasing new equipment due to health & safety restrictions on noise levels within the working environment. Hydraulic based machines have additional noise produced by the hydraulic pumps and motors, even if the machine is not working.

Intelligent technology for highest demands

Almost 10 years ago, MEBA was the first industrial manufacturer to integrate electrical systems in to their machines with the linear ball screw feeds. The new high-performance band saw is again pioneer in the industry dispensing with the use of hydraulic systems entirely.

MEBAe-cut is equipped with a newly electric material clamp. The material is clamped in main and in-feed vice by a servo-controlled spindle drive. The clamping pressure can be adjusted individually for each application and can be preselected via the machine control. For example, thin-walled tubes can be clamped safely.

In combination with the proven MEBA saw feed system, the MEBA material in-feed system and the backlash free guide elements, MEBAe-cut is unrivaled in precision and reliability. The saw feed works via servo-controlled lead ball screw spindle with automatically controlled cutting pressure and feed control. The band saw control also includes a two handed operating system for rapid vertical movement. On automatic machines a new control system reduces the required remaining material clamping section to 110 mm. The material in-feed system is also controlled by electric servos and lead ball screw spindles.

But there are still further features, which ensure highest quality and profitability: The ridged saw frame construction of MEBAe-cut, band wheels which are supported on the front and back of bearings creating a spindle instead of a stub axel, the strong construction of the machine base as well as the powerful 5.5 kW / 7.5 kW saw drive, depending upon the chosen model. The machine has automatic material height detection and positioning of the adjustable blade guide arm movable via the clamping vice jaw. These factors ensure a high degree of flexibility. The control panel and chip conveyer can be located on the driven wheel or tension wheel side of the machine. The youngest member of the MEBA family also boasts a compact design. Its new CNC control is based upon windows CE with touch sensitive panel.

MEBAe-cut comprises models 400 and 500 mm and is available as a semi-automatic machine or a 90° fully-automatic machine. All models of the new range are made to high productivity and for long-term and continuous use in single and multiple shift operation. Sawing of solid materials and tubes as well as bundle and carbide sawing belongs to its classic tasks.

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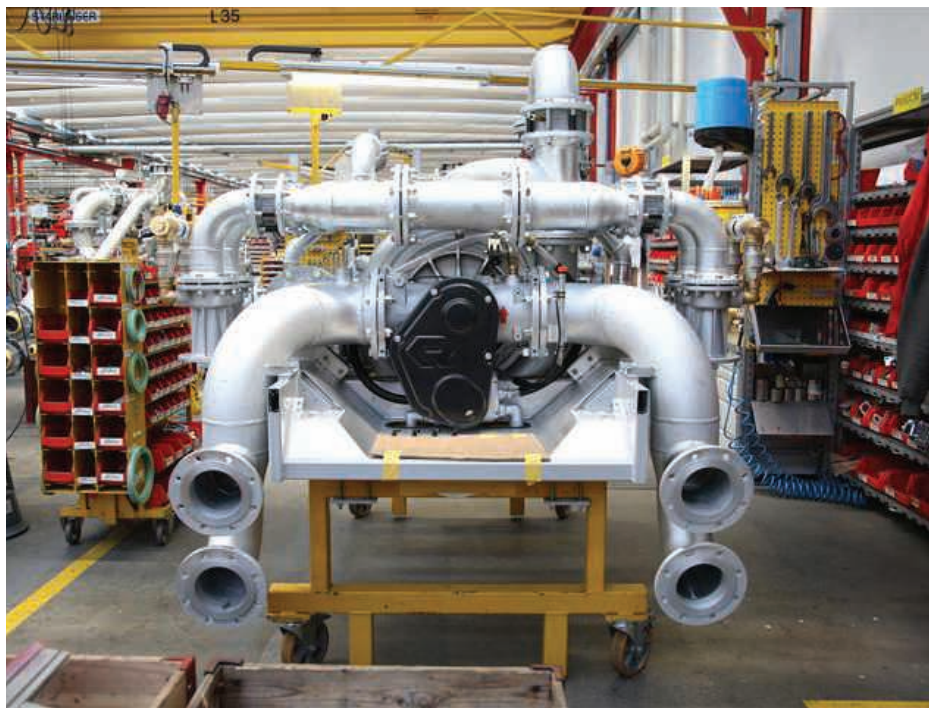
Automotive manufacturer Rosenbauer marks a new era in welding

