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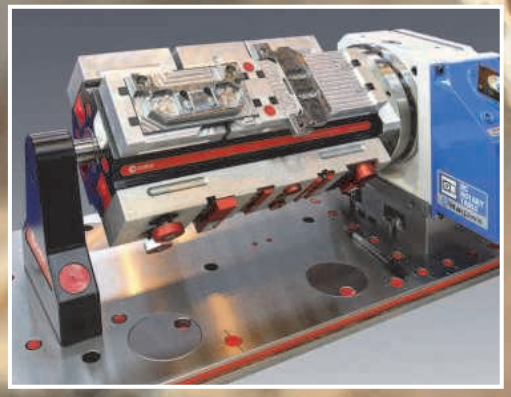

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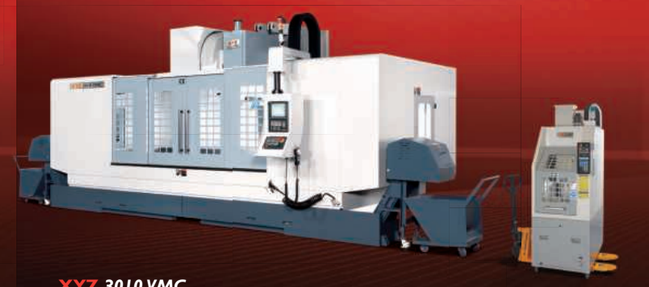

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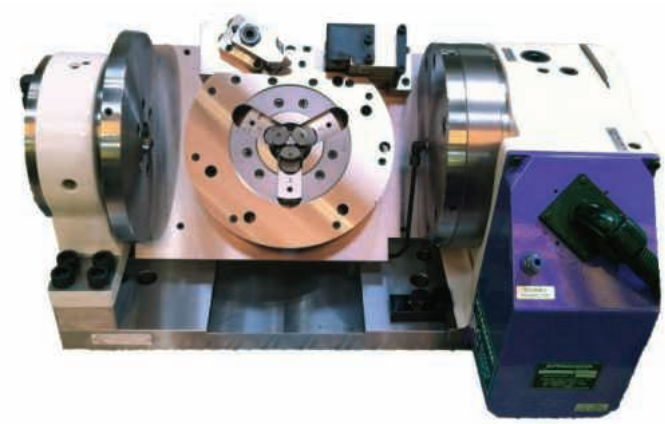
Customised workholding for difficult components

1st Machine Tool Accessories (1st MTA) provides a bespoke service supplying chucking solutions to suit individual applications. Based on the extensive range of industry-standard Kitagawa interchangeable jaw chucks, or occasionally on a custom made one-off, the service combines a wealth of practical experience with latest-generation design and visualisation technology.

Once relevant dimensional data, which can be accepted by fax, post or email, has been imported into 1st MTA's CAD/CAM system, a 3D visualisation of the problem part is mapped over standard workholding components. This enables preferred location points to be determined and potential material clashes to be identified quickly and easily.



The system also permits alternative approaches to be evaluated rapidly on screen so that the most appropriate solution can be identified. Once the number of jaws and their profiles have been determined, static and dynamic clamping load calculations are undertaken to confirm the chuck's final specification.

An example of this approach involves clamping an irregularly shaped automotive pump housing. The component has two through-holes in a flange that are specified to extremely close tolerances in relation to the central bore. In addition, the taper of the cast body calls for a chuck capable of providing substantial pull back characteristics.

Following a detailed evaluation, 1st MTA recommended a purpose-designed back stop and jaws with a custom profile mounted in one of Kitagawa's PWT series chucks. The solution was subsequently confirmed through a series of tests, offered by 1st MTA as an additional safeguard within its workholding customisation service. The component is now in volume production at a leading component supplier to the motor industry.

Clive Leonard, 1st MTA's technical manager explains: "Wherever possible, we develop tailored solutions based on components from our extensive standard range. Clearly there are significant cost and time advantages to be gained by using a modular approach. In the overwhelming majority of cases, we successfully devise solutions to problem components on this basis. However, if the need arises, we are just as happy to go back to basics and produce totally bespoke, one-off items to meet customers' individual requirements."

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XYZ announces a trio of Open Houses

The 2015 XYZ Machine Tools Open House season begins in earnest during March and April, with three dates announced for events at its showrooms in Devon, Blackburn and Livingston. Always popular, the XYZ open houses provide visitors with opportunities to do deals on the showroom machines, all of which must be sold to make way for new stock. In addition there is the opportunity for customers to discuss current and future projects with XYZ's sales and applications team, who will be on-hand to provide information on the optimum machine tool solutions.

The first event at XYZ's headquarters at Burlescombe Devon on the 11th and 12th March is ideal for those customers in the South West of England, for those in the North West there is the Blackburn event on the 18th and 19th March, and for those in Scotland XYZ's most recent showroom, in Livingston, will host its Open House on the 22nd and 23rd April. The doors open at 8.30 and close at 15.00 each day, and if previous events are an indication, the early visitor will have a distinct advantage when it comes to doing a deal on the day for the showroom machines. "These Open House events are always very well attended as customers know that the deals that we offer are genuine and significant and, will enable them to get an ex-demonstration machine at a very competitive price. Open House discounts will also be applied to new machines ordered on the days," says Nigel Atherton, managing director

Machines on display include lathes, turret mills and bed mills featuring the renowned ProtoTRAK control that simplifies CNC programming and part manufacture on machines costing less than £100 per week. Also featuring the ProtoTRAK control is the brand new XYZ 2-OP portable VMC, the versatility of which makes idle time a thing of the past and is generating tremendous interest among those subcontractors machining small to medium batch sizes, where the 2-OP facilitates cellular manufacturing on a cost-effective basis for the first time. Those looking for turning and machining centres will not be disappointed as both events will feature VMC, Compact Turn and LTY turning centres from the extensive XYZ range.

The events are open to all, but to help with catering it would be helpful if those planning to attend register their interest by contacting their local sales engineer, or by e-mailing XYZ Machine Tools at: **sales@xyzmachinetools.com**

XYZ rewarded at Autosport

XYZ Machine Tools had another successful visit to the Autosport Engineering show at the National Exhibition Centre Birmingham, coming away with some excellent enquiries and also taking the award for the best designed stand at the exhibition.

XYZ Machine Tools exhibited a good cross section of its mill, lathe, machining and turning centre ranges at the show as well as demonstrating its innovative XYZ 2-OP portable vertical machining centre. The Burlescombe, Devon-based company view the Autosport Engineering Show as a great platform to promote its machines that target prototype and low-volume manufacturing, which perfectly fits autosport customer profiles, where rapid response to one-off or small batch work is a daily routine.

''Bringing the new XYZ 2-OP to the show proved a great move as it generated a lot of interest and, as a result of the enthusiasm shown by the visitors for this and the other machines on display, we are expecting several orders to materialise from new and existing customers. Their feedback suggests that they were impressed with what they saw and how XYZ can help to improve their workflow and productivity,'' says Martin Bunton, XYZ Machine Tools' national sales manager. In addition to the interest shown in the machines on display, the XYZ stand also caught the eye of the show organisers, with the stand being presented with the 'Best Stand Award' for its design and accessibility.

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TRUMPF Open House – the most enlightening event of the year

10th – 12th March 2015, TRUMPF Technology Centre, Luton

The year 2015 is the International Year of Light and Light-based Technologies. It's an initiative supported by a large consortium of scientific bodies and UNESCO that focuses on the importance of light science and its applications and for TRUMPF, it couldn't be better timed. Indeed this is the main theme of its forthcoming in-house exhibition.

Laser technology continues to be at the heart of TRUMPF's research and development and at its Open House from 10th-12th March 2015, in Luton, the company will stage its most impressive demonstration of laser machines yet. It will include the world's first public demonstration of a new laser cutting machine.

The fibre laser is also the basis of the new TruMark 5010 laser marker, shown for the first time in the UK at this event. It combines laser, scanner, controls and internal focus position control in a single housing making it ideal for integration within manufacturing systems.

Punching and bending are also subject to continuous development by TRUMPF and this is evidenced by the introduction of the new TruPunch 2000, a flexible punching and profiling machine that makes it easy for any manufacturer to adopt automated production. Also being shown for the first time in the UK is the highly affordable TruBend Series 3000 press brakes that are characterised by high part accuracy and cost efficiency, even when operated at low capacity.

The best technology in the world is only effective when underpinned by robust service and support and this is a field in which TRUMPF has invested heavily in recent years. The company's Open House coincides with the opening of the TRUMPF TruServices Centre at Luton. Visitors will be able to see the wide scope of what TRUMPF offers from finance and pre-used machinery sales to tooling, programming and production consultancy.

To register as a visitor for the TRUMPF Open House go to: **www.uk.trumpf.com/open-house**

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Jumbo sized benefits

Steed Webzell discovers that investment remains strong in the aerospace supply chain as demand for parts continues to ramp up

With demand for commercial air travel greater than ever, there is no shortage of orders for new airplanes. Match this to numerous high value military aircraft programmes and it's easy to see why the aerospace supply chain is busy investing in the latest manufacturing technologies.

A case in point is BCW Engineering, which has recently installed an Okuma MB5000H horizontal machining centre with a 10-pallet pool to add capacity for producing high precision aerospace components. The machining cell was delivered by UK agent, NCMT, to BCW's new, 30,000 sq ft unit on the Innovation Drive aerospace supply park in Burnley. The company is a tier one subcontract supplier to blue chip customers such as Airbus, Safran Aircell and Messier Dowty.

Tony Kilfoyle, group engineering director, explains the advantages offered by the new machine: "One aluminium aerospace part we machined on another make of twin-pallet HMC took 23 minutes to complete, whereas the Okuma finished it in just 11 minutes. The reduction is partly because we can present a component on its pallet to the spindle more quickly. As it comes out of the pallet pool already fixtured, setup does not delay the start of the next cycle. Changeover is therefore limited to the automatic pallet change time, which is no more than 35 seconds."

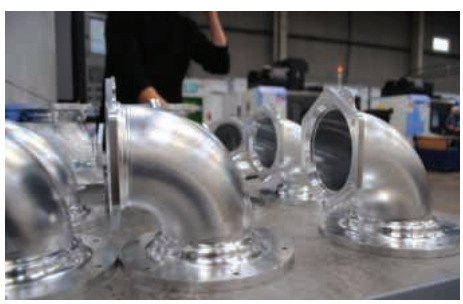
With 10 pallets available, three jobs at a time are typically scheduled through the cell, each occupying three pallets, leaving one station free to fulfil low volume emergency jobs. Indeed, the performance of the MB5000H has been so impressive that the subcontractor has decided to standardise on Okuma for all future HMC purchases. The growing uptake of 5-axis vertical machining centres is another prevalent trend in the aerospace supply chain, as can be witnessed at the Bristol facility of Avon Valley Precision Engineering. AVPE can boast aerospace accreditations that include AS/EN9100 Rev C, ADS SC21 (Bronze), Airbus UK AUK/SA/10101, and Bombardier Global Series 7000/8000.

Although already machining many aerospace components such as aluminium interior cabin parts on a Doosan DNM 400 4-axis VMC, the company began investigating 5-axis machining as a route to securing additional high value work. In fact, a contract to machine aluminium fuel injection connectors for A380 aircraft ultimately provided the catalyst for the investment.

"We were looking for a universal 5-axis machine that could provide us with both 3+2 positional and full simultaneous 5-axis machining capability," says technical director, Steve Eccles. "We wanted the machine to have a good size working envelope so that we could machine large, small and/or multiple jobs in one set-up. Furthermore, we needed the machine to be competitively priced and to be available for immediate delivery."

Against AVPE's search criteria, the Doosan VC630 5AX from Mills CNC came out on top, and the company now has two of these models at its Bristol facility.

Clearly, the ability to respond to customer demand is key in a market dominated by complex and unusual shapes machined from solid. Able to testify to this fact is Poole-based Aerotech Precision Manufacturing, which was asked recently by an international airline to produce gold plated parts for aircraft seats.



Manufactured from a solid billet of aluminium weighing 220 kg and measuring 980 x 235 x 415 mm in size, the final part weighs just 11 kg. The seats are used within the first class section upper bar area of a modern airliner.

The seat components are profile milled using Aerotech's recently installed Kiheung CNC bed mill (available in the UK from Ward Hi-Tech), which has a capacity of up to 3300 x 1250 x 1650 mm. Aerotech's managing director Roger Foley says: "While few, if any of us, will have the opportunity to make use of these elegant seats within their everyday environment, we can however be proud of the fact that a UK-based subcontractor is the manufacturer of these items."

Through speed and efficiencies in set-up, it's clear that the latest manufacturing technologies are helping the UK aerospace subcontract supply chain retain its place as one of the world's most competitive place to machine aircraft components.

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A world of machining solutions

John Barber reports from Pfronten, Germany

Now in its 20th year, the annual DMG Mori Open House continues to be a highlight and attracts visitors from around the globe. This year's Open House, held from February 3rd-7th, was once more the place to be for advanced technology, innovation and solutions. 7,000 visitors were in attendance over the week and, with another 4 world premiers and a total of 72 machines on display, it's easy to see why the event continues to attract such interest.

Situated just a few hours from Munich airport, the impressive headquarters in Pfronten provides the perfect setting for DMG Mori to showcase it's impressive range of high-tech machines.The facility is vast with 5,800 m^2 of space and 1,300 employees working on-site at the premises.

Visitors were treated to seminars, live demonstrations, factory tours and key members of the press were invited to a briefing by DMG MORI president Dr Masahiko Mori and chairman of the executive board Dr Rüdiger Kapitza. They were joined by Christian Thones, a member of the board for product development.

The presentation was both engaging and informative and the speakers passion for the industry was clearly evident. DMG Mori recognises Russia as a very important market for the group and an area that will continue to go from strength to strength. A Magnescale division is currently in it's initial production stages in Germany. This is in recognition of the many high quality grinding companies that are currently based in Switzerland. By focusing on grinding machines in Stuttgart, DMG MORI are confident that their new division will make a big impact in the market.

There was a clear emphasis on quality and the customer experience throughout and the speakers took time to show their appreciation for the skilled workforce in place throughtout the world. Dr Masahiko Mori said: ''I am very happy that our group, in each area, have a number of skilled workers in the United States, Germany and Japan'' He continued to explain how important it was for the company to have a presence in all areas.

DMG MORI specialise in high precision machines and are continously developing new machines for the next generation. They can even develop a tailor made model for a customer based on very specific requirements. Software and applications are becoming more accessible. DMG MORI have launched their very own app for smartphones. Speaking on Messenger, which can be used with the advanced operating system CELOS®, Christian Thones said: ''Messenger is an individual product which we have already sold thousands of and now integrated into CELOS. What I am very happy about is that our customers are faascinated by the system''

DMG Mori's commitment to quality has always been a major factor in their continued market success. At the OPEN House, first quality was described as a cornerstone of the company. Flawless, development, information availability, robust design, service support and testing are all key components of first quality.

DMG MORI launches two world premieres of the 4th generation

At the Open House, DMG MORI expanded their series of the duoBLOCK® with two fascinating world premiers. This included the universal milling machine DMU 100 P duoBLOCK with its outstanding milling performance. The second exciting launch was the DMC 125 FD duoBLOCK which introduces its users to the flexible as well as productive possibilities of turn-mill machining with automatic pallet changing.

Like all new high-tech machines, the two world premieres in the duoBLOCK area featured CELOS from DMG MORI as the standard user interface. CELOS APPs provide the user with integrated management, documentation and visualisation of order, process and machine data on a large 21.5" multi-touch screen of the ERGOline® Control. Furthermore, operation of the machine is simplified, standardised and automated. The 5-axis machines with highly stable duoBLOCK design provide 30 percent more precision, performance and efficiency whilst enabling

highest machining performance and maximum component accuracy with high dynamics. From extremely hard materials, like in the aerospace industry, to the highest of surface quality demands, for example in tool and mould making, the duoBLOCK machines of the 4th generation thus provide the best prerequisites in any case.

The overall rigidity of the duoBLOCK design which is increased by 30 percent was achieved by way of FEM analysis of the structure and strengthened components. This includes amongst others the size 50 ball-thread drives in all axes, size 55 linear guides in the Y-axis, larger YRT bearings in the B- and C-axis as well as the optimised 3-point support for shortest commissioning times and best chip removal conditions.

The accuracy values, which are improved by 30 percent compared to the previous version, are achieved on the one hand through the high stability and on the other an intelligent

temperature management. Extensive cooling measures are now part of the standard equipment for the motors in the B and C-axes, the motor spindle and the headstock housing as well as for linear guideways, ball-thread drives and bearings in the X, Y and Z-axes and last but not least for the servo motors in the Y and Z-axes. A precision package is optionally available with cooling of the X-axis motor, the gear in C- and A-axis, the ball-thread drive nuts in X / Y / Z as well as a bed cooling. In addition, a thermal shield reduces negative temperature effects from the machine's environment.

Another benefit of the duoBLOCK principle are the extensive building blocks for customised complete solutions in a wide range of applications. The choice of spindles, for example, includes ideal versions for all areas, from high-speed through to heavy duty machining, including the motor spindle powerMASTER® 1000 with 1,000 Nm torque at 9,000 rpm or the drive spindle available from quarter 4/2015 up to 1,300 Nm at 8,000 rpm.

Another novelty is the modular wheel magazine with up to 453 tool positions, which can be loaded in parallel to main production and idle times and requires little space due to a footprint reduced by 41 percent. Short provisioning times of a maximum 5.6 seconds and changeover times of 0.5 seconds also increase productivity of the duoBLOCK machines.

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High spindle utilisation more than doubles productivity

Subcontract machinist, BCW Engineering, has installed a Japanese-built Okuma MB5000H horizontal-spindle machining centre (HMC) with a 10-pallet pool to add capacity for producing high precision components for the aerospace, automotive and off-road vehicle sectors. The machining cell was delivered by UK agent, NCMT, to BCW's new, 30,000 sq ft unit opened in October 2014 on the Innovation Drive aerospace supply park in Burnley.

Tony Kilfoyle, group engineering director, says: "One aluminium aerospace part we machined on another make of twin-pallet HMC took 23 minutes to complete, whereas the Okuma finished it in well under half the time, taking just 11 minutes.

"The reduction is partly due to being able to present a component on its pallet to the spindle more quickly, as it comes out of the pallet pool already fixtured, so setup does not delay the start of the next cycle. Changeover is therefore limited to the automatic pallet change time, which is no more than 35 seconds.

"Once the part is being machined, the cycle is quicker because idle times are short due to the 60 m/min rapids in the linear axes and 2.5 seconds tool change. Additionally, the in-cut elements of the cycle are shorter, as metal removal is fast with the 26 kW / 15,000 rpm spindle."

Large reductions in machining times are evident across many aerospace and automotive parts produced in the cell by BCW for such well-known companies as Airbus, Safran Aircell, Messier Dowty, GKN Driveline, JLR, Ford and Aston Martin. The subcontractor is a first-tier supplier to many of them, developing and supplying

prototypes as well as delivering production components to tight schedules.

The performance of the new 40-taper, 4-axis MB5000H, which has 500 x 500 mm pallets and a machining volume of 760 mm cube, has been so impressive that the subcontractor has standardised on Okuma for all future HMC purchases. Tony Kilfoyle commented that the decision was reinforced by NCMT's installation and commissioning of the machine, which he described as the most professional to date of any supplier to BCW's four factories in the Burnley area.

He also pointed out that most of the group's 70 machine tools are hard-working production centres that run 24 hours a day. So the company looks for robustness of build, not only of the structure but also of the spindle, tool changer, rotary axis and coolant delivery system. These items in particular can cause problems on an HMC, but the Okuma was rated highest of all the shortlisted machines for their functional reliability.

Another advantage of selecting this supplier, according to Mr Kilfoyle, is 95 percent availability of machine spares for delivery within 24 hours from NCMT's UK stock and Okuma's European headquarters in Krefeld, Germany. This applies not only to the latest machine, but also to a pair of similar 4-axis, 40-taper, twin-pallet HMCs and a 50-taper model with 10-pallets that have been operated by the group since 2010/2011. They were purchased second-hand and have proved both accurate and reliable.

NCMT supplied the latest 10-pallet cell with a number of options including a full NC rotary table, a 218-position tool magazine and high pressure coolant delivery at 70 bar. Provision of two extra pallets was included in the purchase, enabling 12 different fixtures to be setup at any one time.

From Renishaw, an OMP60 touch probe for workpiece datuming and gauging has been fitted, as well as a TS34 table-mounted probe for tool breakage detection and automatic feedback of tool length offsets. A Cromar swarf management system and an Absolent mist extraction unit have been installed at the rear of the machine.

With 10 pallets normally available, three jobs at a time are typically scheduled through the cell, each occupying three pallets, leaving one free station to fulfil low-volume, rush jobs. Programming is carried out from customers' CAD models using three seats of hyperMILL from Open Mind. Cycles are transferred directly to the machine's OSP-P300 control, which features 3D simulation on its 15" colour monitor.

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Heller machining centres achieve 95 percent uptime

Following a management buyout in 2009, one of the UK's largest aluminium diecasters, Welshpool-based CastAlum, started adding value to its products by machining some of its castings. The development was triggered by the award of two major, long-term automotive contracts for the supply of machined steering gear housings and transmission cases. Until then, all castings had been delivered to customers in their raw state for machining further along the supply chain.

The projected production volumes from the two new contracts, which in 2015 will require CastAlum to machine 700,000 castings, warranted consideration of a transfer line. However, it would have been difficult to adapt if the automotive components change in the future. It would also have meant a substantial investment before the volumes had ramped up, with potential to cause cash flow problems.

Sequenced purchase of twin-pallet, 4-axis, horizontal-spindle machining centres (HMCs) was deemed to be the answer, as they could be installed progressively to suit the rising throughput and are easy to reconfigure to produce almost any component.

Ten H2000 HMCs now populate the main production hall at Welshpool. Each is able to machine any type of steering gear housing or transmission case in two operations, providing flexibility of manufacture. In practice, half are devoted to machining steering gear housings and the remainder to machining transmission cases. Cranes positioned between each pair of machines allows fixtures to be changed over quickly.

Castings arrive from the foundry mounted on carriers that travel on a long, U-shaped EWAB chain conveyor running past all of the H2000s, creating a lean manufacturing environment in a very tight footprint. Each carrier has a chip that identifies the type of casting and the intended destination machine, automatically diverting the castings into buffer areas on both sides of the line which enable operators to access them.

A raw casting is manually loaded into a fixture on a second machine pallet ready for op 1 after a previous, fully-machined part has been unloaded and a part-machined component has been relocated into another fixture for op 2. Both operations are performed on two different components per pallet every time it visits the spindle. So after a pallet index, a finish-machined casting comes off and is sent via the conveyor to the inspection department and on to dispatch.

A view of the mix of steering gear housings and transmission cases on the conveyor in the lean manufacturing cell for machining automotive castings at CastAlum's Welshpool factory

Transmission cases shown in the foreground are machined in two ops on one side of the cell, while steering gear housings are machined on the other side

Keith Brown, CastAlum's managing director who was also involved in the MBO, adds: "The Heller machining centres have an average uptime of 95 percent, which is very high for manually loaded, twin-pallet machines. It is due to efficient presentation of material to the second pallets and from there to the spindles, which minimises changeover times.