Although new joining processes such as bonding or punch riveting are coming increasingly into play, welding is and will remain a key technology in the production of special vehicles. This is certainly true for Rosenbauer International AG, the global player among fire-fighting equipment suppliers. Restricted space, ever more complex components, the increased use of aluminium and stainless steel as well as sustained cost pressures demand higher-performance welding technology systems than in the past. The TPS/i MIG/MAG welding platform from Fronius meets these demands and helps to satisfy the needs of today and tomorrow, as a pleased Rosenbauer has discovered after months of practical testing.

Right from when the brand new MIG/MAG power source from Fronius was first tested, it showed what it was capable of. In a test conforming to EN 287-1 or EN 9606-1 (10 mm steel plate, a7 vertical-up), it was directly compared with current systems from other manufacturers.

"For our colleagues, the TPS/i from Fronius was clearly the best of the bunch," reports Michael Jungwirth, welding specialist at Rosenbauer International AG. "Simply the noise of the arc and just a few metres of weld seam were enough to make it clear that this has taken us to a completely new level of welding quality."

The decision to purchase the first TPS/i was made just as quickly. Since then, the new device has been put through its paces



and used across the widest variety of areas in prefabrication. In doing so, it has had to function in all welding positions while processing steel, aluminium and stainless steel.

MIG welding process replaces the TIG process

The weld seams to be generated at Rosenbauer are mostly visible seams, where particularly high demands are placed on the surface appearance. In the past, welders often used the TIG process to do this. Though good for producing very neat weld seams, it requires some practice and only allows a low welding speed.

"The TPS/i will enable us to weld such visible weld seams quickly and cleanly in the future. This eliminates the time-consuming process of changing devices or converting the power source," explains Walter Wolfesberger, head of prefabrication at Rosenbauer International AG.

A critical role is played by the LSC (Low Spatter Control) characteristic, which was unveiled with the TPS/i. The basic algorithm uses the extremely high computing power and control precision to provide the welder with an even more stable arc with minimum spatter ejection.

Change position without any impact on quality

"This enables us not only to create a visually immaculate weld seam, but also to tackle difficult changes in position," says Michael Jungwirth. "For example, thanks to the LSC Universal dip transfer arc characteristic, the transition between overhead and gravity position welding no longer presents a problem."

This property is in demand if Rosenbauer needs to extend the C-profile vehicle frame made from formed QSTA500 9 mm fine-grained structural steel with a weld seam created in an (out-of-position) overhead, then vertical-up and then gravity position.

"Targeted heat input is essential here in order to reliably secure the material and thereby to ensure the required stability of the construction," advises the Rosenbauer welding specialist. "The TPS/i can even take this challenge completely in its stride."

Penetration stabiliser for even more safety

Additional safety when carrying out such challenging welding work is provided by the penetration stabiliser, available for the first time with the TPS/i. When activated, it ensures a constant penetration even in the

event of external interference, such as stick out variations. This has a particularly positive effect on fillet welds that are to be welded in the vertical-up position with an oscillating motion, but also on workpieces that are difficult to access.

Most of the time, welders at Rosenbauer only need to weld very short weld seams. As such, their area of work includes producing protective grids for vehicle windows that are made from 8 mm stainless steel wire. The wires have to be tacked in place at the crossover points. "Recently we have used only the TPS/i for such delicate welding work, because it is simply the device with the best ignition properties," explains the head of prefabrication.

High weld seam quality, right from the very first millimetre

Even when welding thin aluminium sheets,

such as those regularly processed at Rosenbauer, ideal ignition properties and a controlled, stable arc are essential for adhering to the necessary high standards of quality.

"Initial tests with aluminium have shown that the new PMC pulsed arc characteristic already exhibits significant advantages when welding aluminium, even in the default setting. These benefits are also present with the one to three millimetre thick aluminium sheets that are heavily used by us," says Michael Jungwirth. "Thanks to the availability of the PullMig welding torch, we can now weld low-alloy sheets, aluminium and stainless steel with just one device and without any need for lengthy conversion work."

After completing the trials, Rosenbauer now plans to continue using the TPS/i flexibly and across the board. The frequent changes of location, welding task and operator that all come with this will be no inconvenience at all thanks to the exemplary handling. Walter Wolfesberger concludes: "After taking just a few minutes to get used to the tool, our welders are ready to go with the TPS/i." This factor is also linked to the new graphic user interface, as his colleague

explains: "The welding circuit resistance can be adjusted in no time at all. In fact, as a welder, you can't really go wrong."

Easy handling, right down to the details

The specialists are unanimous in crediting the new user interface and many other details with making the device extremely easy to use. This includes the uniform colour coding of wearing parts, which helps to accurately identify suitable or corresponding parts in the event of any changes. "We don't have anywhere near as many issues as before," concludes Michael Jungwirth.

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Nederman 'at-source' extraction now with a bonus offer

The Nederman Fume Eliminator 840/841 is a small, lightweight, portable extraction unit that has proven invaluable in improving the air quality of workshops where light welding is carried out, and until the end of August 2015 will be available with a free Nederman C20 power cable hose reel. This summer promotional offer also applies to two other Nederman products, the Suction Blaster and the FilterCart.

The Nederman FE840 model is provided with a manual start/stop function, whereas the FE841 includes an innovative automatic start/stop feature that starts and stops the extraction with operation of the welding torch. By eliminating welding fume at source, via either on torch extraction or extraction nozzle, the Fume Eliminator with its integral 99.7 percent efficient filtration is undoubtedly the most cost effective means of reducing airborne particulate. Furthermore, the automatic feature on the 841 Series ensures that extraction is only used when required, thereby improving efficiency and reducing running costs for the end user. This efficiency is also incorporated into the Fume Eliminator design, with a powerful 100 W motor that creates an airflow of up to 150m3/h and a maximum suction of 22k Pa through the 2.5m long hose. To permit the welding operative to freely move the Fume Eliminator from one work area to the next, it has an extremely lightweight design with a total weight of 16 kg. This is packed into an 830 by 230 by 410 mm (L X W X H) frame that allows the unit to be used in the most compact and demanding of work areas.

To cater for the various demands of the workplace, the Fume Eliminator is available with three optional nozzles. The TM80 nozzle has a 500 mm length with an 80 mm diameter hose whereas the TM200 is supplied with a 570 mm hose length with a slot nozzle that is 200 mm wide and 30 mm high. The final nozzle option is the PM300. This provides a slot width of 300 mm and a slot height of 5 mm, making this nozzle the preferred choice for seam welding applications.

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City & Guilds accredited gas inspectors' courses

ESAB, a world leader in welding and cutting technologies, has announced, a full schedule of 2015 City & Guilds accredited Gas Inspectors' courses now open for registration. ESAB's training courses, revised and reformatted for 2015, are the UK's only gas inspectors' courses that are City & Guilds accredited, providing internationally recognised certification for the annual inspection of oxy-fuel gas welding equipment and non-welding gas systems.

ESAB's City & Guilds accredited Gas Inspectors' courses are designed to qualify workers to conduct full gas safety checks on individual oxy-fuel gas welding systems. These courses keep attendees up to date with changes to legislation, standards and best working practices. The courses are appropriate for those responsible for the practical safety aspects of oxy-fuel gas systems such as safety officers, maintenance staff, supervisors or technical college and school lecturers.