"Apart from being reliable, the H2000s are also accurate and repeatable machines, even the early models that have been working hard around the clock, six days a week, ever since they were installed in 2009. We easily hold tolerances down to 10 microns and achieve a process capability of 1.67 Cpk."

Another H2000 HMC is installed in a separate area of the Welshpool factory and a twelfth is due for delivery during the first quarter of 2015. The machine specification includes a 40 kW / 16,000 rpm spindle for productive machining of aluminium, a 630 mm cube working envelope and 8 m/s2 acceleration to 60 m/min rapids to ensure short non-cutting times. Speed of the rotary table is 40 rpm and pallet change time is nine seconds. An installed weight of nearly 10 tonnes and glass scales for positional feedback in the three linear axes contribute to high machining accuracy.

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MILLS CNC

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Non-cutting times vastly reduced

Miyano extends its BNA family of turning centres with the introduction of the BNA-42DHY2

Such has been the success of the expanding generation of Miyano's BNA series of two-spindle, fixed head CNC turning centres that the latest release of the BNA-42DHY2 is able to further improve on the reduction of some 27 percent in non-cutting times which characterised the previous DHY against predecessor machine models.

Now available from Citizen Machinery UK, the latest version machine offers a high torque driven tool motor, which is double the power available on the previous machine. Further enhancements include tool monitoring software in the control. The control is able to capitalise on faster processing and the greater opportunity to overlap sequences, especially when both turrets are simultaneously engaged with the main and sub-spindle.

In addition to overlapping cycles, special screen pages have been written, for instance, to enable measurement and analysis of cutting times, non-cutting times and actual running time in each cycle. This enables the programme cycle to be optimised and in particular, the overlapping of the main and sub-spindle operations to be maximised through the two turrets.

A further important addition to the control software that enhances the operability of the BNA-42DHY2 is a countdown for tool changes which also incorporates an entry for wear offsets. As an option, tools can also be monitored for wear and breakage by checking the live state of the machining sequences and each cutting tool against numerical values captured from test data.

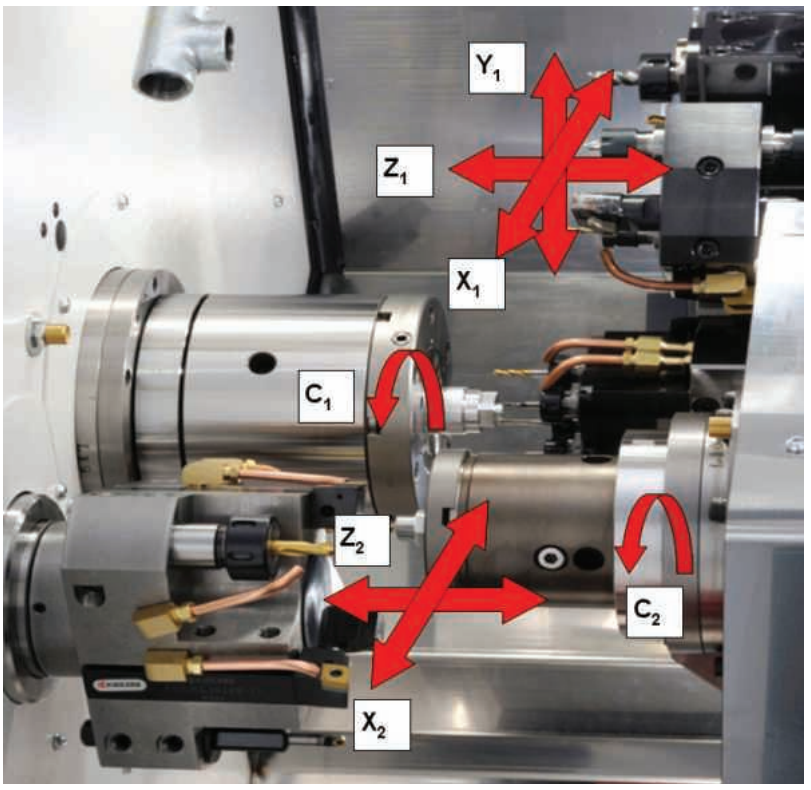
To add to the flexibility for setting, a Y-axis function is incorporated in the main HD1 turret which has eight individually powered driven tool positions with 2.8 kW and 5,000 revs/min drive.

Turret HD1 also has the added advantage of a half-index capability to enable 16 tool positions to be utilised without any toolholder interference. Meanwhile, Citizen Miyano has also made available a totally new range of purpose-designed toolholders that will enable up to four tool positions to be available to each turret station.

Turret HD2 has six stations with three available for driven tools and three for turning tools. These tools can be used with total independence and simultaneously creating an overlap while turret HD1 is engaged. Tools can also be programmed to follow turret HD1 while it is machining at the main spindle.

Having a bar capacity of 42 mm the main spindle is powered by a 7.5 kW, 6,000 revs/min drive serviced by X1 axis stroke of 140 mm, Z1 of 235 mm and Y1 of +/- 35 mm. The sub-spindle has a 34 mm capacity and is powered by 5.5 kW, 5,000 revs/min motor with X2 axis stroke of 140 mm and Z2 axis stroke of 310 mm. Rapid traverse rates are 20 m/min in X1, Z1 and Z2 axes and 12 m/min in X2 and Z2.

Citizen Machinery UK Ltd, based in Bushey, Hertfordshire, is a CNC machine tool specialist supplying the latest CNC turning technology to UK industry. Following a merger in January 2011 the company incorporates staff and resources from the UK machine tool operations of both Citizen (Citizen Machinery UK Ltd, formerly NC Engineering Ltd) and Miyano (Miyano Machinery UK Ltd, formerly Macro Machine Tools Ltd).



Miyano's BNA-42DHY2 features a high torque driven tool capability, tool monitoring and improvements in elimination of non-cutting timers

The company has been successfully serving UK manufacturing industry since 1974 and is now part of the Citizen group, famous also for its precision watches and electronics. The product range focuses specifically on Citizen's range of high performance Cincom Sliding Head CNC lathes and Miyano Fixed Head CNC lathes.

Whether bar turning, autoloading or hard turning Citizen can provide you a route to the lowest cost-per-part. The multiple axis Citizen Cincom sliding head and Miyano fixed head machines span the range from 1 mm to 64 mm diameter. A variety of bespoke autoloaded solutions can be tailored to your requirements using the latest material and parts-handling technology. Fast to set, quick to changeover and easy-to-use, Citizen technology represents a sound investment backed up by the best service in the business and strong residual values. A range of funding solutions are also available, allowing you to spread the cost whether through leasing, rental or outright purchase.

Citizen Machinery UK Ltd
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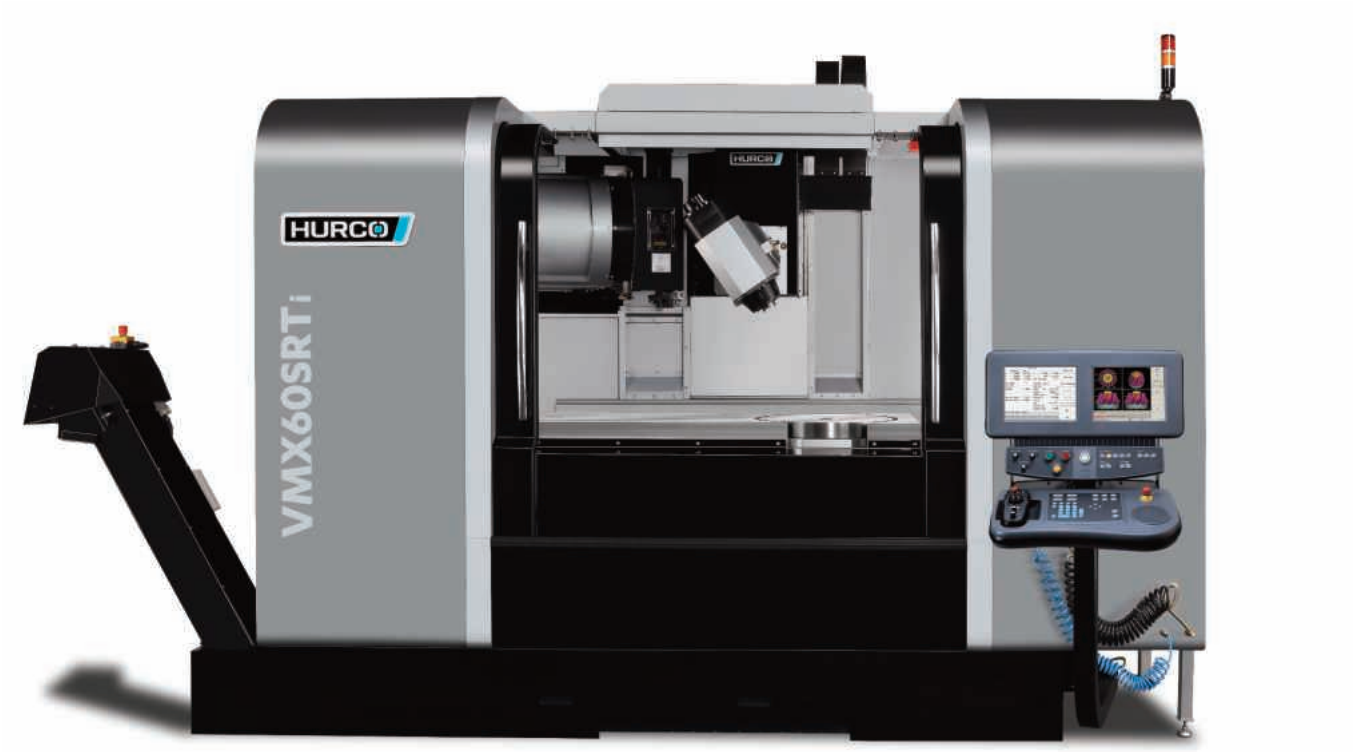
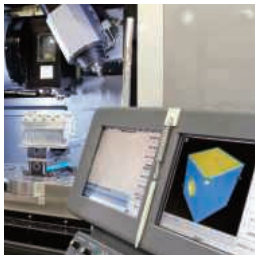


The VMX42SRTi and VMX60SRTi machining centres offer an adaptable, compact approach to 5 axis machining of all types of components. Now available with a high-speed, 18,000RPM spindle option, or in SWi format, replacing the "C" with an "A" axis for complex longer parts.



Free with every SRTi machine purchase: £1,000 worth of Kyocera tooling, Hangsterfers coolant, one month free trial of a Roemheld 5 axis vice, Tool and material library, Hurco branded swarf barrel.

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Haas propels subcontractor to the Stratosphere

Stratos Precision Engineering Ltd specialises in the manufacture of high quality plastic and non-ferrous components from engineering plastics including nylon, Acetal / Delrin, PEEK, PTFE, polyethylene, polypropylene and PET-P amongst many others.

The Gloucestershire-based company machines items for a multitude of applications within industries that include sub-sea, energy, transport, oil and gas and agriculture.

Joint owners Mark Vine and Jon Caple formed Stratos just 21 months ago. In that time, the company has rapidly expanded, currently employing two full time and two part time staff and running 11 CNC mills and lathes.

Jon Caple explains: "We met some years ago while working at the same precision engineering firm. We often talked about forming our own business and after working closely for two years we felt we had the requisite interlocking skills to make Stratos a reality. Six months later we had raised funds to buy our first CNC machines, a couple of second hand mills

"Within three months we'd attained ISO 9001:2008 accreditation. The business was really picking up at a tremendous rate. After some very late nights learning the 'dark art' of search engine optimisation, our website was getting over 1,200 hits per month. The steady stream of work from repeat business became a torrent as more new clients joined our customer base. We knew we had to invest in more machinery and staff."

"At present, we have two Haas CNC milling machines, a VF-0E and a VF-2. The VF-0E we bought second hand. It's now 20 years old and still runs perfectly, holding tolerance and maintaining positional repeatability. We recently invested in a new VF-2 with help from a Regional Growth Fund grant. The grant also enabled us to take on another member of staff.

"We decided on Haas because, having worked with them for fifteen years, I knew they were more than capable of providing the quality and accuracy to keep us and more importantly our customers happy. The new VF2 has proven to be 15-20 percent more productive than our older machine, not only because it takes less time to generate a machine program using the VQC and user friendly interface but also due to the faster cutting feed rates and rapid speeds."

To simplify setup, the VF-2 is fitted with the Haas Visual Quick Code Probing System for setting work offsets and tool offsets.

"We probe some of the critical parts 100 percent," continues Mark Vine, "but generally, we use a probe hole to locate the vice or fixture and a stop for the material.

"One of the Haas mills is currently cutting polypropylene clamping plates, which will be used to secure compressed air bottles to subsea ROVs. This is a three operation part with a cycle time of just under two hours, because of its many threaded cross-holes, counterbores, undercuts and slots.

"The VF-0E is working hard producing a range of spares for the food industry. We can work from drawings or reverse engineer pretty much any part to produce small batches that will still work out way cheaper for our customers than the OEM's own spares. Using our CAD package OneCNC XR6, we can accept customer's drawings in various forms including DXF, DWG, PDF, IGES & STEP and transfer the program via USB to the VF-2 and other machines. Any adjustments can be easily made directly at the control."

The company has just acquired a local fabrication company, along with a customer base that includes household names such as Waitrose and John Lewis and which has just 'gone live' in January, and it can see huge potential in this latest venture.

"We aim to be even more successful and enjoy further growth in the future," says Jon Caple. "With our decision to invest in Haas, there is no reason we cannot continue tackling new engineering challenges in a cost-effective and reliable manner," he concludes.

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Extra capacity, flexibility and performance

Investment in new Doosan lathe and machining centre helps MJ Engineering Ltd strengthen its position in key high value sectors

Leading precision manufacturing specialist, MJ Engineering Ltd has recently strengthened its milling and turning capabilities by investing in two new Doosan machines, a Lynx 220LM lathe and a DNM 650 Mark II vertical machining centre, both from Mills CNC.

The machines were installed at MJ Engineering's modern and spacious 6,300 sq ft facility in Market Harborough, the Lynx lathe in February and the DNM 650 Mark II in August. They join the company's three other Doosan machines, a Lynx 220LM lathe and a DNM 400 vertical purchased in 2008, plus a further Lynx 220LM lathe in 2010.

The new machines provide MJ Engineering with additional machining capacity and reflect the company's philosophy of making strategic and timely investments in the latest advanced manufacturing technologies as a route to achieving sustainable growth and improved profitability.

The company's commitment to continuous improvement and its progressive attitude to investing in the future have seen MJ Engineering post consistently strong sales results over recent years, even during the economic downturn in 2008/09 when many SME manufacturing companies in the UK were feeling the pinch.

MJ Engineering supplies high-precision machined components to a range of different sectors and industries, including motorsport, aerospace, defence, petrochemical, pharmaceutical and optical.

The company, with its advanced machine tools and ancilliary equipment, CAD/CAM software, highly-trained and experienced staff and its good relationships with suppliers of specialist subcontract services, for example surface and heat treatment, provides customers with an integrated seamless service from design, technical consultancy and prototyping through to low, medium and high volume batch production.

Ever since the company was first established 25 years ago by the now retired co-founders Martyn Simpkin and John Whitcome, MJ Engineering has had strong links with the motorsport sector, especially with leading racing car engine manufacturers.

These relationships have been further developed under the watchful eye of current MD David Simpkin, so much so in fact that all the racing cars on the grid in this year's F1 season either have engine or chassis parts machined by the company.

However, establishing and maintaining profitable relationships with customers operating in the motorsport supply chain and other high-value sectors reliant on high-precision, performance critical machined components doesn't happen by chance.

Advanced machine tools, capable of machining tough and difficult materials to tight and repeatable tolerances and surface finishes, plus having a skilled workforce able to get the most and the best from the machines, are obvious pre-requisites and, in MJ Engineering's case, help explain its investment in Doosan technology and its use of the CNC Training Academy, part of Mills CNC, for programmer and operator training.

David Simpkin says: "Doosan machines are reliable and are attractively priced. Since being installed they have helped us increase our productivity significantly. This is exemplified by our DNM 400 vertical machine which, to complete a particular job for a customer, was running virtually non-stop 18 hours a day/ 6 days a week for a considerable period of time."

"We have also used the CNC Training Academy to help address out training requirements.

"We have a diverse range of customers from an equally diverse range of industries. This means that we are better prepared and able to cope with a potential downturn in one sector."

As a consequence MJ Engineering has increased its presence in the aerospace and pharmaceutical sectors and the investment in Doosan machines has helped the company consolidate and grow its position in both.

To help take the pressure off the company's Doosan DNM 400 machine that was installed in 2010, and to ensure that it could deliver a huge aerospace order for the machining of complex cooling system parts made from Inconel, the company invested in a larger Doosan DNM 650 II model in August 2014.

This machine with its large work envelope, powerful spindle technology and integrated thermal compensation system provides the company with extra capacity and flexibility, and improved rough and finish machining performance.

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Ajax's tough solution to rough milling cycles

To meet customer requests for heavy duty milling machines for performing roughing-out cycles, such as when creating datums for dies and moulds or hogging out, or removing scale and harder surfaces prior to resetting for precision machining, Ajax Machine Tools International is introducing its AJVBM Series of vertical milling machines. The non-CNC machine range has travels up to 2,000 mm by 800 mm by 700 mm and up to 11 kW spindle and 3.5 kW feed motor power, with mechanical gearboxes.

The AJVBM Series of four machines can be specified with Heidenhain or Newall 2- or 3-axis digital read-out. Each machine is constructed on heavy duty ribbed castings with the added rigidity created from hardened and ground solid boxways and ISO 50 spindle taper.

The range starts with the AJVBM 3, with a 1,700 mm by 380 mm table and travels of 1,000 mm by 380 mm by 500 mm with up to 600 mm gap between the spindle and table. The 5.5 kW spindle drive provides a speed range of 45 to 1,500 revs/min in 12 steps and the feed range is variable between 20 and 1,000 revs/min.

The Ajax AJVBM Series of heavy duty milling machines with travels of 2,000 mm by 800 mm by 700 mm is designed for roughing out cycles, removing scale and hard surfaces prior to precision machining

The largest machine, the AJVBM 8 weighs in at 11.8 tonnes with a 2,700 mm by 750 mm table with up to 770 mm between spindle and table. Travels are 2,000 mm by 800 mm by 700 mm. The 11 kW spindle has infinitely variable speed range between 45 and 1,500 revs/min and feed rates are variable from the 3.5 kW motor up to 1,000 mm/min.

All Ajax machines now carry an 18 month warranty as standard. Ajax has a huge range of machines which include small manual grinders, CNC lathes, machining centres, CNC and manual milling, flat and slant bed lathes, drilling and boring machines. Ajax is dedicated to Fanuc control systems which offer ease-of-use and total reliability, facilitating a 2 year warranty as standard on all its products. This is backed up by a dedicated service team covering the whole of the UK. An in-house delivery service is available with installation if required, along with full onsite training on controls and machines.

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Classic Aston Martin racecar engine gets the Premier treatment

Premier Deep Hole Drilling is one of the UK's largest providers of specialist deep hole drilling, gun drilling and honing services. With an enviable reputation in the demanding industry sectors it supports, the company has recently completed the drilling of an engine block for a very rare classic racecar.

Pulling on the purse strings of enthusiasts and investors alike, iconic classic cars can satisfy a dream and provide a substantial return on any investments made. Jonathan Dormer is firmly in the passionate enthusiast camp, as he is funding the rebuilding of one of the rarest Aston Martin race cars, a DBR2. Paying unwavering attention to detail, he has rebuilt one of the two original multi tubular space-frame chassis, with the suspension and braking systems also being completed to original specification. Now the focus is on the engine, with a new block being sand cast to the original design.

Owner of Aston Martin engine builder and development engineering specialist JMB Services, Peter Bond, explains: "The block is cast from aircraft grade aluminium, we skim machined some flat datum faces on it before it is sent to Premier Deep Hole Drilling in St-Albans. While we can machine most parts here, we do not have the deep hole drilling equipment, knowledge or experience of the staff at Premier."

The engine block has a cast in main oil feed galley which needs to be drilled through. As the oil galley passes through the most intricate parts of the casting there is a risk of porosity, so the decision was made to drill the feed hole before any other machining operations were carried out. Premier's managing director, Stuart Grant, says: "A 19 mm diameter hole had to be drilled through the 747 mm block to form the main oil feed galley.

"Because the oil galley is close to the surface across the aluminium block, there is no allowance for the drill to vary from the intended trajectory, so we drilled it from both ends to meet in the middle. One end was drilled and then the block was set up on the machine by referencing the initial entry point and feeding in directly opposite. The positional control on the machine was used to ascertain the position accurately as the faces on the cast block were not accurate enough for us to use."

The DBR2 was originally created from a short lived Lagonda project known as DP166 (DP for Development Project). Using the two DP166 chassis, Aston Martin owner, David Brown's racing department modified the cars with bodies similar to those from the DBR1, except larger and more aerodynamic. These cars would be christened DBR2/1 and DBR2/2.

For an engine, the new Tadek Marek-designed 3.7L straight-six from the newly launched DB4 road car was initially installed. For the 1958 season, the engine was enlarged to 3.9L, then again with a 4.2L engine later in the year to produce 298 bhp in a vehicle weighing just 800 kg.

DBR2/1 initially began competition at the 1957 24 Hours of Le Mans, where it unfortunately retired with a gearbox failure. Its only notable success for 1957 was at the Daily Express Trophy at Silverstone Circuit, driven by British racer Roy Salvadori, who set a new sports car lap record of 98.48mph. He also won the 1959 24 Hours of Le Mans driving for Aston Martin with team mate Caroll Shelby.

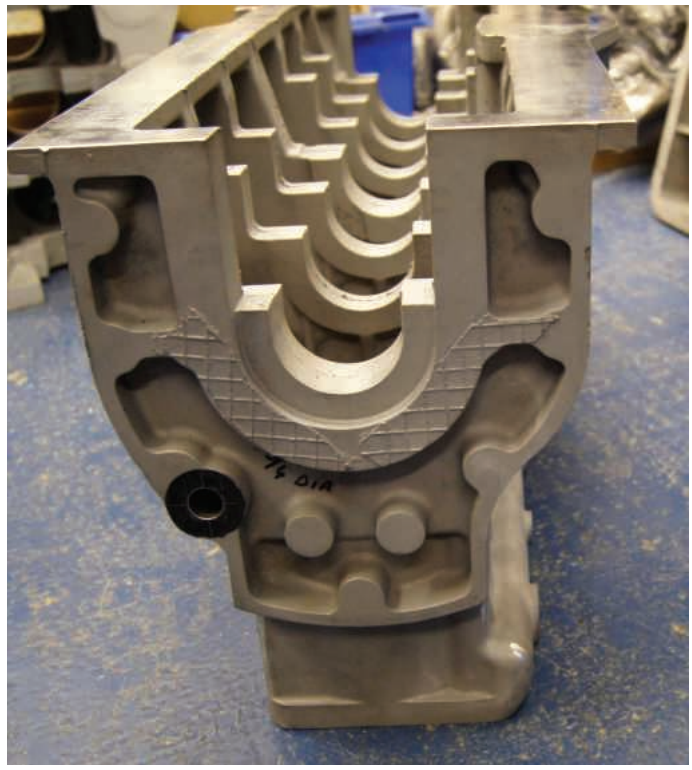
For the 1958 season, the FIA limited the engine capacity for the World Sportscar Championship to just 3L. The sudden

change in the regulations left the DBR2 along with Jaguar D-Type, Maserati 450S and the Lister-Jaguar Special unable to compete in international races. So, the DBR2 was relegated to non-championship British, European, and American events that permitted the larger capacity cars.