The two-day qualification courses are conducted at ESAB's Waltham Cross Process Centre. Residential accommodation is provided at a local hotel, and lunch and dinner are included.

The first part of the course involves theoretical instruction on oxy-fuel gas safety, the properties of gases, safe use and operation of systems. Part of the instruction is also devoted to product design. The training is liberally interspersed with participative exercises illustrating the likely causes of risk. The second day of the course is devoted to practical training. In this "hands on" session attendees are taught how to fully test an oxy-fuel gas station and pass it off for safe use. Instruction is also given on risk assessment of stations in accordance with current legal requirements.

Upon completion of training, each class attendee receives a detailed test manual for reference along with an individual tool kit to conduct testing and inspection recording.

One day re-certification courses are also being held in 2015. New standards and regulations are covered. These classes are designed for existing accredited inspectors who have already taken the two-day City & Guilds Course. The courses are conducted at various locations in the United Kingdom. ESAB has partnered with the City & Guilds organization, a global leader in skills development, since the mid 1980s to offer the UK's only accredited Gas Inspectors' training courses. City & Guilds provides services to training providers, employers, and trainees across a variety of sectors to meet the needs of today's workplace.

For a complete schedule of ESAB's 2015 City & Guilds accredited Gas Inspectors' Safety courses, more detailed information, or to book a place on a course, call 01992 768515 or email info@esab.co.uk.

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

The ESAB brand is synonymous with expertise in the following key areas: Manual welding and cutting equipment; Welding consumables; Welding automation and Mechanised cutting systems;

For each discipline, continuous development of methods, materials and know-how is being directed to meet the challenges posed by the diversity of industry sectors ESAB serve. The company is organised to deliver efficient, high-productivity solutions to meet customer requirements in a manner that exceeds their expectations no matter the market segment.

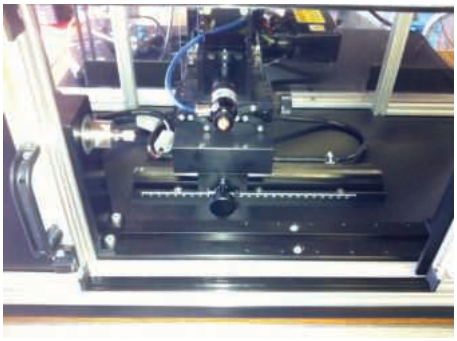
ESAB offers a world of products and solutions for virtually every welding and cutting process and application. They serve industries that serve the world, including: Automotive; General fabrication & civil construction; Pipelines; Pipe mills; Power generation; Process industry; Repair & maintenance; Shipbuilding & offshore; Transport & mobile machinery ESAB is represented in almost every country by subsidiaries or agents. Sales and support is established in 80 countries and there are 26 manufacturing plants across four continents.

ESAB Group (UK) Ltd
Tel: 0800 389 3152
Email: info@esab.co.uk
www.esab.com.

A fully CE-marked catheter laser welder

Wellspring engineers have 20 plus years of experience in medical device manufacture and related product & process development. They manufacture custom laser welding systems for use in medical device manufacture and offer laser welding solutions to their customers across a range of industries. In particular, their engineers have extensive experience of laser welding polymers which are widely used in the manufacture of balloon catheters and other medical device products.

The Synrad 48-1KWM Series lasers are ideally suited for the lasing of widely used materials such as Nylons, Pebax, PET and more. Catheter balloons ranging from 1 mm to 20 mm in diameters can be readily processed using a Synrad 48 series CO_2 laser. The accuracy and repeatability of the laser welding process lends itself to straightforward process and product validation. Wellspring chose the Synrad 48-1KWM series lasers because they are compact, robust, provide years of trouble-free service and are economical for even low-medium volume production requirements. The Synrad 48-Series is the only sealed CO_2 laser with an install base dating over 25 years. The industry gold standard for long life times and high reliability, it is supplied with a 3 year warranty as standard with all units. The 48-1KW is a 10 Watt all metal tube laser designed for the manufacturing industry; the high gas quality of the laser ensures long operating life times, 45,000 hours or longer, have been experienced before any degradation in power.