For 1958 the DBR2's programme was expanded, including the upgrade to the newer 3.9L engines. DBR2/1 won both the Sussex Trophy at Goodwood and the British Empire Trophy at Oulton Park, driven by Stirling Moss in both wins. After finishing 2nd and 3rd at Spa behind a Lister-Jaguar, Aston Martin decided to concentrate on the DBR1 for Europe, while both DBR2s were upgraded to the 4.2L engines and transferred to America where they could compete easier with larger engine capacities. George Constantine drove DBR2/1 to victories at Lime Rock and Marlborough before the end of the season.

Continuing in the United States in 1959, the cars again took victory in New York and twice in the Governors Trophy at Nassau in the Bahamas, driven by George Constantine and Stirling Moss. This was the last ever works entry of an open cockpit Aston Martin, and both cars were then returned to Aston Martin in 1960 after two relatively successful seasons and were subsequently sold to privateers.

With over 20 years' experience in the field of complex deep hole drilling applications, Premier Deep Hole Drilling is the UK's foremost specialist in deep hole drilling and associated machining. The company prides itself on its customer focused approach, and aerospace AS9100 quality system accreditation ensures all components are produced to meet or exceed customers' expectations.



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Deep calls to deep

The highly specialised development of precision small deep hole machining techniques for the medical, defence, semiconductor and fuel injection industry involving machine tool, tooling, process application and measurement of results has led Mollart Engineering to expand its subcontractor machining operations at Chessington in Surrey and Resolven in South Wales. The expansion of its highly successful deep hole and added value service encompasses a precision micro-drilling and ultra-thin wall hole component production service for holes as fine as 0.5 mm diameter by up to 50 mm deep.

The service, which stretches the current boundaries of hole machining technology, can be applied to materials as diverse as plastics to challenging materials such as titanium and high alloy steels.

Micro deep hole drilling is fraught with problems. There are several processes now available for producing small precision holes such as 5-axis turn milling, laser drilling and electro-discharge machining (EDM), but each has a distinct disadvantage to drilling. Drilling creates a higher level of geometry for roundness, straightness and concentricity and problems such as molten materials at the break out position are eliminated. Drilling is also a far quicker process but needs precise tool and machine setting and monitoring that Mollart

equipment can provide to avoid breakage and hole wander.

An important addition to the micro-drilling service is that Mollart also has the in-house capability to add value through other processes, such as 5-axis turn-milling, turning, milling, grinding and honing, as well as providing ancillary processes such as heat treatment, plating and crack detection that create a true 'one stop' service to customers.

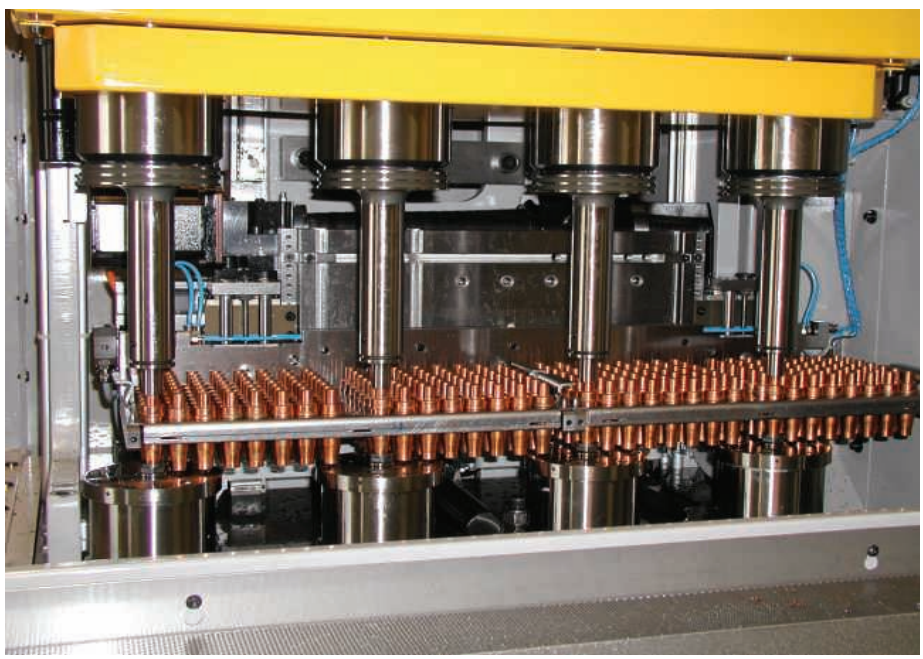
At Chessington, in addition to 3-dimensional measuring machines, a Mahr Perthen unit is used to check surface finish on holes as small as 1 mm diameter, a Surtronic unit with extensions able to check holes from 4 mm diameter and up to 3 m in depth and a Borescope to check for burrs and hole intersections from 4 mm diameter. In addition, a wealth of knowledge and tooling is available to perform precise straightness and concentricity checks. Highly complex medical pumps out of titanium are micro-machined at Resolven using 5-axis techniques which are then highly polished and must be processed to ensure no entrapments are present.

Typical of the components produced at Chessington are very challenging thin walled plugs in stainless steel for an oil industry customer. The hole is 3.3 mm diameter by 100 mm long. However, concentricity between the OD and bore has to be within 0.2 mm TIR and the wall thickness is only 0.75 mm! Adding to the machining problems is a bore surface finish requirement that must not exceed 3.2 micro metres CLA.

High length to diameter ratios are the mainstay but can be very daunting when applying the deep hole drilling process and currently holes of 0.5 mm diameter are restricted by Mollart to a length of 50 mm. It has also to be borne in mind that the tool has coolant feed and a flute to enable swarf and coolant to be ejected during the process. As sizes increase to 1 mm diameter, the depth capability also increases to 100 mm while 2 mm hole sizes can be produced to 300 mm depths.

An almost continuous contract for special tubes machined out of Inconel, some 1,300 mm long with a wall thickness of just 4 mm, is a perfect illustration of Mollart's capability to apply its applications expertise to subcontract production. The outside diameter is machined to 30.48 mm diameter with a concentricity tolerance of just 0.04 mm TIR over the entire length to the 22.25 mm bore.

Produced in batches of 20, each part is rough turned, gundrilled and finish turned to size with the addition of certain cross holes, counterbores and internal threads at each end prior to finish honing to a + 0.025 mm tolerance in the bore. The component is completed on a recently installed horizontal honing machine with a minimum capacity of 6 mm diameter and will accommodate parts up to 2 metres in length. Each component is checked using ultrasonics as well as traditional inspection methods.



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High performance deep hole drilling up to 10 x D

With the ability to now drill deeper holes up to 10 times the diameter of the tool in aluminium, brass and bronze materials, Sumitomo Electric Hardmetal is setting a new benchmark in hole making productivity with its MDW drill range.

The development of the MDW-NHGS Type drill range focused on reducing the thrust required through a stronger design of helix leading into a special sharp cutting edge, while incorporating the company's high performance AURORA COAT Diamond Like Carbon (DLC) coating.

Available in drill sizes between 3 mm and 16 mm with through-the-tool coolant feed, standard drill lengths are 3xD, 5xD and 10xD. However, customised length drills can also be supplied upon request providing the overall length does not exceed 290 mm.

The AURORA DLC coating has an extremely high hardness with the added advantage gain created through a lubricated cutting surface that has a very low coefficient of friction between 0.05 and 0.2.

Combined with the special helix and cutting edge geometry, the MDW-NHGS drill range enables the precise control of chips while supressing the formation of any built-up edge. As a result, consistency of cut and penetration rates can remain high especially on applications such as the drilling of deeper holes that are often required in castings made from aluminium, brass and bronze, for instance.

Sumitomo's European headquarters is reflecting the company's success with a new building in Willich, Germany. Completion of the new building on Konrad-Zuse-Str. in the Münchheide IV industrial area is planned for December 2015. As well as a modern design, the building will incorporate a number of new technical features.

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Deep hole drilling just got deeper with WNT

WNT's range of WTX solid carbide drills has been extended to encompass drills with flute lengths of 16 and 25 times diameter as standard. The range covers drills from 2.0 mm through to 12.0 mm diameter all with through tool coolant as standard.

These new drills have been designed to fully maximise the available flute length and can be used to full depth without the need for retraction or pecking cycles to be used. This is down to the fact that the swarf clearance is both safe and secure, due to the flute form and through tool coolant, which is recommended at a minimum pressure of 30 bar. In line with the rest of the WNT range, these drills will be available from stock with the same next day, before noon, guaranteed delivery promise.

The drills are suitable for use on steel, stainless steel and cast iron components but to ensure optimum performance should always be used with a pre-drilled pilot hole that is to a depth of 2 x dia. and between 0.01-0.03mm larger than the hole to be drilled. Where cross holes or break outs are encountered the feed rate should also be reduced by 50 percent at those points. Subject to drill length and diameter cutting data for drilling steel is between 85 and 105 m/min surface sped and between 0.05 and 0.15 mm/rev feed.

"The ability to drill holes of this diameter to length ratio, without the need to peck, will make a significant improvement in cycle times for customers and is another example of how WNT is working with customers to develop the tooling that they need to remain competitive," says Tony Pennington, managing director of WNT (UK).

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WNT's WTX solid carbide drill range has now been extended with 16x and 25x D flute lengths as standard

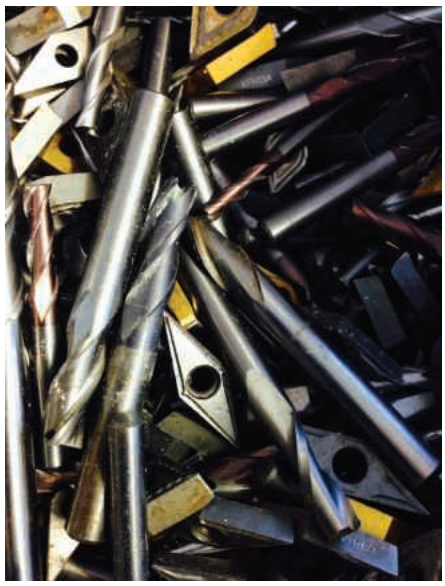
The changing face of scrap

The scrap metal industry has until recently been tarred with a less than savoury reputation and with good reason.

Cashless trading was introduced in 2012 and was swiftly followed by the 2013 Scrap Metal Dealers Act, introduced to combat the nations metal theft epidemic. Both have, in many areas, proven successful with metal theft reduced by between 40 and 70 percent in England and Wales. Complacency should be avoided though as, with the lack of Police funding, there is a real possibility that as metal prices rise so too will the metal theft statistics. It is therefore essential that scrap producers continue to store their materials in a secure location or container.

The impact on industry attitude towards scrap metal merchants is just starting to show. Loyalty was previously of huge importance but it is finally being questioned. Attitudes to poor service, which many turned a blind eye too when cash was readily available, are now changing.

Service is king and customers now rightly demand a comprehensive paper trail and a full health and safety assessment. All should insist on checking the credentials of the scrap purchaser: are they allowed to buy your metal scrap or is your company inadvertently feeding criminality by dealing with an unlicensed individual or organisation? Many are visiting their preferred scrap metal merchant, undertaking a full site audit to ensure the



quality of company they are dealing with is appropriate.

Scrap is no longer 'scrap' in the traditional sense; it is now a valuable commodity adding value directly to a company's bottom line. Savvy companies that work in industries where pricing is overly competitive will take into consideration the scrap value of the contract when quoting for new business, often giving them a clear advantage over competitors. Pricing remains keen, but for larger companies their Duty of Care obligations are now of major importance, especially when ISO is taken into consideration. Smaller companies often remain unaware as to exactly what their

Duty of Care obligations from the Environment Agency are. In the simplest of terms, a producer of waste (including scrap metal) is responsible for ALL waste from cradle to grave. Failure to adhere to the Duty of Care could leave a scrap producer with a potential Environment Agency prosecution. Professional scrap metal merchants should assist you in fulfilling and understanding your obligations. If, as a bare minimum, your merchant is not providing you with paperwork, the chances are that you may be breaching your Duty of Care.

State-of-the art carbide recycling

Alchemy Metals Ltd IS one of the UK's largest buyers of tooling direct from manufacturing companies and tooling suppliers. It is 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.

Alchemy Metals Ltd was established on the 19th July 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. All metals waste is purchased by grade then processed for onward sale to end-users. Alchemy Metals prides itself on tailoring its service to your specific needs. Its solutions to efficiently manage your scrap metal, coupled with complete accuracy on the weights and grades of scrap metal, will significantly benefit your company.

Alchemy Metals Ltd
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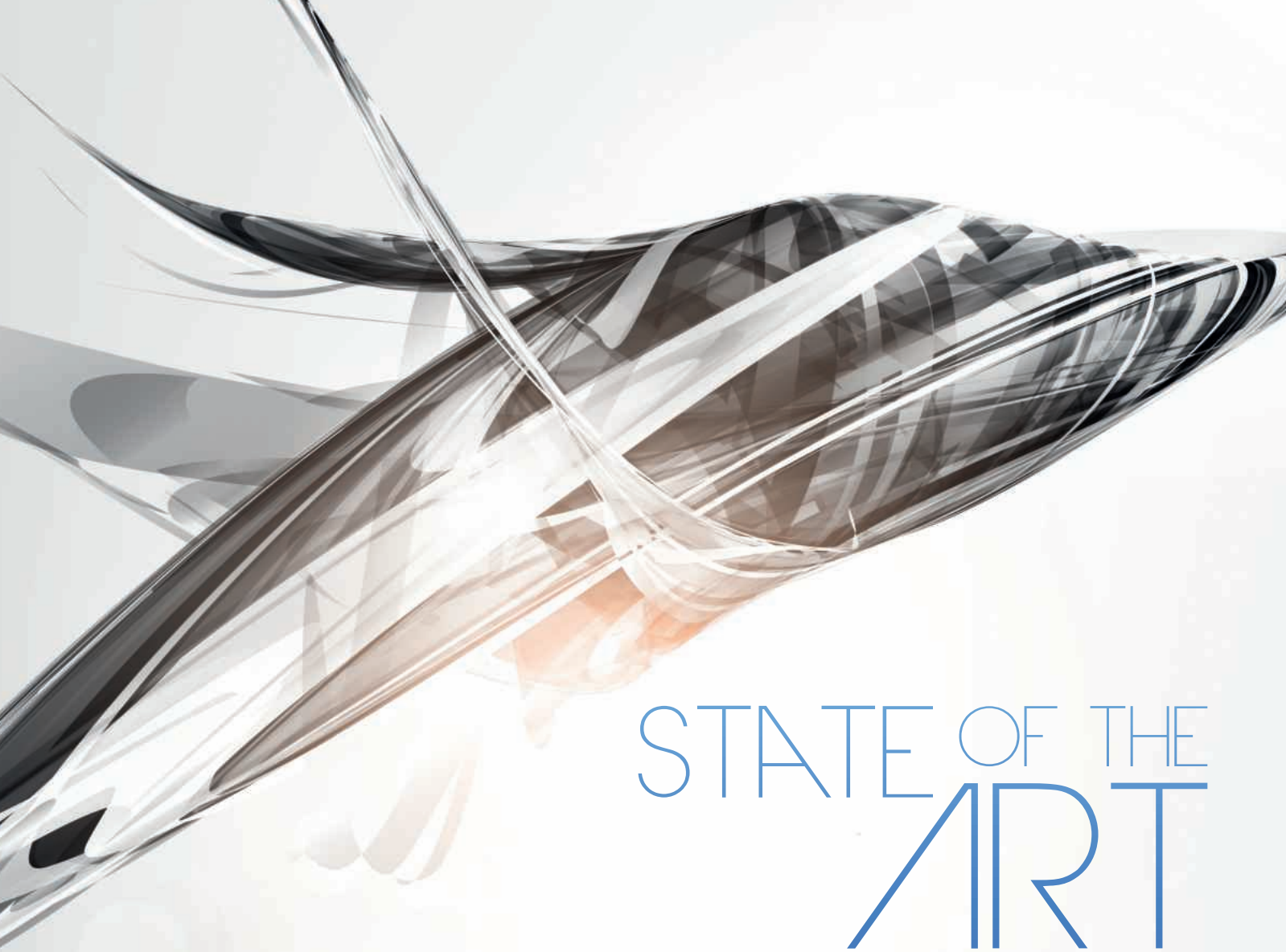

STATE OF THE ART

METAL RECYCLING

Alchemy Metals are an independently owned factory scrap metal service 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 scrap service you have ever experienced.

Materials bought: aluminiums, brass, chrome steels, copper alloys, high speed steels, specialist steels, nickel alloys, stainless steels, titanium alloys, cobalt alloys, tungsten alloys, precious metals and a range of non-ferrous materials.

ALCHEMY METALS GROUP LTD

Working in partnership with SMARTWATER®

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Crossrail

Mate broadens Hadley Group's high quality product offering

Hadley Group is an international manufacturer of cold rolled steel profiles used in the construction industry. Adding turret punching using Mate UltraTEC® tooling was an important move for the company. Doing so allowed Hadley Group to broaden its product offerings with allied products for its existing product lines.

Hadley's allied structural products include mezzanine floor joist systems, steel framing, ceiling grid systems and electrical cable management systems to name just a few. All of these products require accurate slitting and punching of complex hole and slot patterns in long sheet material. Other part features, such as folded edges, piercings or threadforms all use the latest forming technology.

By using Mate UltraTEC tooling, Hadley Industries established a turret punching platform that enabled new, high quality product designs. Through the use of this innovative tooling, Hadley also added desired manufacturing flexibility for varying quantity needs including bespoke orders. Mate UltraTEC tooling also provided Hadley with needed durability to punch a wide range of sheet material and thicknesses, all with high quality results.

"Our move into turret punching quickly contributed to new products and higher product quality that has paid big dividends two ways," says Nathan Annand, Hadley Allied products manager. "It earned quality accolades from customers who increased order volume because of it. And the higher quality level brought manufacturing back into Hadley Group's UK operations from Eastern Europe."

Hadley Industries manufactures annually over one billion linear metres of UtraSteel® products by its group companies and approved licensees. UltraSteel is Hadley's internationally patented process that gives its cold rolled steel profiles unusually high strength and long life. The UltraSteel process alters the surface characteristics, resulting in stronger sections and significant reductions in raw material usage. A major technical break through, the process can be used on virtually any of its light gauge cold roll formed sections and products. The process is so unique that it won the "Queen's Award For Enterprise Innovation."

Starting from "scratch", turret punching has challenges

"Since we had no significant experience with CNC punching and were starting from scratch, we investigated a number of turret press and tooling options," says Nathan Annand. "We started with the Amada Vipros Queen in 2011. That has been the backbone of our operation for samples, prototypes, small and larger production volumes. It gave us the capability for punching 0.5 to 6 mm mild steel in sheet sizes up to 1250 x 4000 mm. Adding the Vipros King two years later was a natural progression for fabricating thicker materials in larger sheets using similar technology."

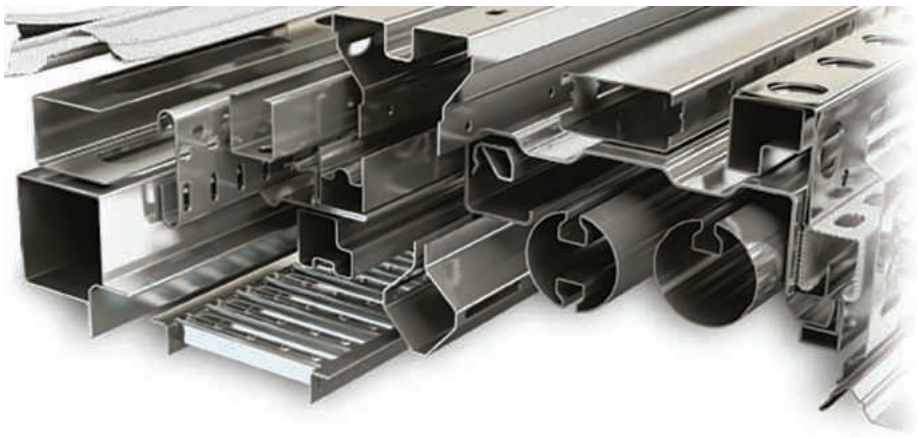
Tooling selection was equally important for Hadley Industries. "We understood that choosing the correct tooling would have a big effect on quality and productivity. We previously knew of Mate Precision Tooling's reputation for its punching quality and long life features. That led us to begin a relationship with Craig Letty, of Mate Tooling Solutions, the Mate dealer in the UK and Southern Ireland. His fabricating

knowledge and experience really helped guide us in setting up our turret punching operations."

"The challenges we faced were great," says Nathan Annand. "Everything from choosing the tooling type, learning how to plan setups, adjust lengths, run and maintenance, everything had to be learned. So training in the use of the tooling was every bit as important as the tooling itself. With Craig, and the tooling and service he offered, we decided his was the solution that would work best for us."

Most of the punching challenges Hadley Industries faced were linear in nature because virtually all of Hadley's products range up 18.5 m (60 feet) long and most often average 4.5 m (15 feet) in length. Materials required include both galvanised steel in standard DX51 grades and a large number of products fabricated and punched out of S390, S450, S600 steel. Also frequently used are stainless steel, aluminum, hot and cold rolled steels. This wide range of materials are required to meet various construction designs and standards for a wide range of industries and countries.

"Craig examined our product drawings, assigned turret layouts and generally helped us understand turret machines and tooling applications for what they can and cannot do," explains Nathan Annand. "We needed a punching platform that was compatible with the robust design of our structural products. He recommended Mate's UltraTEC as a tooling system we could build on. We wanted the best possible turret punching setup to handle the quality and volume requirements of our rapidly expanding product lines. The UltraTEC system gave us that."



Reasons for selecting the Mate UltraTEC tooling platform

Mate's UltraTEC tooling system is a premium thick turret punching system that increases performance and flexibility, offers extended tool life and is interchangeable with existing systems. Designed using premium high speed tool steel, UltraTEC offers easy click length adjustment eliminating shims or tools. The grooved guides provide optimal lubrication, while the relieved strippers extend grind life. Mate's Slug Free® die design eliminates slug pulling.

"Because our products are structural and robust by design, we required an equally robust tooling system," says Nathan Annand. "That's why we standardised on Mate UltraTEC. With Craig Letty's input we learned quickly that our tooling has a major impact on all aspects of our operation; everything from quality and fabricating speed to efficient labor utilisation and, ultimately, profitability. Also, through the intelligent planning and use of special application tooling such as cluster tools, thread forming, countersink and embossing tools, we expand the usefulness of the turret presses making the punching process much more efficient."