The specific laser used for Wellspring's application was a water cooled tube fitted with Synrad's own "closed loop stabilisation kit", this allows close control of the lasers

output power. When fitted to the 48-1KW laser the power stability of the system is guaranteed at ±2 percent. This application required a laser which could offer close control of the laser output power to ensure the welds were not only perfectly formed, but were also highly repeatable. Synrad are the only CO_2 manufacturer who offer this level of power control and stability straight out of the box.

The Synrad 48 Series Laser is supplied through Synrad's UK distributor Laser Lines Ltd.

Laser Lines Ltd
Tel: 01295 672500
Email: info@laserlines.co.uk
www.laserlines.co.uk

New SifWeld TS200AC inverter welding unit

Weldability-Sif, the UK-based "one stop source" for all welding products, has introduced the new SifWeld TS200AC, a professional microprocessor-controlled inverter welding power source for AC TIG, DC TIG and MMA applications.

The SifWeld TS200DC's use of IGBT technology means that it is feature rich while remaining compact and lightweight. It incorporates a user-friendly LCD control panel with logical layout for operation in MMA or TIG modes, and is suitable for AC MMA, DC+ MMA, DC- MMA, DC TIG and AC TIG welding.

The machine also possesses a 230 v 1 ph 16 a input supply, and supplies a 200 a DC output at 25 percent duty cycle. As the TS200DC plus, it also comes with an AC balance, AC frequency, AC pulse and AC MMA.

The TS200AC's high frequency ignition and pulse function in both AD and DC mode make it ideal for sheet metal and fine precision work and it is suitable for use in industries including general fabrication, sheet metal work, stainless steel fabrication, process engineering and repair & maintenance.

In DC TIG mode the following functions can be controlled: main welding current; pre and post gas flow; 2 & 4 stroke switching; start and final current (in 4 stroke switch latching); current pulse control (background current, frequency and width); arc start initiation type; gas purge. The machine allows for additional controls in other modes. In MMA mode the user can control the main welding current, hot start feature and arc force. In AC TIG mode, there are AC balance and AC frequency controls.

Weldability-Sif is a multi-million pound company operating from purpose built facilities in Letchworth Garden City, Hertfordshire that supplies MIG, TIG, MMA, Spot and Oxy/Fuel welding and Plasma cutting machines, torches, accessories, consumables and personal protective equipment to both the UK distributor market and exporting to a number of countries across the globe.

The company's Letchworth Garden City facility enables distributors to single source over 7,000 different products and the company to maintain their stock to high volume consumables including the distribution of over 8,000 tonnes of MIG welding wires per annum to the UK market.

Weldability-Sif
Tel: 01462 482200
Email: steve@weldability-sif.com
www.weldability-sif.com

New Mantis Elite-Cam HD

The new eyepiece-less stereo microscope Mantis® Elite-Cam HD, combines amazing 3D imaging with the power and convenience of HD image capture, producing a supremely capable inspection solution.

Vision Engineering's Mantis family of eyepiece-less stereo microscopes is widely recognised worldwide for high performance visual inspection. As easy to use as a bench magnifier, as powerful as a stereo microscope, Mantis unlocks a world of enhanced productivity through unrivalled ergonomics with amazing 3D (stereo) imaging.

The patented fatigue-free design allows hands and eyes to work in harmony, even for prolonged periods, making Mantis ideal for a very wide range of precision magnification, manipulation, re-work, repair and dissection tasks.

Mantis Elite-Cam HD has a fully integrated HD camera, so you can inspect burrs or cracks in castings, then capture HD images seamlessly, or view and record live video for training purposes. The included software allows easy image mark-up for documentation purposes as well as control of essential camera functions.