Mate's UltraTEC fully guided design contributes significantly to effective punching especially when using cluster tooling. Compared to other tools, Mate UltraTEC fully guided tooling has a tighter clearance between punch and stripper compared to other tooling, making for a big difference in rigidity.

By itself, the tighter clearance between punch and stripper is not enough to achieve high performance results. The key is that the entire tooling system, guide, punch and stripper, all have to align with tight tolerances to remain rigid and stable under rigorous punching conditions, like those experienced daily at Hadley Industries.

Nathan Annand believes that the robust UltraTEC fully guided tooling system design, is an important difference. UltraTEC fully guided prevents side-loading and twisting forces from occurring, which cause premature tool edge cracks, dulling, galling and overall wear.

One of the reasons for this longevity is the tool steel, which when combined with heat treating, results in punches with superior compressive strength and high wear resistance. UltraTEC punches are extremely resilient, retaining size and accuracy while withstanding high operating temperatures.

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Magnetic workholding and handling equipment from Italy

A new range of Italian-made products that incorporate permanent-electro magnets, designed for workholding on machine tools including grinding machines and for handling sheet, bar and other ferrous materials in warehouses and factories, has been introduced to the UK and Irish markets by 1st Machine Tool Accessories, Salisbury. It follows the company's appointment as sales and service agent by the equipment manufacturer, Tecnomagnete spa which has its headquarters and factory located close to Milan.

Items in the product range likely to be of particular interest include the MillTec Grip magnetic clamping system for milling machines and machining centres. The low-profile, frameless clamps with double magnetic circuit allow uniform clamping between the workpiece and the magnetic surface and at the same time between the magnetic system and the machine table.

It eliminates bending or deformation caused by the mechanical clamping elements, ensuring stability and structural uniformity of the whole workpiece, magnetic chuck and machine assembly. A patented feature is the sealed construction with a monolithic, all-metal top section into which an array of magnets is embedded for holding down workpieces.

For grinding applications, TFP and TPF magnetic clamping systems offer advantages, not least the variable magnetic pull-down force to suit the workpiece. The ability to remove residual magnetism from the component after machining prevents build-up of grinding dust on the surfaces and consequently the need for its time-consuming removal.

Worthy of special mention in the work handling section of the catalogue is the

patented MaxX range of manually controlled lifters, which contain high-energy magnets capable of lifting loads up to two tonnes. The monoblock body improves safety by avoiding the need for separate sections bolted together. The flux remains entirely within the body until the handle is pulled to activate the lower surface of the lifter. Any metal object near the sides does not lessen the magnetic force, resulting in secure handling.

All products in the range use permanent-electro magnetic circuits, patented by Tecnomagnete in 1977, whereby electricity is only required during the activation and deactivation phases.

Tecnomagnete was formed in 1974, specialising in permanent electro magnetic technology applied in the machine tool field.

Thanks to original patents, the continuous improvement of Quadsystem technology and a winning commercial strategy, Tecnomagnete has become a leading company in the magnetic system industry

Currently the company has 198 direct employees and15,000 covered square meters dedicated to the production of high-end machine tools. They have seven subsidiaries in the main foreign markets. The Italian Headquarters feature departments dedicated to R&D, Engineering and Production.

Offering a comprehensive selection of top

quality products at competitive prices, 1st Machine Tool Accessories is a leading supplier of workholding and machining accessories, including collets; chuck jaws; Kitagawa chucks, rotary tables and vices; Chick, Tecnomors and Best workholding equipment; Abbott and Leave fixturing and clamping products; Darex tool sharpeners; OK-Vises; Brighetti reduction bushes; CoolJet high pressure coolant systems; Micromag filtration units; machine mounts; Overbeck deburring twister lathes; ScandMist industrial air cleaners; and Iemca bar feeders and billet loaders.

1st MTA's extensive stock holding is backed by excellent warranty and service, provided by a dedicated team of technical engineers. Demonstrations of selected products are available from external sales specialists on request.

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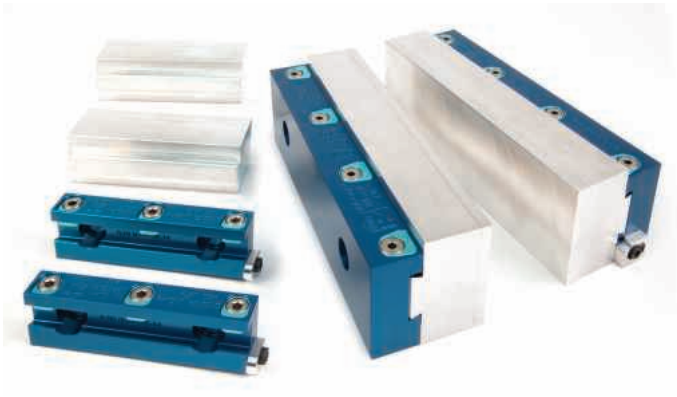
New quick-change jaw system

Kurt Workholding has introduced two new DoveLock™ Quick-Change Jaw System sizes for 4 inch and 8 inch Kurt industry standard vices and towers. Following the successful introduction of the DoveLock Quick-Change Jaw System for 6" vices, Kurt is expanding its DoveLock line for use on new and most existing vice and tower setups.

The DoveLock Quick-Change Jaw System enables fast jaw changes and repositioning with high precision. Jaw change time is reduced by 90 percent to less than a minute, with jaw positioning repeatability of up to ±0.001". Exclusive to the DoveLock, the machinable jaws can be rotated 180° and machined on both sides for two different part setups.



The DoveLock Quick-Change Jaw System is now available in 4", 6", and 8" inch configurations and consists of: a master jaw set of two master jaws, four low head socket cap screws and a 5/32" hex "T" wrench. A jaw set consists of two precision-machined aluminum machinable jaw plates. Jaw kits are available for the 4" inch system in 4" and 6" widths, for the 6" inch system in 6", 7", 8", and 10" widths, and for the 8" inch system in 8", and 10" widths.

Kurt also sells DoveLock Quick-Change Jaw System starter kits which include: two master jaws, four low head socket cap screws, a 5/32" hex "T" wrench, and two precision machined aluminum jaw plates. Starter kits are available for 4", 6", and 8" Kurt industry standard vices and towers, and come with corresponding 4", 6", and 8" precision machined aluminum jaw plates.

The DoveLock master jaw uses innovative dovetail quick-clamps to precisely hold the quick-change machinable jaws. The master jaw is attached to the stationary and movable jaw of any standard 4", 6", or 8" Kurt industry standard vises or Kurt Cluster Tower in the initial setup. Once installed the machinable jaws can be easily swapped out by loosening the three quick-clamps on top of the master jaw, then the machinable jaw is removed by pulling it out forward or sliding it out the side of the master jaw.

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The attraction of safer magnetic clamping

How Wickert turned to Roemheld to meet new EN safety standards

Machine engineering company Wickert Maschinenbau GmbH, turned to Roemheld's latest magnetic clamping technology to ensure compliance with the latest EN safety regulations. To date, M-TECS magnetic clamping plates are the only ones with a control system that meets the high demands of the new EN 289 safety standard, which came into force at the beginning of 2014. Wickert installed the latest version of the quick-clamping technology, for the first time, on a compression press for the production of pharmaceutical stoppers. Their customer was a company in the USA which sometimes produces very small batches under white room conditions. Thanks to the technology, the customer has saved more than two hours' tooling time at each of the frequent mould changes.

The WKP 10000 S press, with its 10,000 kN press force, is being used to produce caps for medication packages and plungers for injections with diameters between 6 and 16 mm. Production takes place in a white room, meeting the requirements of ISO Class 7. The American pharmaceuticals company processes an elastomer, developed in-house, whose properties are adapted to the medications with which the work pieces come into contact. Air pockets, that occur in the starting material during kneading, are eliminated in a vacuum chamber. The elastomer vulcanises at a temperature of 180°C to 210°C.

As the dies used are only 2" (5 cm) thick in some cases and require a plane parallelism with a tolerance of only 0.1 mm over the whole press platen area of 1,000 x 1,000 mm, they have to be clamped absolutely level. Equally as important, is the homogeneous distribution of the temperature; it must not deviate by more than ± 1°C over the whole area during forming. A further demand on the clamping devices is made by the geometry of the tools used: Some work pieces are given a Teflon core; the moulds used here have up to 3,500 cavities so that high clamping forces are required for secure holding. The lower mould half can also be pulled out to the front for loading.

"In our experience, magnetic clamping technology satisfies these demands best," says Thomas Klimpl, sales engineer and head of marketing at Wickert Maschinenbau GmbH, explaining the reason for the decision in favour of the clamping plates. Together with Andreas Reich, head of workholding technology at the Hilchenbach works of the clamping technology specialists, Roemheld, he has advanced the implementation of the new press standard in practice. The current order is the first joint project in which magnetic clamping plates have been used, together with the control system adapted to the new regulations. Andreas Reich says: "We have designed the new control system so that it fully satisfies the demands of the interface with safety category IV or performance level "d" and "e" of the press standard EN 289." The two know one another from the many year of co-operation between the two companies. Thomas Klimpl, who originally began at Wickert as a design engineer, estimates that around 200 M-TECS magnetic clamping plates from Roemheld are in use on Wickert presses: "We have a large number of customers from the aerospace industry where small quantities are frequently produced. With frequent tool changing, the magnetic clamping technology is unbeatably fast." The operating temperatures of generally above 150°C also speak in favour of the technology. Hydraulic clamping elements are seldom used at Wickert for the same reason.

Tool changing in twenty minutes instead of two and a half hours

The company uses Roemheld M-TECS 230 magnetic clamping plates on the press that is suitable for a maximum operating temperature of 230°C. Tools and dies of any size and shape can now be clamped quickly, safely and precisely; virtually without weight limits. The plate thickness lies between 47 mm (without heating unit) and 85 mm with integrated heater, an option that Wickert prefers for all presses. The size and geometry of the plates can be freely adapted to meet the requirements of the application.

To Wickert's pharmaceuticals customers,

short tooling times on the press are extremely important. The moulds for the production of the different products are changed at least once per shift. In addition, the mould has to be removed for cleaning every four to six weeks. The producer has therefore developed a concept for rapid tool changing himself with preheating furnace, feeder, loading and removal. The magnetic clamping technology fits perfectly into this concept, as it allows the mould to be removed and installed again in just twenty minutes. "Compared with the two and a half hours that manual changing took without these aids, that is a great improvement. In the 130 minutes that you save on tooling with the quick-clamping technology, the press can be up and producing again," says Thomas Klimpl.

100 percent tested and accepted: the controller

Some customers faced with the magnetic clamping technology for the first time have reservations about safety in the beginning. But, as Andreas Reich explains: "The interface to the magnetic plate controller is one hundred percent tested and accepted. It ensures that the press stops immediately

in the event of a fault so that the mould is not damaged. In the case of systems clamped mechanically with bolts, on the other hand, it continues to operate and in the worst case the bolts shear off mould that is damaged."

The magnets require electricity only for a few seconds to clamp and release the tool so that the system is safe even in the event of a power failure. Once clamped, the permanent electromagnet holds even mould halves weighing several tonnes exactly in position, without distortion and parallel. In view of the large number of cavities in the moulds on the current press, Wickert decided in favour of a clamping force of 31t. The uniform magnetic field guarantees a stable and level position of the mould, thus minimising quality deviations and scrap. It also ensures that the press forces are uniformly transmitted, and thus guarantees high precision and process reliability.

The separate control of the magnetic plates permanently monitors the relevant parameters, such as position of the mould, temperature and magnetic force. It can be easily integrated into the press control system.

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Thame gets around out-of-round

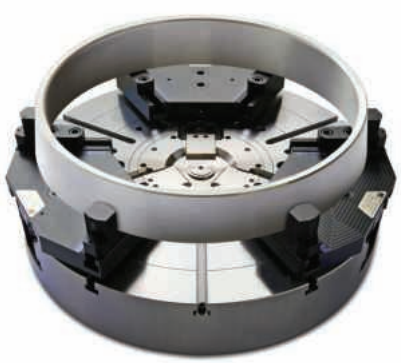
Fixturing and automation specialist Thame Workholding offers a range of products designed to securely hold out-of-round and soft or thin walled components. They include the InoZet six point pendulum bridge clamping system and InoFlex 4-jaw eccentric and compensating clamping chuck, both developed by the company's established German technical partner, HWR Spanntechnik.

The InoZet system is particularly aimed at applications where out of roundness problems could affect the workpiece. The InoZet pendulum bridges allow a conventional three jaw chuck to be adapted to effectively enable six-point concentric clamping, considerably reducing the individual clamping pressure points on deformation sensitive workpieces.

"With InoZet you can effectively turn an existing 3-jaw chuck into a highly flexible, compensating 6-jaw chuck in no time at all. Thanks to the variable positioning of the clamping jaws on the pendulum segments, you can cover the entire clamping range with just one set of standard clamping jaws, so you have maximum fixturing flexibility," says sales director, Maurice Day.

As the 3-jaw chuck converts into a compensating 6-jaw chuck it becomes ideal for processing deformation-sensitive components as well as out-of-round blanks and components deformed by heat treatment. The InoZet pendulum bridges can be retrofitted in a very short time to all chuck sizes from 250 mm diameter. Designed for internal and external clamping the pendulum mechanism is protected from contamination for extended trouble free operation.

Huge cost savings can be made by dispensing with expensive special clamping jaws, and as one set of standard clamping jaws covers the entire clamping range of the chuck, InoZet provides flexibility and true running properties for difficult applications.



Described as the 'first universal clamping tool', the innovative InoFlex 4-jaw clamping chuck is designed for eccentric and compensating clamping. It enables round, square or irregular parts to be easily clamped by one chuck.

The reciprocating jaw system automatically centres the part being clamped, and it can be used on both turning and milling machines in the range of 160 mm to 1,200 mm diameter. The drive of the InoFlex 4-jaw chuck moves together or apart on two parallel axes. Compensation is provided by connecting the diametrically arranged slides with levers or sliding gate-type gear.

InoFlex is ideal for mill-turn machine tools, as Maurice Day explains: "The trend is towards combined turning and milling machines for the efficient machining of cylindrical, rectangular and geometrically irregular parts. In the past, companies have used rigid concentric 3-jaw chucks for clamping round parts and worked with twin jaw vices for rectangular and geometrically irregular parts. HWR has reacted to this development and produced a truly universal clamping method for holding round, rectangular and also geometrically irregular parts."

He concludes: "These are extremely effective products which we are pleased to promote because they bring real benefits for our customers and can reduce set-up times dramatically. For any precision engineering company looking to maximise their spindle runtime these workholding solutions will be of interest."

Thame Engineering was founded in Thame in 1946 and became a limited company in 1951. Originally the company business was tool making and sub contract work. A range of soft jaws was introduced in the 1950's and this has developed and grown into one of the most comprehensive and largest in the world covering all types of jaws.

Thame has also developed into a leading international provider of workholding solutions for all types of machining in both standard and special applications. A high proportion are designed and manufactured at their Buckinghamshire factory. Thame also represent, in the UK, a selected range of workholding companies each with high quality innovative workholding products these include Lang Technik, Horst Witte & Samchully.

In 2005 the company changed its trading name to Thame Workholding to underline the company products and business specialisation.

Thame Workholding is accredited to Quality Standard ISO 9001:2008 with the scope of design, manufacture, assembly, supply and maintenance of workholding equipment. As a workholding solution provider, Thame Workholding have the resources to offer specialist manufacturing and design services to create the optimum solution to solve workholding needs.

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Web tool creates 3D gripper jaws at push of a button

SCHUNK eGrip is the world's first fully automatic 3D design tool for additively manufactured gripper fingers. SCHUNK eGrip needs only minimal data for the fully automatic calculation of the optimal 3D contour, pricing and delivery schedule. The license-free, browser-based web tool from the competence leader for clamping technology and gripping systems, reduces the design and ordering time for customised gripper fingers to only 15 minutes.

With the intelligent software, that is available around the clock and doesn't require a separate CAD program, the user has to upload the workpiece or component as a STEP or STL file. The next process is to enter additional specific information such as the weight, installation position of the gripper and finger length. In a few seconds, the user receives a detailed offer containing the 3D contour, the delivery time and the price. SCHUNK eGrip can quickly calculate even complex geometries. Users can either order the top jaws right away or save the offer and retrieve it later. In addition, the

outer contour of the generated assemblies that consists of the gripper, top jaws and workpiece, can be downloaded in STL format for immediate use in the system design.

Enormous time and cost advantage

The affordable additively manufactured SCHUNK top jaws can be quickly manufactured and are made of lightweight, wear-resistant polyamide 12, in either white or black. For use in pharmaceutical and medical applications, top jaws are also available in FDA-approved polyamide 12. Since polyamide is resistant to chemicals and suitable for use with foods, it can also be reliably used in connection with aggressive media. Due to their low weight, the top jaws are ideal for minimising cycle times and power consumption of the corresponding systems. They can also be used with smaller robots or handling systems. In combination with the SCHUNK BSWS quick-change jaw system, grippers can be re-equipped for a new spectrum of parts within seconds. In the first phase, SCHUNK eGrip top jaws are available for SCHUNK universal grippers PGN-plus 40 to 125 and for SCHUNK small component grippers MPG-plus 20 to 64. Other series are planned.

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Hainbuch cuts setup times for transportation specialist

When Fort Vale Engineering Limited witnessed an increasing demand for its CNC machined components, in its barfeed and general turning departments, they looked to increase their machine tool capacity to meet demand. The addition of eight new CNC machines which included a Nakamura WT150 as a barfeed lathe and a Mori Seiki CL1500M chuck lathe to the existing portfolio of machines immediately eased the production pressure. Fort Vale, who are the world leading manufacturer of precision valves and fittings for transportation of bulk liquids in the ISO container tank, road tanker and rail industries, turned to Hainbuch and their quick change chucking systems to help further reduce setup times on their new machines.

Configured in two separate cells, one consisting of the new Mori Seiki CL1500M and the other running the new Nakamura WT150 with the existing barfeed machines, Fort Vale invested heavily in its latest production cells. Part of this investment program included the implementation of a Hainbuch quick change collet system, which is making significant time savings for the cell. Fort Vale are a global supplier of new OEM equipment and after-sales spares supply. Their components and assemblies are used to transport gases and liquids by road, rail and sea. This means the parts and assemblies must meet stringent quality control procedures. Manufacturing components in anything from stainless steel and plastics through to difficult materials such as hastelloy, the new Nakamura is responsible for producing valve components from 6 to 65 mm in diameter, batches from 1 off to 1000+. A valve could consist of up to 10 different components from the barfeed cell, hence batch sizes vary to a great degree meaning flexibility is key in changeovers. With such a diverse product line, flexibility is a core competence for the new turning machines.

As Fort Vale's engineering manager, Stephen Maher says: "Our turning department is a flexible production cell with an extremely diverse and often complex flow of parts. We are continually looking at our setup times, so when we invested in the two new machines, we realised that we could save additional production time by implementing new work holding philosophies."

On its current barfeed lathes, Fort Vale has collet systems that have six bolts that need removing to change collets on every setup. The result is a changeover time of around four minutes. By introducing the Hainbuch quick change collet system, the changeover time on the new Nakamura is a staggering 20 seconds. As Stephen Maher continues: "Our facility is running 24 hours a day 5 days a week. Depending upon our production schedule, we could be changing the collets four to five times each day. That is when you really notice the difference in the setup and changeover times."

The Lancashire based OEM has a Hainbuch fixed collet chuck system on the new Nakamura that delivers astounding changeover times. With regards to the Mori Seiki machine, Hainbuch engineers introduced its innovative new Centrotex modular system. The Centrotex system has a backing plate that fixes to the turning centre and this plate provides the ability to interchange up to three different types of clamping system. The Centrotex interfaces between the machine and the clamping device and delivers complete flexibility with quick changeovers between its three jaw chuck, two Jaw chuck and collet chuck system when required.

Stephen Maher concludes: "The Hainbuch systems we have bought has improved our setup times and made us more flexible. Furthermore, the precision, run-out and the clamping process have all been improved. We have an aggressive machine tool replacement policy and are continually looking at ideas and solutions to improve our setup times, there is no doubt we will continue to consider Hainbuch for our future work holding solutions''

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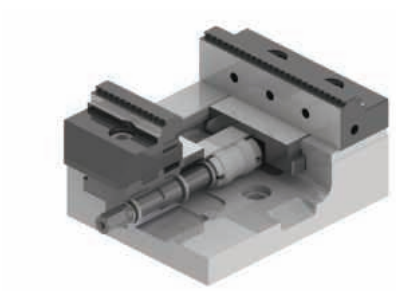
New vice for high precision and process security

The new ZSG4 centric vice system from WNT (UK) is a highly versatile workholding system that can be equipped with a multitude of jaw combinations, enabling a wide range of components to be gripped precisely and securely. The new system has several features that bring significant advantages to the production environment and has an added incentive of a 20 percent discount on list price on all ZSG4 vices until 31st May 2015.

The six key features of the ZSG4 range are that it has a totally enclosed clamping system. This means that the vice operating system is protected from swarf ingress, making it easy to maintain and also very reliable in operation. ZSG4 also has high clamping forces and a large clamping range. Maximum gripping force is 35 kN and components up to 303 mm in length can be held securely in its jaws. High Accuracy, is ensured through the vice design, which features precision matched slides resulting in repeatability of +/- 0.01mm. The use of a Ballscrew spindle totally eliminates backlash. The design of AZSG4 also allows



for First and second operation machining, thanks to the ability to use gripped and smooth vice jaws in combination with the vice's compact design. The latter has created a maximum height from the machine table of 83 mm, which in turn makes it ideal for use on four and five axis machine applications by maximising available machine z-axis.

"With the ZSG4 customers now have a truly versatile and precise workholding system with enhanced process security due to its design features. This is backed by the quality ethos that runs throughout the WNT portfolio. With ZSG4 we have created a system that is universal in that it can be used

as a stand-alone vice or can be employed in applications where pallet systems or zero point baseplates allow users to maximise the number of vices in use at one time, thereby reducing manufacturing costs," says Tony Pennington, managing director, WNT (UK)

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WIDIA introduces new universal high-precision collet chuck

A single high-accuracy tool holder for milling, drilling, reaming, or tapping boosts efficiencies while holding near-perfect runoutNew universal, high-precision chuck from WIDIA

Manufacturers of high-precision components including aerospace, transportation, die and mould, general engineering, and many more wage a constant battle between producing high-tolerance parts and a "we-have-to-have-it-tomorrow" reality.

WIDIA is announcing a significant new weapon to bring shops closer to victory, a universal, high-precision collet chuck offering use in multiple applications; milling, drilling, reaming and tapping, while maintaining runout accuracies of 0.003 mm (0.0001 inches) at 3xD.

Shops looking to upgrade performance and final part tolerance will welcome this chuck's features: added versatility, the ability to continue using standard ER collets while upgrading to precision collets; thicker chuck walls and a stronger outer form for added rigidity and lower vibration for longer spindle and tool life; unique sealed-by-design precision collets (6-20 mm or 0.24-0.79 inches) for excellent coolant delivery and longer tool life; better and repeatable balancing, all contributing to higher accuracy.

Aerospace, die/mould and many other industries regularly encounter high-strength, difficult-to-machine materials requiring high torques, feeds, and forces. The danger of milling cutters being pulled out of the tool holder at these extreme forces has significantly increased. This is at least true for tool holders that offer precision clamping with good concentricity such as shrink-fit. Such toolholders work with frictional locking, but their clamping force is often not sufficient for roughing.

In response, the new WIDIA universal precision collet is available with Safe-Lock™ pull-out protection from Haimer. Helical grooves are ground into the shank of the milling tool that, together with the respective pin drivers in the chuck, prevent the tool from spinning or being pulled out of

the holder altogether under extreme machining conditions. The helical path of the Safe-Lock grooves also allows for adjusting tool length, meaning tools can be reground and pre-set as usual.

UK Distributor:
Industrial Tooling Corporation (ITC)
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ISCAR turbocharge productivity

Notwithstanding the recent reductions in fuel prices and in anticipation of inevitable future price increases, many of the world's major car manufacturers are reducing their engine sizes. Even though smaller engine capacities deliver the welcome benefit of lower fuel consumption, through the use of a range of technologies, not least advanced turbocharges, no loss of performance is experienced. Indeed, many smaller capacity, economical engines now out-perform their much larger predecessors.

From the start of the 2014 season, even Formula 1 joined this trend by specifying 1.6i V6 engines which provide over 800 PS with the help of turbochargers.

Although they can be regarded as a relatively mature technology, relentless technical advancements in the area has made turbocharges an invaluable tool in the quest for ever greater fuel economy and continued high performance.

The machining and mass production of highly complex, extremely precise turbocharger components requires outstanding process reliability and high levels of productivity. A test case conducted in Germany, shows that ISCAR supports producers with innovative tools which provide economical and process-safe machining. For any common materials, e.g. 1.4849, 1.4848 or 1.4837, ISCAR offers optimal a customised tool systems. Each individual material has different machining characteristics and creates special demands for the cutting material and its coating.

Due to the continuously unstable cost of nickel (between 2005 and 2013 price fluctuations varied from 5 to 13 € per kilo), producers of turbochargers developed, and now use materials with low nickel elements.

In order to react to these turbocharger industry changes, three independent ISCAR technology centres have been working on the development of advanced new cutting materials, designing innovative insert geometries and creating efficient new coatings. The fruits of this in-depth R&D are the newly developed S845 SNHU 1305 ANR-MM MS32 ISCAR tools, that are able to achieve up to 25 percent longer tool life compared to currently available tools.

For many years ISCAR engineers have investigated the machining of turbocharger components and this research was intensified in 2013. Turbine housings, rotor shafts, turbines, as well as compressor wheels, are of paramount importance in terms of ISCAR's component focus. At ISCAR Germany, all turbocharger projects and requests, for participation in undertakings, such as turnkey projects with MTBs or producers and their suppliers, are supported by ISCAR specialists in the turbocharger field.

As a leading metal cutting tool innovator, ISCAR has developed special tooling solutions for the complex V-band machining of turbine housings. Here ISCAR provides a plunge operation with tangential inserts. This robust system is characterised by its high stability, in addition to its soft cutting geometry. The tool consists of an insert type fitting that fits into any insert pocket and hence is very user-friendly. ISCAR offers a wide product range which includes different standard geometries.

Turning proved to be the most economic machining strategy for the V-band contour as the component lends itself to this method, also no collisions occur. For this machining operation, ISCAR offers the most economic tool solution currently available: the 5 cutting-edged PENTA insert. This star-shaped insert is available in two standard sizes, depending on the depth of the V-band groove. A major advantage of the PENTA system is its broadly diversified product portfolio, which offers a large amount of various standard geometries, chipformers, and coatings, as well as solid carbide substrates which were especially developed for this particular application. This advanced tool can be adjusted radially

and axially, so that narrow tolerances of the V-band contour can be realised. ISCAR offers a customised end-users solution for contour turning by means of U-axis or radial face sliding unit, as well as for interpolation turning.

ISCAR even offers a customer-orientated, economical solution related to the bushing bore for the butterfly valve in the turbine housing. In this case, the modular drilling system with exchangeable head - SUMOCHAM and the modular reaming system BAYO T-REAM are ideal. As with SUMOCHAM, the BAYO T-REAM system provides exchangeable reaming heads. Designed for reaming high heat resistant cast steels, ISCAR has developed a reaming head which achieves up to 20 percent longer tool life when compared to currently used tools. This is largely due to the precise delivery of coolant to the cutting zone.

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Tool supply: time for a change says Quickgrind

Considering the importance of tooling to the engineering industry, it's perhaps surprising that so few companies look at their choice of tool supplier when seeking ways of increasing productivity and profit. It may be that users of cutting tools feel there is no longer anything particularly new or different to offer in this market, but one internationally renowned tool manufacturer is rapidly changing that view.

Quickgrind has brought a whole new philosophy to the manufacture, supply and use of cutting tools, which is not only halving the cost of tooling but boosting business performance, avoiding waste and reducing management headaches.

"You would expect a tool supplier to encourage its customers to buy as many tools as possible, but that's not our way," says Quickgrind managing director Ross Howell. "Instead we put ourselves in the shoes of our customers, look at the whole process from their viewpoint and use our innovative thinking to create solutions that go beyond simply providing tools. We call our approach 'total solution engineering.'

"As well as finding the perfect tool to meet each application's needs, the Quickgrind approach helps customers to use tools more efficiently, reduce the number new tools that need to be bought and ensure that the right tool is readily available when needed."

British engineering at its best

Although well respected across the globe, with a customer list reaching over 30 countries and all continents, Quickgrind has remained something of a 'best-kept secret' here at home in the UK – until now.

Like many an engineering breakthrough, Quickgrind's solutions to tooling problems have been developed right on our doorstep by British engineers. In some cases they have solved problems of which the customers were not even aware.

"Our products and services reflect the very best in British engineering heritage and are delivered by a highly trained and motivated workforce," says Ross Howell. "The company was founded by my father, Eddie Howell, almost 50 years ago and has always been at the forefront of tool design and manufacture. We have constantly embraced and invested in the latest technologies, which has allowed Quickgrind to achieve massive innovating strides within our industry."

Lean manufacturing

One of the most obvious routes to saving money is Quickgrind's remanufacturing process, QuickEdge, which can restore tools to 'as new' condition, typically up to seven times. Many customers have cut their tooling costs by over 50 percent, without compromising on quality, by extending tool life in this way.

Quickgrind specialists can advise on tool selection to meet the needs of each task precisely, and on how to use tools to their

best effect. Thanks to the company's administrative and processing efficiencies, a wide range of off-the-shelf tools is available for immediate delivery. Meanwhile, customers who need some of their tools to be tailor-made benefit from the market's shortest lead times.

Information gathered via Quickgrind's CAM and assessment service, QuickCam, ensures that the requirements of specialised applications are fully understood, along with any limits set by factors such as the customer's component material, machinery and CAM software. The QuickLab service then develops a perfect tool for the job and provides the customer with all the practical advice and support needed to make the most profitable use of it.

Another aid to customers in meeting their lean manufacturing goals is Quickgrind's award-winning Tool Management System. This is based on secure, convenient, point-of-use vending machines which hold

and dispense stocks of every tool needed by the business. The right tool is always available, immediately, so jobs are never delayed. Furthermore, there is no need to tie up cash in tool stocks or to forecast needs. Intelligent software monitors tool use, allowing Quickgrind to replenish the stock as necessary, and the customer only pays for tools actually dispensed.

Bringing home the benefits

The unique, low-risk strategy offered by this system is a typical product of the creative thought and technology that has generated demand for Quickgrind industrial carbide cutting tools all over the world. Its solutions are exported to manufacturers of every kind, with key sectors including aerospace, automotive, Formula One, oil and gas, medical and general engineering. To discover more about Quickgrind and its unique approach to tooling, contact:

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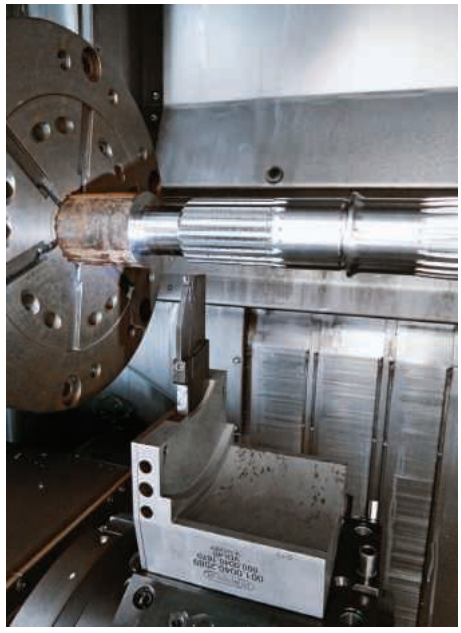
Automotive turning with thru-tool coolant

Internal cooling provides four times service life increase for Febi Bilstein

The key strengths of Febi Bilstein, based in Ennepetal, as a supplier of high-quality replacement automotive parts to OEM quality standards, are its manufacturing expertise backed by the "Made in Germany" seal of approval. The engineering expertise at Febi is directed to the production of sophisticated products. To permanently meet its high-quality expectations, it requires continuous investment in modern equipment in parallel with constant improvement in performance in machining methods and tooling. This ongoing task depends on partnerships with innovative suppliers like Horn to develop and implement improved solutions and new methods such as the recently introduced S100 groove/pat-off insert with internal cooling which provides four times the tool life previously available.

The Bilstein Group is a family owned independent group of companies with the brands Febi, SWAG and Blueprint. As a leading specialist in the automotive aftermarket, the company offers a range of over 47,000 different spare parts for passenger cars and commercial vehicles. With a total of 1,450 employees, the Group generated sales of 416 million Euros worldwide in 2012. Febi Bilstein has been active in metal processing since 1844 and therefore has a high level of experience. Its combination of expertise and precision technology underpins the development of every part series. At Ennepetal there are a total of 1,120 employees of whom 130 are manufacturing employees of Febi precision technology. On a production area of 10,000 m² thousands of car and commercial vehicle replacement parts are manufactured annually. Many of these are safety-relevant parts. The annual production quantity per part number is between 500 and 200,000 pieces. The depth of manufacture covers almost the complete production chain, from material procurement and analysis through tooling, machining, hardening and assembly to computerised documentation. The machining facilities lack no important technology.



In the manufacturing department at Febi, employees work on spare parts such as chain tensioners, axle bolts, wheel hubs, wishbones and all other wear parts on an automobile. The materials to be processed are mostly C45, 42CrMo4V, cast iron or aluminium, from a bar or forged section. Shafts, for instance are made in many different variants and several tools from Horn are in use: The tool run out is roughed with a Horn Type S224 tool; recesses are made with the Type 312. Tapping is done with the insert S100, internally cooled.

These parts are machined completely from the bar using a highly efficient Gildemeister CTX 1250 TC 4A by means of parallel machining on the main and counter spindle, a full milling spindle, as well as rod

and loading portal. The material is tempered 42CrMoS4 with strengths between 980 and 1,200 N/mm² which is tough and not easy to machine.

A type S100 insert without internal cooling was previously used for this operation. Cutting width for larger workpieces with diameters of 50-90 mm is 4 mm; with the smaller ones of 20-50 mm, a cutting width of 3 mm is sufficient. The results using non-internally cooled S100 were, according to production manager Christian Erlenkötter "satisfactory to good". However, Horn sales representative Michael Ehmann has, since October 2012, had a new, superior solution available, the S100 with internal cooling, and introduced it as being likely to have significant benefits. "We have looked at it together," says Christian Erlenkötter, "and immediately decided to carry out tests to explore its potential. Test tools for it, a VDI-40 holder for a Sauter Trifix turret were ordered in Tubingen, and after a few weeks we could start the trials."

Michael Ehmann describes the advantages of the insert S100 with internal cooling as "quadrupled service life - tooling costs halved" The VDI-40 Holder uses the standard KSS port of the revolver and in this case, with 25 bar pressure coolant, in a continuous KSS channel feeding coolant up to the nozzle of the insert. This insert of carbide grade AS45 with EN geometry and chip-groove allows effective cooling directly at the cutting zone. The coolant jet impinges directly on the cutting edge and improves the machining conditions considerably. The specially designed nozzle shape of the KSS channel ensures a coolant jet directed towards the active point, which supports chip removal and thus greatly reduces the risk of swarf congestion.

The jet, guided by the insert, simultaneously cools the insert and reduces the formation of built-up edges and premature cutting-edge wear. Compared to the previous cooling, the conversion to internal cooling broadens the range of cutting parameters and maximises tool life.

Christian Erlenkötter quantifies the benefits of the Horn solution: "The new insert S100 with internal cooling increased the service life of the inserts by a factor of 4. And although the overall system with the new holder is slightly more expensive, the tool costs have been halved. In addition, the quadrupled tool life reduces tool changes and thus increases the up-time of the machine."

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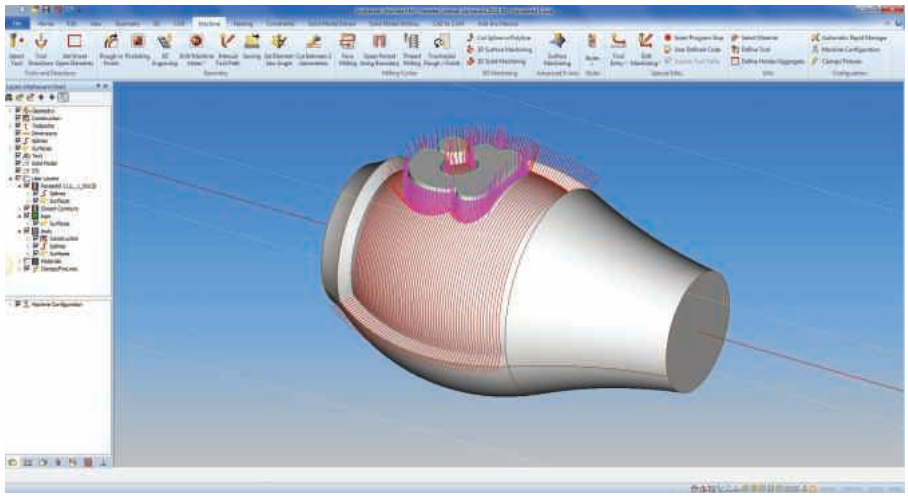
New Alphacam release from Vero

New version provides efficiency and productivity gains

The inclusion of a host of new and enhanced functionality in Alphacam 2015 R1 from Vero Software ensures manufacturers can compete in a global economy.
The latest release is the largest ever delivered by the Alphacam development team and a release they are very proud of. The focus has been on helping manufacturers drive down costs, by speeding up their design and production processes, improving efficiency, productivity and profitability.

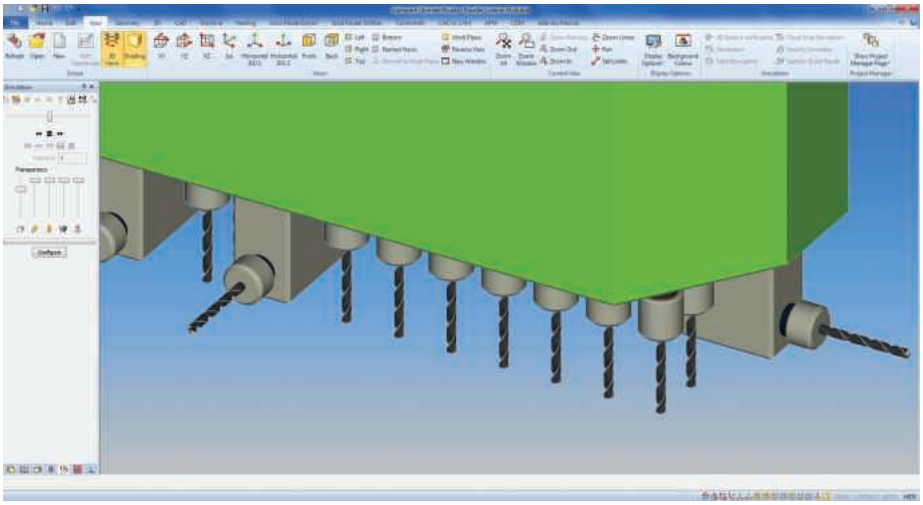
A new advanced 5-axis machining module is introduced in Alphacam 2015 R1, which includes a comprehensive set of strategies with advanced tool axis control and intelligent collision avoidance, to quickly and accurately machine surface and solid models. Alphacam general manager Nick Spurrett says: "Incorporating the Moduleworks technology into Alphacam shows our commitment to the complex Advanced 5-axis market. The new toolpaths can also be analysed against the machine tool constraints using Alphacam's 5-axis independent toolpath optimiser."

He says, a new ribbon bar interface brings Alphacam 2015 R1 right up to date as far as interface technology exists, the new interface enables users to quickly find the commands they need, as they are arranged in logical groups, assembled together under tabs. "Each tab relates to a type of activity, such as creating geometry, or machining," Nick Spurrett adds: "Clear icons and text labels ensure that commands are easily recognisable and accessible."



The quick access toolbar can be displayed above or below the ribbon bar and includes the most commonly used commands, such as Open and Save. Users can customise the ribbon bar by adding their own favourites. "We have 50 new icons in Alphacam, because ribbons have replaced menus." All Alphacam modules, including Alphaedit, have the new ribbon GUI.

Also new in 2015 R1 is aggregate tool holders as Nick Spurrett explains: "They are a welcome addition in the new release, enabling users to define them with geometry extrusions and rotations, STL and solid CAD models. Users can now create a library of toolholders. These toolholders, or aggregates, can either be extruded, evolved geometry or solids. Common applications of aggregates are horizontal routing and drilling. C-axis aggregates are also supported in Alphacam simulation."



Significant updates to the Project Manager give it a more contemporary look, including specific icons for each operation type. And the new look file menu now includes a recent files page listing Alphacam and CAD parts files, displaying a preview image and their properties.

Multi drill heads now have graphical support, as with the aggregates, they can be defined using geometry extrusions and rotations, STL and solid CAD models. Tools are loaded and selected in Project Manager and fully simulated.

Using the View Comparison function it compares the part with the machining operations. "This means manufacturers can see whether there is any stock left, and allows them to select an alternative or extra machining operation" says Nick Spurrett.

Finally, the ability to import files from Google Sketchup adds to the extensive list of third-party file formats which Alphacam supports.

Headquartered in England, Vero Software designs, develops, and supplies CAD/CAM/CAE software radically enhancing the efficiency of design and manufacturing processes, providing its customers with exceptional value through high productivity gains and significantly reducing time to market.

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3D Systems completes acquisition of Cimatron

3D Systems has announced that it has completed its acquisition of all shares of Cimatron Ltd for approximately $97 million, inclusive of Cimatron's net cash. The integration of Cimatron's software products into the company's portfolio strengthens 3DS' leadership position in 3D-printing-centric advanced manufacturing by enabling a seamless digital workflow between design and traditional and additive manufacturing processes. The transaction adds complementary technology, extends 3DS' sales coverage globally, multiplexes cross-selling opportunities and is expected to be accretive to the company's cash generation and Non-GAAP earnings per share for the full year 2015.

"Cimatron represents a perfect strategic fit for our business by providing expanded capabilities in product development, sales coverage and complementary technology. We believe that this combination offers unique synergies with significant long-term customer benefits and shareholder value," commented Avi Reichental, president and CEO of 3DS. "We are delighted to welcome Danny Haran and his entire global team to 3DS as we complete the digital thread from design to digital fabrication."

Cimatron is a leading provider of integrated 3D digital fabrication software for manufacturing. Cimatron's products are used by a growing number of companies worldwide for their 3D production moulds, tools and dies in a wide variety of functional end-use manufacturing applications. With two world renowned products, CimatronE and 3D Systems GibbsCAM®, Cimatron provides powerful digital fabrication tools for key manufacturing operations. CimatronE is an integrated CAD/CAM solution for toolmakers and manufacturers of discrete parts, which provides full associativity across the manufacturing process from quoting, through design and up to delivery. GibbsCAM, offers powerful yet simple-to-use solutions for programming any type of CNC machine tools, from simple mills and lathes, to the most complex multi-axis multi-tasking machines.

3D Systems is pioneering 3D design and fabrication for everyone. 3DS provides the most advanced and comprehensive solutions including 3D printers, print materials and cloud sourced custom parts. 3DS' leading 3D healthcare solutions 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 between subtractive and additive manufacturing and incorporate the latest immersive computing technologies.

3D Systems
www.3dsystems.com

Perfection down to the smallest detail

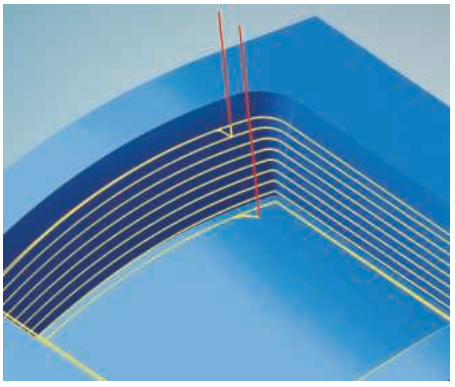
The latest release of high-end CAM software from OPEN MIND Technologies, hyperMILL® 2014.2 has now been launched. In addition to a number of new functions, there are also many enhancements to existing functions within the existing hyperMILL framework.

OPEN MIND is one of the worlds leading CAM manufacturers and hyperMILL is regarded as one of the best CAM systems on the market, according to the NC Market Analysis Report 2014 compiled by CIMdata, an independant market research company. OPEN MIND is releasing the second version this year in order to live up to market expectations and to offer users one of the most innovative CAM solutions available. In addition to a key extension for solid modelling in hyperCAD®-S, the CAD part of the system, hyperMILL 2014.2 features a range of improvements for CAD programmers and machining.

3D shape Z-level finishing

When it comes to Z-level finishing, CAD systems usually simply follow the X and Y coordinates. If the bottom surface is curved, the milling result is not optimal and it is necessary to perform a number of rework machining steps. A new function for 3D shape Z-level finishing makes it possible to reference curved bottom surfaces, after which the milling paths are aligned. As a result, the milling tool nestles optimally along the boundary edge between the bottom and the wall. All intermediate levels are offsets of the bottom plane.

The OPEN MIND soft bounding concept is also integrated into this new function. This ensures that the boundaries to adjacent surfaces are calculated more precisely and that sharp outer edges are machined more smoothly. User benefits include an optimised finish and reduced programming and machining times.