Mantis Elite-Cam HD is available with magnifications up to 20 x as well as flexible stand options, including a low profile bench stand with integral substage illumination.

Vision Engineering Ltd Tel: 01483 248300
Email: generalinfo@visioneng.com www.visioneng.com

Capital Safety's latest lanyard takes the heat

Capital Safety, a world-leading provider of safety solutions for workers at height, has designed a lanyard resistant to fire and sparks, to protect workers in high heat environments.

In high temperature applications such as welding, cutting and electrical maintenance, fire and sparks are a major concern and can seriously compromise safety equipment, and the safety of workers. Keeping safe requires special heat-resistant materials and Capital Safety Pro™ Welders lanyards are covered with reinforced webbing made from Nomex®/ Kevlar® fibre to protect shock packs from getting burned. These materials have been specially developed to withstand temperatures of up to 371°.

Part of the PROTECTA® range by Capital Safety, the Pro Welders lanyards have been rigorously tested and meet the requirements of EN355:2002, the European standard for personal protective equipment (PPE) for fall arrest.

Capital Safety
Tel: 01527 548 000
E-mail: marketing_emea@capitalsafety.com
www.capitalsafety.com.

Menswear covered from head to toe

Dickies, the internationally renowned workwear brand has menswear covered from head to toe.

To keep you shaded from the sun Dickies offer the bumpcap. This cap offers an internal bump guard within a baseball cap style.

Dickies Oxford Weave short sleeved shirt is a classic style, which is ideal for a wide range of business trades.

The most popular shorts on offer are the Dickies Redhawk Cargo shorts. These come in a range of colour options and have handy cargo pockets on each leg for storing required items.

Dickies has also introduced another 10 new styles of safety footwear and added more colours to the existing range.

Dickies Tel: 01923 269490 www.dickiesworkwear.com

Cropico's low resistance measurement guide

Cropico's popular illustrative guide, providing an overview of low resistance measurement techniques, common causes of errors and advice on how to avoid them, is now available in a handy A5 format.

The free, colour 34-page 'Guide to Low Resistance Measurement' features tables of wire and cable characteristics, temperature coefficients and formulae to enable the user to select the appropriate measuring instrument and measurement technique.

It includes a helpful section explaining the role and importance of resistance measurement in the manufacture of electronic components, switches, relays, connectors cabling, electric motor and generators and fuses. Information on resistance measurement requirements in the automotive and railway utilities industries has also been featured.

Cropico (part of the Seaward Group) Tel: 0191 586 3511.
Email sales@cropico.com www.seaward.co.uk/resistance

Lightweight and stretchy cut 3 glove

The recently announced Aquila® DPU325 protective glove, using Alkimos yarn technology offers the finest, softest and stretchiest cut 3 level personal protection making it highly suitable for handling and assembly of ultra fine sharp parts in industries such as automotive and glass assembly.

As a hand protection work glove, the lightweight DPU325 with stretchy (DMF free) polyurethane coating offers superb flexibility, comfort and softness with multiple washability, making the industrial safety gloves especially economical over an extended operational life. Alkimos® yarn is based on ultra high molecular polyethylene spiral wound structure, which ensures the EN420/EN388 cut level 3 protection is maintained with exceptional comfort.

Taste International Ltd Email: info@taste-international.com
www.aquilaglove.com

Mini cutting at its peak

Small. Strong. Streamlined. Shorter processing times and higher feed rates. The new **Mini tool system** achieves outstanding results during internal machining of steel and cast iron. It's ideal for small bore holes of ø 6 to 20 mm and large penetration depths up to 8 mm – with 0,74 to 3 mm groove width. Featuring sintered geometries, the new Mini tool tips ensure improved chip control and reduced downtimes. These Mini marvels deliver great performance with exceptionally short delivery times. **www.phorn.co.uk**

www.phorn.co.uk

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