3D rest material machining

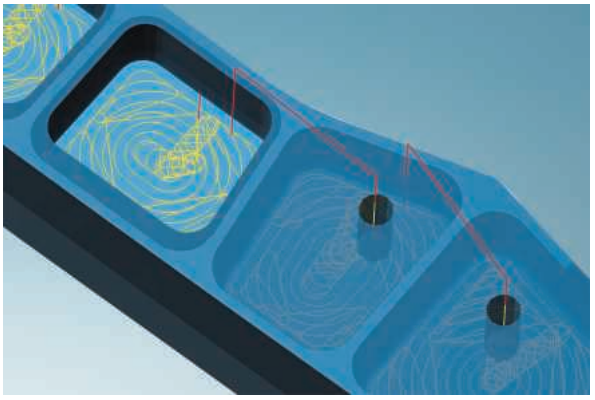
The open, deep, steep and flat areas of cavities can be machined in one job with collision avoidance. The rest material areas, which are recognised during the collision avoidance, are transferred automatically to the subsequent job. To this end, optimal tool selection and positioning once again take place. For example, a longer tool or modified position. This process is repeated until the required contour is achieved. Work here has been greatly simplified for CAM programmers.

hyperMAXX improvements

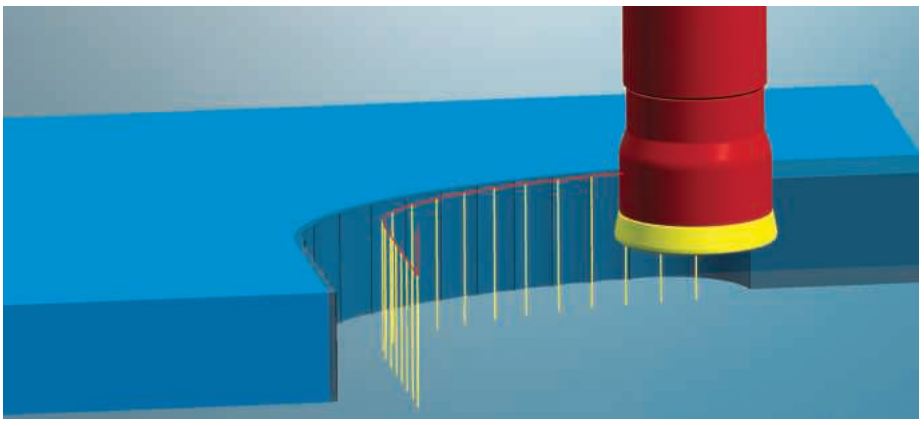
The hyperMAXX® high-performance cutting (HPC) module for hyperMILL has also undergone some upgrading. This includes plunging the milling tool into the material around pre-drilled holes. This saves 'ramping-in' the milling tool at the start of machining. The greatest advantage of this method is that it protects tools, particularly in materials that are difficult to cut. The machining process is also collision-checked. Furthermore, it is now possible to select a zigzag mode in hyperMAXX. This mode is particularly suited to machining large workpieces, as it prevents time-consuming repositioning movements, thereby significantly shortening machining times.

2D plunge milling

2D plunge milling is another new feature. Here, material is removed solely by plunging a milling tool. The new cycle is suitable for both roughing and finishing. The advantage here once again lies in the fast machining and particular suitability for materials that are difficult to cut.



OPEN MIND Technologies AG is a leading developer of CAM/CAD software and postprocessors for designing and manufacturing complex moulds and parts. OPEN MIND is one of the five largest providers of CAM solutions according to the NC Market Analysis Report 2013 compiled by CIMdata, a market research company. OPEN MIND offers an extensive range of products from 2D feature-oriented solutions for milling standard parts through to software for 5-axis simultaneous machining. With their hyperMILL software, which is used in the automotive, tool and mould manufacturing, mechanical engineering, medical and aerospace, and watch and jewellery industries, OPEN MIND Technologies AG is represented in all the important markets in Asia, Europe and America.



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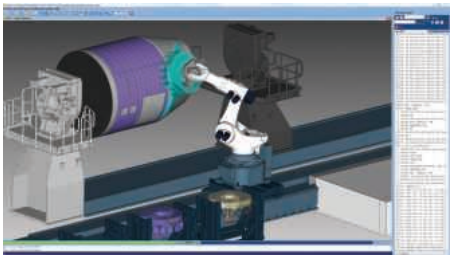
CGTech to showcase VERICUT Composites Applications software

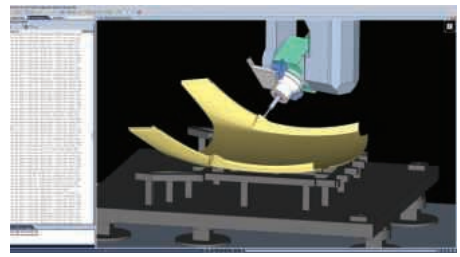
At the 2015 JEC Composites show, taking place from March 10-12, at the Paris Expo, Porte de Versailles, CGTech will be demonstrating how critical simulation is when trimming composite parts. Throughout the show, on stand 36 Pavilion 7.2, CGTech will also be demonstrating VERICUT Composite Applications: VERICUT Composite Paths for Engineering (VCPe), VERICUT Composite Programming (VCP) & VERICUT Composite Simulation (VCS).

"Because composite workpieces have a significant amount of process time and labour in them prior to machining, they can be more expensive than even some exotic metal alloy workpieces," says John Reed, CGTech Ltd managing director. "It's usually not possible to repair a composite workpiece damaged during machining. Thus, validation of the part program is extremely critical."



CGTech will be exhibiting its latest version of VERICUT software. VERICUT is CNC machine simulation, verification and optimisation software that enables users to eliminate the process of manually proving-out NC programs. VERICUT simulates all types of CNC machining, including drilling and trimming of composite parts, water jet, riveting, robotics, mill/turn and parallel kinematics. VERICUT runs standalone, but can also be integrated with leading CAD/CAM/ PLM systems, including Dassault Systemes CATIA, Siemens PLM NX CAM, Delcam PowerMill, Vero EdgeCAM, Open Mind hyperMILL, DP Esprit and Missler TopSolidCAM.

Visitors to CGTech's stand will also have the opportunity to receive a thorough overview of the steps needed to get from a CAD designed composite part to CNC programs that drive an Automated Fiber Placement (AFP) or Automated Tape Laying (ATL) machine. There will be information on new projects that highlight the implementation and use of machine independent off-line NC programming software for AFP and ATL machines, such as the work being done at NASA's Langley Research Centre using a 16-tow Electroimpact Automated Fiber Placement machine. Current customer projects to be highlighted include extensive use of robots, lasers, probing, and ultrasonic knifes.



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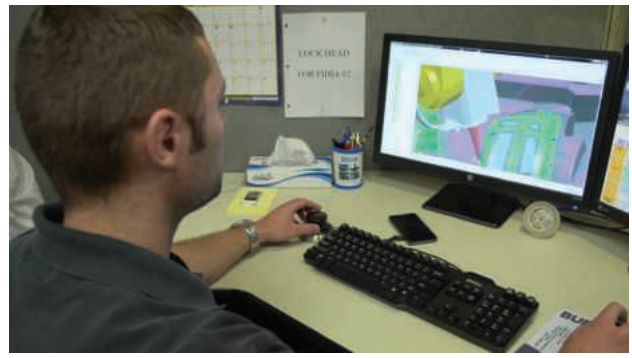
Delcam provides Paragon with the power to change

Standardising on Delcam's PowerMILL CAM software for all of its machining has proved a key component of the 'Power to Change' philosophy at Paragon D&E. "We are seeing jobs coming in days ahead of schedule," says manufacturing engineer, Brian Kerkstra. "We're seeing jobs that would traditionally have taken us ten weeks being completed in eight or nine weeks."

"Our 'Power to Change' philosophy is about our team working together to develop methods to do things more efficiently. It's about getting people involved and really trusting in their decisions," explains Paragon president, David Muir. "We're actually envisioning what Paragon could look like in a year from now. Before we had PowerMILL, this was a five-year plan for Paragon, we are accelerating our plans by using the relationship we have with Delcam."

Paragon, which is based in Grand Rapids, Michigan, is best known for producing very large, and very accurate, tooling and components. The company serves a variety of industries, including automotive, heavy truck, oil and gas, aerospace, defence, marine and nuclear.

This diversity has been an important part of the company's success. "A big advantage that Paragon has is that we're really able to cross-pollinate ideas from different projects," says David Muir. "What we learn in one industry, like aerospace, we're able to apply in injection moulding or vice versa, or even in compression tooling or even now in hydro-form tooling."



In contrast, a diverse range of programming software used to be a major problem. "We had too many software programs on the machine floor," continues David Muir. "That problem was driving a lot of inefficiencies with our training and with the ability for our staff to move from one station to another. We explored the idea of looking for only one software program across the whole shop. We looked through all the software that was available in the world today and we decided on Delcam."

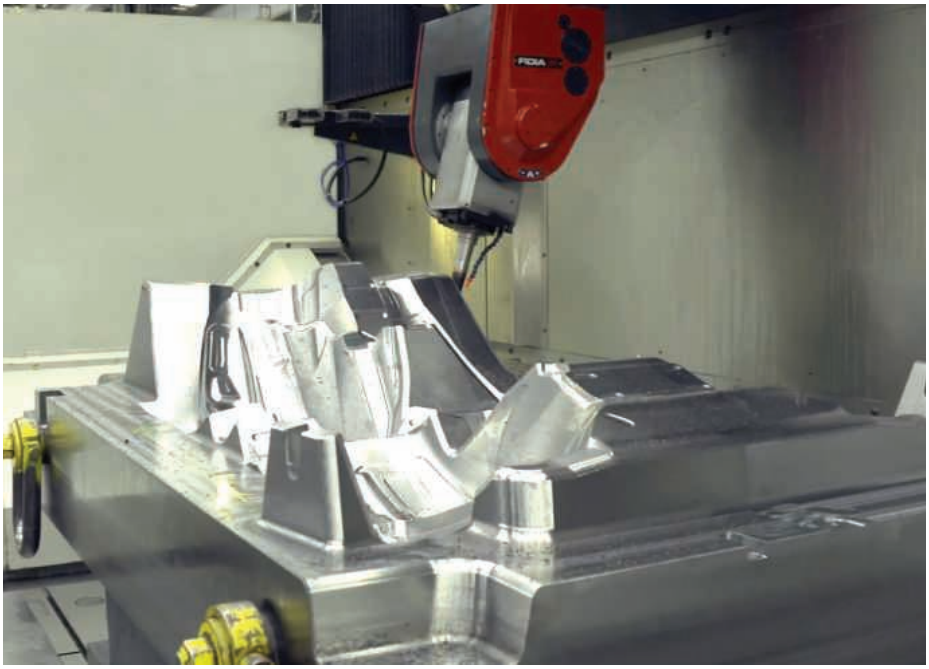
The decision wasn't only about the strength of the software. "Delcam brought us a willingness to listen to what our company needed and what our users needed," explains David Muir. "Most of the competitors told us "This is how it's going to be" but Delcam said "What can we do to make your business more profitable?" We needed more customised input and, instead of being the traditional software vendor that pushed back and tried to shoe-horn us into its product, Delcam gave us direct access to the development team."

One area where Paragon needed extra support was dynamic machining control for the company's large 5-axis machines. Paragon staff worked with Delcam developers to create the integrated mechanism for optimising 5-axis positioning in the 2014 R2 release of PowerMILL.

Another of the main drivers for the change in technology at Paragon was the availability of skilled labour. "There is a shortage of labour out there right now, especially of skilled machinists," says David Muir. "That shortage means that we need to find technology that takes the labour that we have and applies it across more machining time."

To tackle the problem, in 2013, Paragon decided to start a training programme within the company called Paragon Technical University. Dean of PTU, Larry Oppenhuizen, says, "This programme allows us to put our apprentices on the right path for the right career choice. We have twenty-six of them currently and they are all learning PowerMILL."

"Now that we are using the same software throughout the plant, an apprentice that is learning PowerMILL in, for example, the small machine department can go over to another department more quickly as he already has Delcam knowledge. It makes it easy for us to give our apprentices a good rounded education because they only need to learn one set of software."



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Lantek helps McConnel cut grass and hedges down to size

Since the 1930s, McConnel has been designing and manufacturing innovative agricultural machinery at its Ludlow factory. Sold around the world, its machines range from power arm hedge trimmers which you see attached to tractors maintaining hedgerows across the country, to its amazing ROBOCUT remote control mowing machines designed for heavy duty mowing where access would be dangerous, laborious or too steep for other mowing methods.

The company has been using Lantek Expert for over six years, installing it alongside its first Kerf plasma cutting machine. Rob Martin, production engineer at McConnel says: "We make nearly every part of our products in-house, buying in very little. We have machine shops for milled and turned parts, plasma and oxy cutting machines in our sheet metal workshop, as well as assembly and testing facilities. Designs are created using SolidWorks in our design office and are passed into Lantek Expert using DXF ready for cutting."

Because of the range of machines supplied by McConnel, there are tens of thousands of parts held within the Lantek Expert database, with more being added as new designs are developed.

Rob Martin continues: "We take the DXF into Lantek Expert and record information such as material type and thickness. For managing demand in the workshop, our IBM system collates orders for machines and breaks these down into their component part numbers and quantities. A spreadsheet of this information, which can typically contain 4-5000 parts each week, is passed into Lantek Expert."

All the geometric and material information is already in Lantek Expert, so the engineers operating the software simply use drop down menus to sort the part requirements into thickness and material type. Mostly they use the automatic nesting, which can be adjusted for optimum nesting quality and nesting time, to fill the sheets.

Rob Martin says: "Mainly we are cutting mild steel, but we also cut Domex and Hardox which are extremely tough and durable materials for high wear situations on or in the ground. Material thicknesses go from 1.6 mm up to 85 mm. Parts up to 20 mm thick are cut on the plasma, while thicker or high volume parts are cut by our CNC oxy cutting machine which has four linked torches. For nesting we rely on Lantek Expert automatic nesting, just checking the last sheet in case there is an odd part on it which we can squeeze onto one of the previous sheets with one of the software's manual nesting tools."

Lantek has helped McConnel to optimise the set up all the machine parameters such as lead in type, cutting and rapid speed and gap between parts and, it will be helping the company to implement its second Kerf plasma, which is about to be delivered. Both the existing and new Kerf plasma are to have Kerf UltraSharp technology.

Rob Martin adds: "Ultrasharp will enable us to cut exact size holes in relation to material thickness. For example, we will be able to cut an exact size 8mm hole in an 8mm thick plate which we previously would have had to drill. Lantek worked closely with Kerf to develop this technology and will be helping us to implement it."

As well as production parts, the engineers at McConnel use the 2D drawing capability in Lantek Expert to design and manufacture jigs for use in other areas of manufacture and assembly.

"The design in Lantek Expert is easy-to-use and enables us to quickly respond to requests ourselves without involving the design office," says Rob Martin. "The software works out the cutting time and allows for non-productive times such as piercing and torch up/down times. It also works out the weight of the component, enabling us to use the information to cost our components."

When a new release of Lantek Expert is introduced, Lantek engineers visit to carry out additional training if necessary, ensuring that McConnel is getting the best productivity from its investment.

Rob Martin concludes, "The support is fantastic with knowledgeable people on the end of the phone. There has never been an occasion when they could not solve a problem for us."

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High-end Mitutoyo metrology makes a difference

More than a decade ago, Waters Corporation, the scientific laboratory instrument and software manufacturer, started introducing high-end metrology equipment to its several sites in the South Manchester area to help cope with the increasing demands of advanced product development and manufacture. The results over the next few years provided a resounding vindication of this investment philosophy, particularly as regards production of leading-edge mass spectrometers. Recently the company enhanced this capability with major vision/coordinate measuring machine acquisitions from Mitutoyo UK, the company's long-time metrology partner.

Speaking at the company's new mass-spectrometry headquarters in Wilmslow, Cheshire, where product development and manufacture have been brought together under one roof, Six Sigma and metrology engineer Dr. Kevin Rogers explained that: "The information and knowledge extracted in the first few years served to prove how useful high-end metrology can be in terms of product quality and development. The use of metrology within Waters has expanded considerably since that time and is now a key part of all aspects of manufacturing within the organisation."

Mass spectrometers are very complex systems relying on tight-tolerance components to achieve very finely controlled manipulation of ion beams for the qualitative and quantitative analysis of biological samples. The need for high-precision dimensional inspection, as an aid to determine performance limiting tolerances within critical sub-assemblies, was identified. These assemblies required non-contact measurement of some key components.

Dr. Rogers continued: "Use of Mitutoyo metrology equipment has led to improved product yield and by turn an increase in productivity and quality. The financial outlay on Mitutoyo equipment within Waters has never been questioned and the use of high-performance metrological tools is seen as an ongoing and expanding force for good. The equipment has proven itself invaluable in terms of delivering previously unachievable answers. Mitutoyo's support system from sales through to service has been excellent. Mitutoyo are a very easy company to deal with and one which I feel, as a user, places the customer foremost."

Three high-performance Mitutoyo QV Series CNC Vision Measuring Systems were acquired recently to support expanded production of smaller parts, together with a Crysta Apex C122010 CMM for measuring larger components up to 2 metres in length. Apart from the established relationship between the companies, the Mitutoyo QV machines were chosen based on demonstrated capability, which has proven more than adequate in production and development operations.

"The use of metrology has had manifold benefits but has also led to the need, as our own product complexity has expanded, to measure more and more challenging features and dimensions within our product range for even greater product knowledge. This has led us to challenge metrology OEMs to provide even more capable solutions and placed us at the leading edge of metrology requirements", concluded Dr Rogers.

Mitutoyo's next generation QM-Height Digimatic height gauge offers a best-in-class accuracy of 3.6/4.5µm over the measuring range (350/600mm) and significant improvements in design and capability. High accuracy/resolution Mitutoyo ABSOLUTE linear encoders ensure industry leading precision and dependability. A large display panel with user friendly icon-based control keys and GO/NG LED indicator provides excellent useability.

Enhanced measurement and memory

capabilities of the new QM-Height allow the capture of complex dimensional data. Measurements include height, step, inside/outside width, inside/outside diameter, pitch circle and free-form surface maximum/minimum heights by scanning measurement. The QM-Height remembers the preceding measurement (height component) and can display the difference (pitch) between results.

The new QM-Height models offer pneumatic flotation as standard and an ergonomically designed grip, enabling the gauge to be moved easily over the surface plate and the probe precisely positioned on the workpiece.

Battery power, provided by four AA cells, provides autonomous operation with outstanding durability; up to 300 hours is possible between battery replacement, or 80 hours with regular use of the pneumatic flotation function. Alternatively, the AC power adapter supplied provides uninterrupted use.

Full compatibility with existing Mitutoyo Digimatic peripherals and USB output enables measurement result storage and documentation, SPC analysis and straightforward integration into networked measurement systems with the ability to use, if required, Mitutoyo's U-WAVE wireless data communication system for the ultimate in flexibility.

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Xsens transforms 3D human motion capture into wearable technology

A technology best known for bringing animated characters to life in games and films is changing how human movement is studied in research and industry.

The new MVN Biomech system from Dutch technology innovator Xsens transforms 3D human motion tracking into a wearable technology that can be used on production lines, sports fields, in vehicles and aircraft, in the home or any location where human body movement needs to be analysed with high accuracy.

The system has a host of applications in ergonomics and human machine interaction (HMI), biomechanical analysis, rehabilitation, wearables development and sports science.

"Xsens' systems are now considered the de-facto industry standard for human motion measurement. They are well established with trailblazers in entertainment, research and industry," explains Per Slycke, CTO and general manager at Xsens. "MVN Biomech is moving inertial motion tracking to the next level by taking it from research laboratories to where the action is. Combined with reduced pricing, this means that digitising 3D motion is now accessible to a much wider user base."

MVN Biomech comes either as a full-body suit or a strap-based system. It is intuitive and can be set up for use anywhere, within minutes. Based on lightweight, wearable inertial sensors, MVN Biomech is highly portable, fitting into an average-sized backpack.

Xsens has a 15-year track record in inertial motion measurement and MVN Biomech represents the third generation of its full-body motion tracking system. The company's clients include some of the world's leading universities and research institutes, major industry players such as NASA, Bosch and Daimler, and entertainment companies like EA and 20th Century Fox.

The underlying technology is proven to be accurate, reliable and robust. It has been used by more than 250 universities, research organisations and enterprises for over 1000 projects, including numerous validation studies. The system channels wireless sensor data through biomechanical models and sensor fusion algorithms before visualising them in real-time in Xsens' own MVN Studio Biomech software or in application-specific packages. MVN Biomech is available now from Xsens and its international distribution partners, with prices starting from €20,000.

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Cutwel measures up the New Year

West Yorkshire-based tooling supplier Cutwel has announced an expanded range of new measuring tools for the New Year, with 2015 catalogues from its leading metrology suppliers Mahr and Insize now available on request free of charge.

One of the highlights of the Insize extended range includes the new Ultrasonic Hardness Tester (ISHU-460 Series) from Insize. This gives the ability to test surface hardening layers and plating for steel, non-ferrous metal and alloys. You can test large workpieces in any direction and is also suitable for rough surfaces too. This is all possible in a super quick test time of just 2 seconds as no matter who the operator is the test force and time are not affected. The hardness tester also has a memory of 1000 test results and you can also take a picture on the workpiece and get a report with testing results which can be sent to a computer via a USB connection.

From the Mahr range, one product which particularly stands out is the Self Centering

Dial Bore Gage MaraMeter. This is ideal for measuring difficult to reach bore diameters, grooves and recesses. It is universally applicable and extremely versatile as every instrument spans a broad measuring range, within this series it is quick and easy to adjust to any size. The measuring head consists of a carbide-tipped moving anvil and interchangeable stationary anvil which has a carbide ball. Included is new technology that is a transmission lever system which transfers the movement of the movable anvil to indicating instrument.

Cutwel is a family owned business and one of the UK's largest independent engineering tooling distributors, employing over 50 people and based in a purpose made 24,000sq ft distribution facility near the M62 in Cleckheaton, West Yorkshire. It represents several global cutting tool manufacturers including YG-1, Korloy, Gerardi, UFS, Insize, Benz, Blum-Novotest, Mahr, Millers Oils, Jeton, Chandox, LMT, Karnasch and M.Conti.

The product range has grown from cutting tools to also include workholding, toolholding, measuring tools and lubrication. The Cutwel sales team contains time served engineers who are available from 8am to 6pm to help you technically.

To request your Insize and Mahr catalogues, contact:

Cutwel
Tel: 01924 869 610
Email: sales@cutwel.net
www.cutwel.co.uk

Real-time visualisation using cloud data

FARO launches innovative, user-friendly hand-held 3D laser scanner to meet growing demand for portable scanning

FARO has announced the release of the new FARO Freestyle3D Handheld Laser Scanner, an easy, intuitive device for use in architecture, engineering and construction, law enforcement and other industries.

The FARO Freestyle3D is equipped with a Microsoft Surface™ tablet and offers unprecedented real-time visualisation by allowing the user to view point cloud data as it is captured. The Freestyle3D scans to a distance of up to 3 metres and captures up to 88K points per second with accuracy better than 1.5 mm. The patent-pending, self-compensating optical system also allows users to start scanning immediately with no warm up time required.

"The Freestyle3D is the latest addition to the FARO 3D laser scanning portfolio and represents another step on our journey to democratise 3D scanning," states Jay Freeland, FARO's president and CEO. "Following the successful adoption of our Focus scanners for long-range scanning, we've developed a scanner that provides customers with the same intuitive feel and ease-of-use in a handheld device."

The portability of Freestyle3D enables users to manoeuvre and scan in tight and hard-to-reach areas such as car interiors, under tables and behind objects, making it ideal for crime scene data collection or architectural preservation and restoration activities. Memory-scan technology enables Freestyle3D users to pause scanning at any time and then resume data collection where they left off without the use of artificial targets.

Jay Freeland adds: "FARO's customers continue to stress the importance of work-flow simplicity, portability, and affordability as key drivers to their continued use and adoption of 3D laser scanning. We have responded by developing an easy-to-use, industrial grade, handheld laser scanning device that weighs less than 2 lbs."

The Freestyle3D can be employed as a standalone device to scan areas of interest, or used in tandem with FARO's Focus X 130 / X 330 scanners. Point cloud data from all of these devices can be seamlessly integrated and shared with all of FARO's software visualisation tools including FARO SCENE, WebShare Cloud, and FARO CAD Zone packages.

FARO continues expansion into law enforcement market

FARO has announced the acquisition of ARAS 360 Technologies Inc., a global leader in the development of accident and crime reconstruction, simulation and animation software.

Founded in 2010 and headquartered in Kamloops, British Columbia, ARAS produces a full suite of accident and crime reconstruction software tools that offer advanced graphics, advanced analytical tools and the ability to work with large point cloud data sets from 3D laser scanners. The company's newest product, Reality, is a 64-bit crash and crime software solution that was launched in November 2014. Reality provides customers with an intuitive and user-friendly interface enabling them to quickly generate precision diagrams with stunning details and graphic realism.

"The acquisition of ARAS 360 will help FARO create a complementary suite of integrated 3D documentation product offerings for our law enforcement customers," states Jay Freeland, FARO's president and CEO. "By adding the ARAS

products to our portfolio, along with the product offerings of the CAD Zone which we acquired last year, customers can now document and analyse any crime or accident scene with the most intuitive and powerful drawing, simulation and animation tools in the market."

FARO is a world trusted source for 3D measurement technology. The company develops and markets computer-aided measurement and imaging devices and software. Technology from FARO permits high-precision 3D measurement, imaging and comparison of parts and complex structures within production and quality assurance processes. The devices are used for inspecting components and assemblies, rapid prototyping, documenting large volume spaces or structures in 3D, surveying and construction, as well as for investigation and reconstruction of accident sites or crime scenes.

Approximately 15,000 customers are operating more than 30,000 installations of FARO's systems, worldwide. The company's global headquarters are located in Lake Mary, Florida, with its European regional headquarters in Stuttgart, Germany and its Asia/Pacific regional headquarters in Singapore. FARO has other offices in the United States, Canada, Mexico, Brazil, Germany, the United Kingdom, France, Spain, Italy, Poland, Turkey, the Netherlands, Switzerland, Portugal, India, China, Malaysia, Vietnam, Thailand, South Korea, and Japan.

For more information about FARO's 3D scanning solutions, contact:

FARO Technology UK Ltd
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Email: uk@faroeurope.com
www.faro.com

Leading automotive OEM deploys Hexagon technology

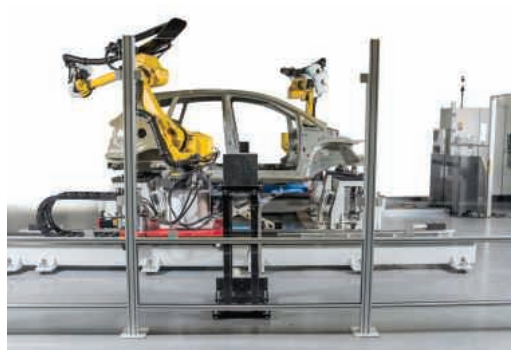
Hexagon Metrology has announced that one of Europe's leading automotive OEMs has selected and implemented the innovative 360° SIMS system for fully automated in-process inspection of car body units.

360° SIMS (Smart Inline Measurement Solutions) uses non-contact area sensors with robotic integration to deliver accurate dimensional data directly within the production line. The implementation follows a comprehensive technical evaluation and benchmarking exercise, which led the OEM to add this rapid area measurement solution to its quality inspection equipment.

The end-of-line body in white cell configuration is directly integrated with the production line PLC and IT systems to automate inspections on the OEM's new model, and the installation has measured tens of thousands of vehicles since launch. 360° SIMS initially supported the critical production launch and ramp up stages and is now engaged in quality monitoring during the ongoing production of the model and its variants.

"The customer selected 360° SIMS because of its ability to measure critical points and features as well as full surface areas and edge lines within the cycle time. It provides a live information stream to their quality analysts, supporting production efficiency," says Giacomo Barilà, head of Hexagon Metrology's automated solutions. "The system is operational 24 hours a day, gathering measurement data and packaging it as actionable information such as full surface deviation colour maps. We're happy to have been part of this very successful vehicle launch, and we look forward to developing our collaborative relationship further."

360° SIMS joins a large number of Hexagon Metrology solutions, including sheet metal horizontal CMMs, laser trackers and metrology software tools in use at this OEM's factories and supplier network around Europe and beyond. To find out more about the 360° SIMS inline system and the potential of inline dimensional control systems for automotive manufacturers, contact:



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Handheld infrared thermometer for high-temperature applications

Raytek has introduced a new handheld thermometer series for flexible temperature monitoring in high-temperature industrial applications from 400 to 3,000 °C, such as steel production and processing, chemical and petro-chemical industry, as well as heat treatment and power plants.

The Raynger 3i Plus 1M and 2M models measure infrared radiation in the shortwave spectrum (1 µm and 1.6µm) and provide high precision (+/- 0.5%, 1 °C). Thanks to the superior resolution of 250:1, critical plant parts and products can be reliably monitored from longer distances. For exact aiming, the measurement spot is highlighted with two laser beams. Moreover, even red hot objects can now be easily targeted by means of a new "Red Dot" scope sighting function (patent pending).

Additionally, the use of a "Red Nose" heat-resistant warning detector and alarm reduces the risk of the sensor overheating, minimising repair costs while averting costly accidents and ensuring operator safety.

The robust handheld devices withstand drops of 1 m. A powerful firmware supports display, analysis, and trending within the device. Up to 4,900 data points can be recorded. The scope of delivery furthermore includes the Raytek DataTemp® Windows PC software which supports real-time communication and further data processing. In addition to on-board USB and Bluetooth interfaces, a mobile app allows for comfortable data storage and sharing. The display can be set to degrees Celsius or Fahrenheit. The devices are equipped with a Lithium-ion battery that can be easily recharged and allow an operational cycle of 24 hours.

Raytek GmbH develops and produces infrared sensors under the brands of RAYTEK and IRCON for non-contact temperature measurement within a range from -50 to +3,500 °C. The sensors allow for quick and accurate measurements of surface temperatures without touching the medium. Typical applications include steelworks, glassworks, cement plants, and plastics manufacturing. The Raytek product range includes fixed infrared sensors, infrared linescanners, and thermal imagers. All the devices are suitable for fixed installation in plants and machines and can be integrated into process-monitoring systems via industry-specific interfaces.

Raytek is a Fluke company.

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Starrett metrology equipment measures the best in the world

Held every two years, the WorldSkills Competition is the largest vocational education and skills excellence event in the world. The competitors represent the best of their peers and are selected from skills competitions held in member countries and regions. The technical abilities demonstrated both individually and collectively to execute specific tasks are rigorously tested and measured. A proud sponsor of the competition, Starrett has supplied a comprehensive set of measuring equipment that contestants and mentors are using to check and prove their abilities.

A global hub for skills excellence and development through international co-operation and development between industry, government, organisations, and institutions, WorldSkills promotes the benefits of and need for skilled professionals through grass-roots community projects, skill competitions, and knowledge exchange. It highlights how important skills education and training is for youth, industries and society by challenging young professionals around the world to become the best in the skill of their choice.

Head of furniture studies at Chichester College, Christian Notley is also WorldSkills UK training manager for cabinet making. He explains that the competition is the world's largest professional education event. "Competitors from the UK will face entrants from over 60 countries and regions in North and South America, Europe, Asia, South Pacific and Africa. They will take on similar challenges that professionals in their chosen discipline would encounter. They will be measured and must meet international standards of quality if they are to finish in a medal position, or even win."

WorldSkills is the collective voice for skills excellence and development in vocational,

technological and service oriented careers around the globe. Since its inception it has raised the awareness among the young, their parents, teachers and employers that a successful future depends on an effective skills training system. Today, WorldSkills represents more than 45 skills in 72 member countries and regions, all working together to help prepare the workforce and talent of today for the jobs of the future.

Supporting the cabinet making, carpentry and joinery skill entrants the high quality measuring equipment supplied by Starrett is worth several thousand Pounds. It includes 300 mm combination set with square, centre and reversible protractor heads and regular blades; 150 mm electronic digital calipers; 175 mm and 300 mm Pro Site protractors;

steel square sets; 173MCT mm reading thickness gauge with tapered leaves ranging from 0.03 to 0.50 mm thickness; Starrett 59A trammel heads; 1,000 mm satin chrome steel rule, and long range 1,000 mm electronic digital calipers.

Each of these three skills supported by Starrett has a number of young people competing at various events for just one place in their discipline at the WorldSkills competition in August 2015, which for the first time will be held in Sao Paulo, South America. The event is expected to surpass the record number of competitors registered for the competition, WorldSkills 2013 held in Leipzig, Germany attracted nearly 1,000 participants from 53 countries and regions competed for medals in 46 skills.

Christian Notley says: "Skills competitions are held around the world to showcase and inspire world-class excellence in skills and introduce young people to a variety of skilled careers. These provide us with the opportunity to see how well the contestants work under the pressure of being constantly watched and timed, as well as their ability to follow the instructions issued."

WorldSkills has been established to be more than a competition. By working within the six key areas of research, skills promotion, career building, education and training, international co-operation and development, and skills competitions, WorldSkills is the global hub for skills excellence and development with ongoing activities nationally, regionally and globally.

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NPL purchases 3rd Alicona InfiniteFocus System

The National Physical Laboratory (NPL) is the UK's National Measurement Institute and is a world-leading Centre of excellence in developing and applying the most accurate measurement standards and science and technology available.

Alicona is justifiably delighted to announce that it has installed a 3rd InfiniteFocus system for materials characterisation at this high profile and influential location.

The Alicona/NPL relationship started in 2007 when NPL's Advanced Engineered Materials Group purchased the first InfiniteFocus G3, followed in 2009 with the purchase of the InfiniteFocus G4 system.

With these systems in frequent use and demand increasing, NPL made the decision in 2014 to acquire the InfiniteFocus G5 system. This system, with its improvement in acquisition and measurement speed, will provide increased measurement capacity in this busy measurement centre.

As the UK's leading facility for measurement technology, NPL provides and develops and recommends innovative

and high performance measurement solutions to many industries and research institutions. They therefore need to have innovative and flexible measurement solutions to allow them to deal with and manage the very wide range of applications that they are presented with. The Alicona InfiniteFocus systems provide this flexibility with accuracy and ease-of-use, providing an invaluable resource that can be used by many people.

Facility leader Eric Bennett, says: "We've used optical 3D measurement for a number of years but the Alicona systems offer's some significant advantages, particularly characterising small features over a relatively large area. The resolution which now goes down to 10 nm allows analysis of structures and damage in fine detail.

"However this is only part of the story. The flexibility and ease of use of the systems means that we can allow our users open access to the systems with a minimum amount of training, which means greater productivity in the Group. Also the ability to measure both form and finish in one system is a great advantage for us."

InfiniteFocus is an optical 3D micro coordinate system for form and roughness measurement based on the principle of FocusVariation.

This technique provides a vertical resolution down to 10 nm on large measurement areas and volumes. The system performs repeatably, and can be used to make traceable measurement.

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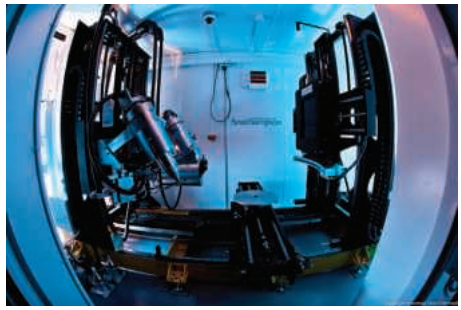
New imaging technology to design and build greener and safer aircraft

The University of Southampton is helping to develop new imaging technology to be used in the design, manufacture and maintenance for current and future generations of carbon composite aircraft.

Led by QinetiQ, the UK consortium of the University of Southampton and University College London (UCL) and four companies in ProjectCAN brings together world leaders from academia, the aerospace industry and X-ray inspection equipment manufacture.

As part of the Government's Aerospace Technology Institute, Innovate UK, the UK's innovation agency, has provided the team with significant funding to develop two new non-destructive testing processes for the detection of flaws in composite aerospace components.

The University of Southampton's µ-VIS Centre for Computed Tomography is host to one part of this three-year project. Together with Nikon Metrology UK Ltd, it aims to develop and test methods for scanning and visualising the insides of large, flat components using X-rays. The partners



will develop both the system for acquiring scan data and software to reconstruct it into a 3D volume image, allowing manipulation and visualisation using standard software.

"Conventional computed tomography (CT) techniques are widely used but are not well suited to image extended flat objects," says Dr Thomas Blumensath, of the University of Southampton. "We will be developing an alternative technique, which applies computed laminography (CL) techniques, to overcome the limitations of conventional CT for large, flat components. This will enhance our ability to find defects in large composite parts, such as those which are increasingly used in modern aircraft.

A laminography system comprises the hardware that positions the sample, source and detector to acquire 2D projection data, as well as an algorithm to reconstruct a 3D volume image from the data. ProjectCAN will develop both this hardware and software to allow laminographic imaging within the custom Nikon Metrology 225/450 kV X-ray scanner already in service in the µ-VIS centre at Southampton.

In parallel with the work at the University of Southampton and Nikon Metrology, the team at Axi-Tek and UCL will be developing a new backscatter x-ray inspection technique to non-destructively inspect large area composite structures such as wing sections, engine cowlings and fuselage components.

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Ansell campaigns to limit worker exposure to oil

Ansell, a global leader in protection solutions, has launched a campaign entitled 'Oil is a Chemical'. The campaign aims to raise awareness of manufacturing industries about the health challenges which can result from exposure to oil. Daily exposure through bare hands or inadequate protective gloves (including gloves saturated with oil) when handling oily parts and components is very common in industry. The health hazards of work place oil exposure are often overlooked when focusing on the grip and the performance required of hand protection.

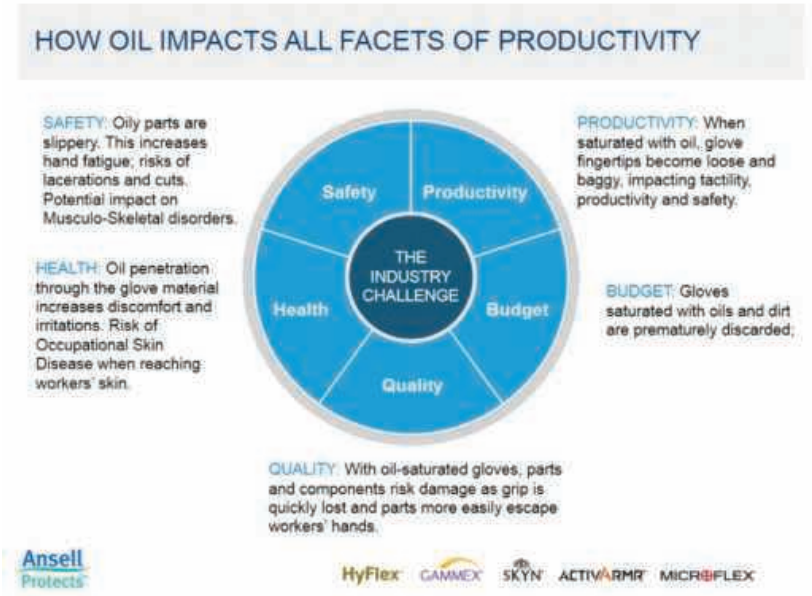
Proven health risks

Oil and lubricants are a contributing factor in the development of occupational skin disease (allergies and dermatitis) when absorbed through the skin. Some oil

additives (in particular high levels of Dimethyl sulfoxide or polycyclic aromatics) are known to contribute to the development of cancer. Other additives include boric acid (recognised as a reproductive risk) and formaldehyde-releasing biocides (recognised as carcinogenic). Finally, during use, some oils become charged with particles of dangerous metals such as lead.

The result of inadequate gloves

Oil-resistant gloves are seen as thick, stiff and sweaty to wear. So workers prefer to wear more dexterous mechanical gloves, which can quickly saturate with oil and expose the skin, Risk of injury increases with oil-saturated gloves. Their tendency to stretch makes them more likely to be caught in machines and increases the effort required to grasp oily objects. Health, safety and productivity are compromised further when workers in quest of a sure grip use their bare hands.



New impermeable gloves

The launch of next generation Ansell HyFlex® range of advanced mechanical protection gloves means workers no longer need to compromise on protection in order to wear the right glove for oily tasks. The versatile general-purpose knit gloves combine an oil repellent impermeable outer layer which is thin and flexible and incorporates Ansell Grip Technology™ for exceptional grip on slippery, oily surfaces. They effectively bridge worker Personal Protective Equipment requirements between the Ansell single use and chemical resistant range offering.

Worker awareness is key

In the 'Oil is a Chemical' campaign, Ansell will provide advice, work place assessment surveys, checklists and seminars to help safety managers identify potential problems. Worker awareness materials will be available later in the campaign. Customers benefit from Ansell's knowledge base of the chemical analysis of compositions of thousands of lubricants and oils carried out over the last 20 years.

In addition to official guidance for work place risk assessment (OSHA, NIOSH and EN standards) Ansell always recommends a trial prior to validation of any kind of protective piece of equipment including gloves and sleeves. Should any application profile require an "EN 374 Category III" or similar certified glove, chemical resistant glove design should then become a first choice.

Ansell is a world leader in providing superior health and safety protection solutions that enhance human well-being.With operations in North America, Latin America/Caribbean, EMEA and Asia, Ansell employs nearly 14,000 people worldwide and holds leading positions in the personal protective equipment and medical gloves market.

Ansell Healthcare Europe
www.ansell.eu

On guard with new Sentinel electrical safety testers

Significant time and cost saving benefits are provided by the new Sentinel series of bench-top Hipot/flash testers from Clare, which deliver improved type testing during product development or enhanced compliance testing in a laboratory environment.

The Sentinel 200, 500 and 501 electrical safety testers enable manufacturers to check their products in-house to ensure compliance with the relevant international technical conformance standards such as EN 60598, UL 1598, IEC and CSA C22.2 before being sent to third party test/approval houses. This can reduce product time-to-market, saving time and costs in the process.

The Sentinel series is ideal for R&D facilities and compliance laboratories, while design, quality assurance, manufacturing and production engineers will also benefit from the easy-to-use safety test features.

The fast, safe and accurate testing of high voltages up to 5kV AC and 6kV DC is provided across the range while accurate testing up to 500 VA AC power output, allowing for 100mA tripping currents, a requirement in many standards, is available on the Sentinel 500 and 501 units. The latter also provides earth bond/insulation resistance testing.

Adjustable ramp and hold times (0.1 - 999.9s) allow the test time to be set to rise appropriately to the correct output voltage for compliance with test standards and to reduce the risk of damage to the equipment under test.

Precise measurement outputs are achieved using highly accurate measurement characteristics such as a 2V resolution on output voltage, while 1µA ± (1.5 percent +30µA) resolution for the trip current ensures accurate measurement of the smallest of leakage currents.

The Sentinel series offers fully automatic testing and remote control, enabling up to 100 test conditions to be saved and recalled for single test purposes. For sequential

testing requirements, manual test settings can be linked together to create up to 100 automatic test sequences, enabling simple recall for repeat testing. Further advanced features include an integrated sweep function which plots measured values, current or resistance values against the test time, represented as a trace graph, enabling changes in the measured values to be recorded throughout the test period rather than as a single value at the end

Clare (part of the Seaward Group)
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Neal Stone, acting chief executive, British Safety Council

Do the proposed new penalties for health and safety offences fit the crime?"

The issue revolves around the level of fines that are appropriate for those who are prosecuted, convicted and punished for breaking the law. The Sentencing Council, comprising representatives from the judiciary, magistracy, practicing lawyers and academics, are currently consulting on new guidelines on sentencing for higher courts in England and Wales with the aim of delivering greater consistency.

But first I would like to say a few words about the British Safety Council. We were founded as a charity some 58 years ago. We have some 6,000 corporate members mainly in the UK but also in the Middle East and India. Our vision is that no one should be injured or made ill at work. We provide a range of products and services concerning health, safety and the environment. These are delivered with the aim of improving the competence of organisations to prevent ill health and injury.

While there has been a significant reduction in fatal injuries over the last forty years, from almost a thousand a year to 133 in 2013/2014, we do need to look at the totality of the statistics. It is estimated that 13,000 people are dying each year in Great Britain as a result of occupational disease. An estimated two million people are suffering from an illness they believe was caused or made worse by work.

Does punishment, including fines and even imprisonment, serve an important role in deterring wrong-doing?

The suggested sentencing guidelines are as follows:

- for micro organisations (turnover of less than £2million pa) the level of fines should range from £50 for low culpability where harm was remote to £450,000 where there was very high culpability and very serious harm.
- for small organisations (turnover between £2million and £10 million pa) the level of fines should range from £100 for low culpability where harm was remote to £1.6 million where there was very high culpability and very serious harm.
- for medium organisations (turnover of between £10 million and £50 million pa) the level of fines should range from £1,000 for low culpability where harm was remote to £4 million where there was very high culpability and very serious harm.
- for large and very large organisations (turnover over £50 million pa) the level of fines should range from £3,000 for low culpability where harm was remote to £10 million where there was very high culpability and very serious harm.

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Versatile fibre laser is ideal for jobbing

The fabricating company for which Matt Levett formerly worked went into liquidation in 2003, despite the firm having progressed from manual cutting to embrace CNC technology after the purchase of a waterjet / plasma combination machine. So he bought the machine from the directors and started his own engineering business, ML Fabcuts, even though he had a mortgage, a wife and young family to support, but no contracts.

Fast forward 12 years and the family-run company has become one of the major suppliers of profiled sheet and plate in the South East. It operates two Bystronic laser cutting machines and a waterjet cutter in a newly-built, 11,000 sq ft factory in Crayford, South London. Matt has been joined by his wife Maria, who is company secretary, brothers Dean and James and five other staff.

A twin shuttle table allows virtually continuous operation by enabling a new sheet (left) to enter the BySprint Fiber and previously cut components (right) to emerge on another table from the machining area

The most recently installed laser profiler, which arrived in November 2014, is powered by a fibre laser; in other words, a fibre optic cable is used to deliver the laser beam to the point of cutting. Matt Levett describes it as an ideal machine for jobbing shops, which seldom know what type of component they will be asked to produce next, so need equipment with maximum versatility to tackle a variety of work.

In his opinion, the 3 metre by 1.5 metre capacity, 4 kW BySprint Fiber 3015, equipped with a shuttle table and ByLoader handling device to assist in loading material weighing up to 890 kg, is like having three machines in one.

He says: "First, it is brilliant at cutting thin gauge material of all types. It flies through 1.5 mm mild steel at 28 m/min, more than three times faster than our 4.4 kW CO_2 laser.

"Secondly, it relieves our waterjet machine of work, as is able to cut reflective materials like aluminium, copper, brass and bronze. This is the Achilles heel of CO_2 machines, which can process aluminium up to 6 mm thick but only 1 mm thick copper, and even then there is a risk of back reflections damaging the expensive optics.

"The fibre laser, on the other hand, profiles 15 mm thick aluminium and 6 mm copper without any problems. It doesn't miss a beat.

"Thirdly, contrary to some people's belief, the fibre machine also cuts thicker materials efficiently. For example, it profiles 20 mm mild steel at 820 m/min, only slightly slower than our CO_2 laser, which achieves 890 m/min. There's not much in it."

Matt Levett, managing director of ML Fabcuts, standing in front of the ByLoader 3015 that assists handling of metal sheets onto the table of the fibre laser machine

Matt Levett has at his fingertips a wealth of information that most others would need to look is not slow in detailing the cost benefits of running fibre over CO_2 laser cutting equipment.

There are three power-hungry elements of any laser machine. In ascending order, they are the fume extractor, the chiller and the laser generator. The fume extractor on ML Fabcuts' BySpeed 4020 CO_2 machine and BySprint Fiber 3015 both consume the same power by drawing a current of 16 amps. However, the fibre laser machine's chiller takes far less power, pulling 16 rather than 64 amps. The biggest saving of all is in generation of the laser beam: 64 amps for the fibre versus 125 amps for CO_2.

During November 2014, after the BySprint Fiber had been installed in the new Crayford facility and was the only machine

on site, the electricity bill for the month was £150, albeit the profiler was not in full production. It nevertheless compared very favourably with the average monthly electricity bill of £3,000 at the company's previous unit in Higham, Kent, where the CO_2 laser and waterjet machines were operated.

Matt Levett continues: "Another reason for the fibre machine being so economical to run is that it goes into standby mode in a couple of seconds when it is not cutting and shuts down completely in 15 seconds, then powers up again as quickly as a laptop.

"The CO_2 machine takes several minutes to go into standby and a quarter of an hour to start and stop, so we never do that in practice."

Further savings come from not having to use resonator gases like CO_2, nitrogen or helium when operating a fibre laser cutter, which requires no gases. Furthermore, the machine can be installed in around 10 days, whereas aligning the mirrors on a CO_2 machine and plumbing in all the gases contribute to lengthening the install time by a factor of two or three.

When Matt Levett was working for his former employer, he was quick to see the enormous benefit to fabricators of CNC cutting. All of the parts for a Lloyds Bank staircase, for example, were prepared in one day rather than four. It took him until 2007 to pay off the waterjet / plasma combination machine, yet the machine worked continuously until it was retired in 2014.

ML Fabcuts produces a lot of stage sets for the film industry. The company made aluminium gates seen in a Harry Potter film, while Nicole Kidman, playing opposite Daniel Craig in the 2007 film, The Golden Compass, leant on a bannister made from 12 mm mild steel by the South East London fabricator.

The surround of almost every lift servicing 72 floors in the London Shard was manufactured by the company and other architectural work frequently features in its order book. Network Rail is another regular recipient of ML Fabcuts' work, especially electrical products in copper and brass.

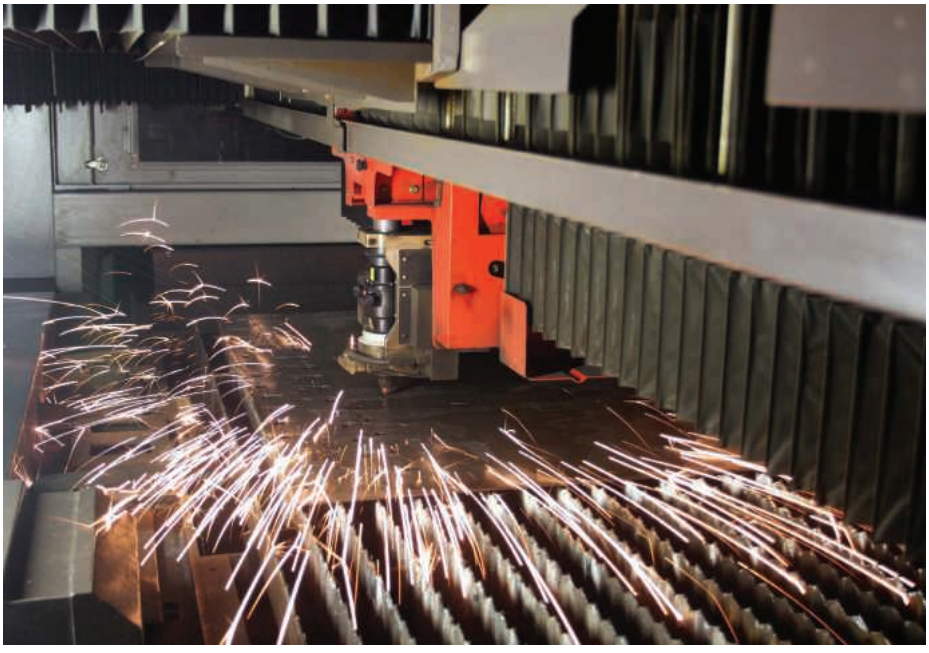
Over the years, the contract machinist has tried flame cutting of thicker materials, but rejected it as being messy and too inaccurate for the type of work the company was taking on. It preferred to retain waterjet machinery, which it has continued to upgrade. Plasma has now given way to laser cutting due to the latter's speed, precision and the quality of the cut edge, all of which was immediately apparent when the fabricator bought its first Bystronic CO_2 laser profiler second-hand in 2006.

A view of the front of the BySprint Fiber 3015 at ML Fabcuts, with James Stevens at the control

Matt Levett recalls: "It was a BySprint 3015 with 1.8 kW laser and was the only one we could find that carried a manufacturer's warranty.

"It was so much faster than our other types of machine, it made them look silly. You could see it was the way forward. It was obvious to my wife as well, and she is not really involved on the shop floor."

As to ML Fabcut's continued choice of Bystronic laser cutting machines, he points to their build quality and speed as well as the value for money. He concludes: "We have had good response from Bystronic ever since we bought the first laser machine back in 2006 and have developed an excellent relationship with them over the years."



Profiling in action on the BySpeed 4020 CO_2 laser cutter

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ML Fabcuts Ltd
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Cirrus Laser makes gains with UK's first TruLaser Cell 3000

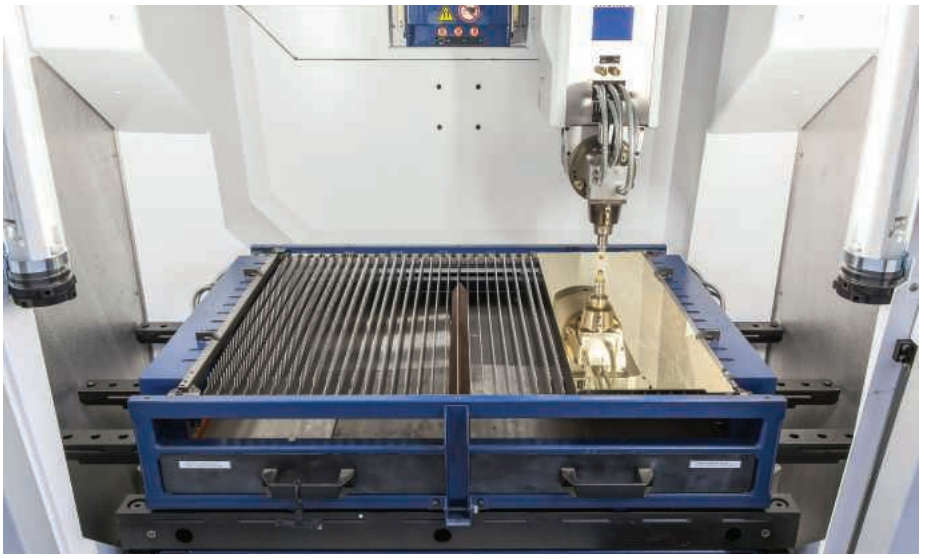
Installed at the Burgess Hill facility of Cirrus Laser in July 2014, the UK's first TRUMPF TruLaser Cell 3000 5-axis laser welding and cutting system is already offering important market advantages to this progressive subcontract supplier of sheet metal and plate processing services.

Capable of both cutting and welding on the same platform, the TruLaser Cell 3000 is run alongside the company's existing TruLaser 5030 fiber flatbed laser. In fact, the same 3kW laser source is used to supply both machines and switching between the two could not be easier. There is no configuration or unplugging of leads; everything is software driven and can be activated at the push of a button.

"At present, finding new flatbed laser work in the market is quite tough, hence the move into 5-axis cutting and welding," explains managing director David Connaway. "Ultimately the plan is to run the 5030 fiber during the day, and the Cell 3000 overnight. This will help us move towards 24 hour operations, 52 weeks of the year, whereas currently we only run 24 hours for around 30 weeks."

The new TruLaser Cell 3000 combines the best features of its predecessors in terms of versatility, quality, productivity and dynamics in a single, highly practical solution. TRUMPF's 2 in 1 fibre comprises one core inside another, which means one core is optimised for cutting and the other for welding. Therefore there is no compromise to either process and the customer receives the best possible part in each case.

"The first job we welded was aluminium, which was a real success, and that job is coming around again in the next few weeks," says David Connaway. "We have also welded steel and cut logos and text into aluminium buttons for an aerospace customer. We are now planning to fit a tailstock within the next few weeks that will enable us to complete rotary work."



Mounted to the bottom of the Z-axis on the TruLaser Cell 3000 is a tilting process head that can rotate through an angle of ±135°. The head is synchronised with a rotary axis to give full 3D process capability. Furthermore, the rotary axis can be orientated horizontally or vertically to suit customer requirements. Cirrus Laser has fitted a Vac-Magic vacuum chuck system to the TruLaser Cell 3000 which had a base plate water jet cut and then machined on the Dugard ECO1000 vertical machining centre (VMC) in-house. The VMC also has the same vacuum chuck fitted and will manufacture jigs for the TruLaser Cell 3000 for welding applications; typically one jig in use welding and one jig being unloaded/loaded for the next welding operation.

"In the base of the TruLaser Cell 3000 there are accurately machined bars and special pins supplied by TRUMPF are used to locate jigs, manufactured on the VMC, into these bars," explains David Connaway. "Using our coordinate measuring machine we've measured parts from one side of a jig to the other and found a maximum discrepancy of 40 microns, which is excellent. It means the jigs are clearly very repeatable and we can put them straight on the machine."

Among the forthcoming jobs planned for the TruLaser Cell 3000 is the welding of diamond core drills used for producing holes in concrete. Cirrus Laser has produced a quarter million of these drills in the past and the acquisition of the TruLaser Cell 3000 will introduce new efficiencies to the process.

Another benefit for Cirrus Laser concerns parts which are presently TIG welded off-site and subsequently require cleaning-up before painting. Establishing a laser welding resource in-house not only saves on subcontract costs, but produces welded assemblies that can go straight to painting with minimal or no clean-up.

The high performance of the TruLaser Cell 3000 is attributable to the sophisticated laser control system and its adjustable beam forming optics, which enable the focus position and diameter to be modified as easily as the shutter speed and aperture on a digital camera. The focus position is adapted automatically to the thickness of the material being processed. Furthermore, the focus diameter can be widened by up to four times the diameter of a fibre in the fibre optic cable. This reduces non-productive time significantly, especially during welding operations.

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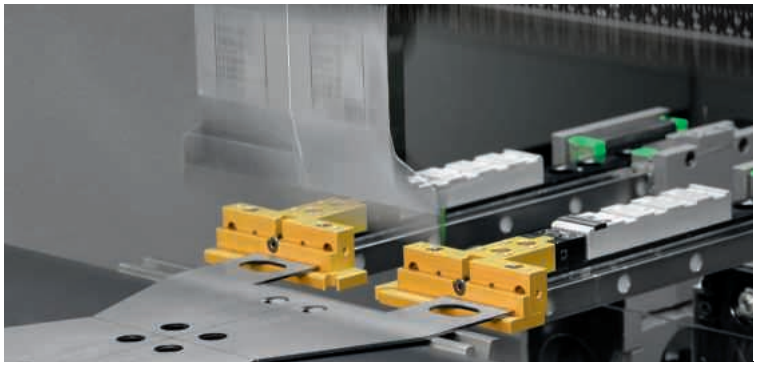

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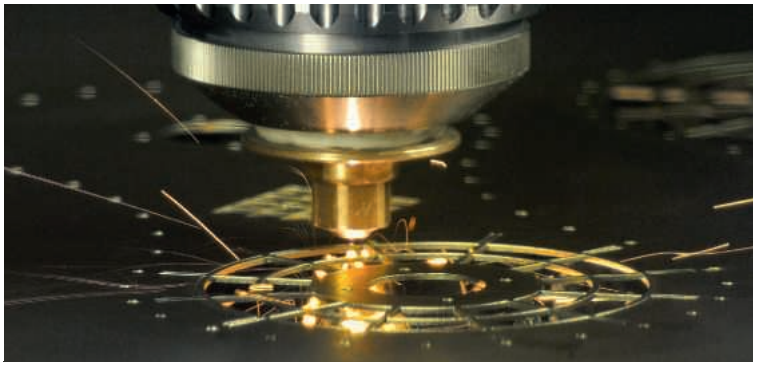

NEW

BySprint Fiber (6 kW)
Fiber laser cutting

LCG series – a new benchmark for performance and price

Amada introduced the new LCG3015 flatbed laser profiling centre mid-way through 2014 and since then has sold over 35 units in the UK alone. Setting a new benchmark for performance and functionality at this level of investment, the machine is proving its optimum productivity and value.

Aimed at any sheet metal shop looking to achieve high speed cutting of thin to mid-thick materials, the LCG3015 sets new standards for quality and value on a flatbed laser cutter. In fact, the CO2 machine is capable of processing mild steel up to 20 mm thick, along with 10 mm stainless steel and 8 mm aluminium.

There are many innovations on the new Amada LCG3015 that set it apart from comparable flatbed lasers. For example, purpose-built for speed and productivity, the machine features a newly developed and specially-tuned

3.5 kW CO_2 oscillator (AF3500i-C) that permits far higher cutting speeds than a conventional 4 kW laser. This is achieved using a far smaller spot size and high grade beam with a 30 percent improvement in focus (power density).

In tests on 1 mm thick stainless steel sheet, the LCG3015 was able to cut at an impressive three times the speed of the previous generation machine.

Yet despite its impressive speed, quality remains assured. Stable cutting at high speed is facilitated by improved material sensing, while the design also features an integral laser beam stabiliser unit.

Among other innovations on the LCG3015, a new design of helical rack drive is deployed that delivers greater contact between the slant mesh gear and the pinion wheel.

In combination with a high torque motor, a lightened head, a carriage with lower centre of gravity and a gantry beam that weighs 30 percent less, the machine is able to generate exceptional rapid traverse speeds of up to 170 m/min and impressive acceleration.

Aside from being exceptionally fast (the CO_2 machine typically offers a processing time around 38 percent quicker than its predecessor), the LCG3015 offers a host of additional benefits to users. For example, thanks to a smaller nozzle the machine now uses far less assist gas, around 45 percent less per part.

Further benefits for users include a two-stage power saving mode that helps reduce energy consumption by an impressive 60 percent. The machine will automatically revert to power saving mode at rest. What's more, maintenance intervals are doubled thanks to the deployment of long life internal mirrors and turbo blowers.

The latter now offer an overhaul cycle of twice that of the previous model.

The LCG series is also available equipped with an Amada developed fibre engine. Taking advantage of the many benefits described, the LCG3015-AJ offers high cutting speeds, low running costs and the ability to cut copper, brass and titanium.

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Fibre laser testing like no other

It is common knowledge that any machine downtime costs businesses vast amounts in lost revenue and production time and lasers especially are no exception. However NUKON has now proved that having a NUKON laser machine could maintain production for longer compared to that of the more familiar names we may associate when it comes to laser cutting machinery.

This evidence can be witnessed at NUKON's own R&D (Research and Development) Centre where customers can experience a real time production environment similar to that of their own.

The R&D Centre has a total of 10 different machines from the NUKON range, working 24 hours a day, 7 days a week, 52 weeks a year, processing in excess of 7000 tonnes of material per month. This impressive facility allows NUKON's technical engineers to access live information on machine reliability, performance and important cutting data, vital to any shop floor. With over 300 lasers being sold in just 2 years the R&D Centre has proved why NUKON is now being seen as a serious contender in the fibre laser market.

Built to an incredibly high standard and using only top quality components generally found on precision CNC machining centres, NUKON is able to offer its NF Pro range of machines with cutting power up to 6 kW and bed sizes up to 6000 mm x 2000 mm.

Together with the REX tube profiling machine, there is a NUKON fibre laser solution to meet the requirements of every sheetmetal user.

Since their introduction into the market, fibre laser machines have always been seen as an expensive piece of equipment to purchase and the price tag tends to deter some customers. Manufacturers can often offer stripped down or basic models in order to attract business, but with NUKON you get exactly what is expected when purchasing this level of technology: a competitive, reliable, accurate machine with nothing taken away.

The NUKON ECO S-Line Pro, for example, has proved its worth due to some unique and impressive standard features and is readily available with power from 500 w to 3 kW. Not only does it have a factory friendly small footprint (under 6 m^2) but the 16 second Automatic Twin Pallet Change Table and Z-axis of 200 mm give greater manufacturing flexibility compared to similar models in its class. Added to this is a user friendly19" touch screen CNC Control seen on all NUKON machines.

The Nukon ECO S- Line Pro is a machine designed for both new and existing laser user's pockets.

NUKON Lazer Makina Metal Sanayi ve Ticaret A.Ş. is a subsidiary of Nuri KÖRÜSTAN Makina Metal A.Ş. Nuri Körüstan Makina Metal A.Ş. has senior experience in sheet metal processing, and has committed to continuous improvement and development. This is the guiding principle of the company; combining its experience in sheet metal processing with its own machine range. The company manufactures its own laser, plasma, waterjet, CNC oxygen cutting, different tonnage cranes and magnetic lifting equipment.

Primary goals are to increase the workforce, to keep up with advances in technology and to manufacture high quality, easy-to-use and trouble-free machines. Today, the NUKON brand is establishing itself in a highly competitive market by working in partnership with customers. Its best reference are the machines working in its own factory.

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Prima Power launches new 5kW Platino Fiber laser

Based on the highly successful Platino® Fiber laser platform, which has achieved more than 1500 installations worldwide, the new version of the high powered Platino Fiber laser is available in versions up to 5 kW. The new machine delivers piercing time reductions of up to 90 percent, near-zero lens setup times and cutting speeds of up to 5m/min on stainless steel, which is on average 20 percent faster than the 4 kW machine. These advances result in ground breaking levels of productivity and cost reduction.

Six years of experience within the industry led to the development of the latest Platino Fiber, which is dedicated to exploiting fibre laser technology to the full. Nitrogen piercing, which uses a flush of nitrogen to supress the plasma, reduces piercing times in mid to high thickness material by up to 90 percent. For 12 mm mild steel, the new Platino Fiber pierces in less than one second. During trials, on a sample 12 mm thick mild steel part with 120 holes, cycle time reductions were around 25 percent. Additional benefits for users of nitrogen piercing are, significantly less heating of the part during piercing and hence a better quality part due to a smaller heat affected zone and the cooling effect of the nitrogen.

As well as nitrogen piercing, the new Platino Fiber has an option for a Laser Piercing Monitor. LPM gives real time feedback and a check when piercing is completed. This system adds to the reliability of the cutting process, and is especially useful for automated operation as it reduces the possibility of unplanned machine stoppages. In addition, it makes the laser less sensitive to material quality issues and it is effective with material up to 20 mm thick.

The redesigned fibre head uses a single universal lens for all materials, eliminating the need to change lenses resulting in near-zero setup time. Furthermore, the optical chain is completely sealed eliminating the possibility of any contamination.

Other features of the new fibre head include 35 mm stroke on the focal axis, a dedicated lens drawer with Prima Power OPC (Optical Precision Control) quick alignment technology and exchangeable protective glass, which allows easy inspection, keeping the optics safe and reliable. Prima Power OPC uses a machine cut reference figure to compare the actual position of the beam with its theoretical position. The operator simply follows on screen instructions to quickly adjust the beam position for precise alignment, ensuring repeatability and accurate production of parts.

The new machine includes Prima Power Fiber Plasma Monitoring. This system detects problems with the cutting and the formation of plasma when cutting is lost. An automated cycle then resolves the problem, by moving back a preset distance along the cut path and starting the cut again from a safe stand-off position. Cutting speeds are reduced, parameters on the machine are automatically adjusted and a warning is sent to the CNC control on the machine before cutting is automatically restarted, further reducing the possibility of unplanned stoppages, essential for reliable automation.

The machine is available with a wide range of nozzles for any application, with an option for automatic nozzle exchange and comes with Prima Power SIPS which protects the head in the event of a collision, further adding to efficiency, safety and low cost operation.

For even higher efficiency on material up to 5 mm thick, the new machine integrates a new piercing strategy, which results in drastic cycle time reductions, especially on complex nests of parts. Another function that dramatically increases productivity is Prima Power's SmartMoves technology for intelligent management of cutting parameters, which allows shorter cycle times and increased reliability through smoother operation.

The new Platino Fiber is more compact thanks to a redesigned fibre path, which has enabled the overall machine to be 230 mm shorter. Not only does this save weight and material but it also reduces inertia in moving parts, leading to higher reliability and faster cycle times. The new machine also comes with an option for a basic cabin which comes fully assembled. The advantages are reduced cost for the cabin, a fixed roof, fast, on-site, plug and play installation and easier transportation.

To provide high levels of thermal stability and vibration damping, the frame of the Platino Fiber is built from synthetic granite, while the wide access doors make it easy to access the workings of the machine, facilitating ergonomic operation.

The laser itself comes in a compact and rugged cabinet which is easy to install. The high quality Ytterbium Fiber laser is

available from 2 kW to 5 kW, offers over 30 percent wall plug efficiency and has been designed to deliver an excellent Beam Parameter Product (BPP) which is constant across the entire power range, making it possible to achieve a very small focused spot over a large working distance.

For 24 hour lights out operation, the machine can be automated with Prima Power's range of automation systems. The Compact Tower handles blank material and finished parts and can have 3, 10 or 15 pallets and, with the addition of a second tower, can go up to 36 pallets. The system automatically loads a new sheet on the Platino Fiber table ready for cutting and unloads a finished sheet of parts when the tables are exchanged at the end of the cutting cycle. Logic in the control enables a list of different sheets of parts to be selected and cut in a sequence that meets the production schedule for fully automated production.

Prima Power's LST system goes a stage further with robot picking of parts, as they are cut, sorting and stacking them as they are finished. For the ultimate solution, Prima Power can offer its Night Train FMS® system which links different machines and handling systems together to make a comprehensive and flexible system which will produce finished parts without any operator intervention.

Overall, the Platino Fiber has been designed to ensure reliability and speed in 24/7 production. Fast nitrogen piercing, 5 m/min cutting speeds and SmartMoves technology combine to minimise cycle times. Advanced technology in the Laser Piercing Monitor and automated parameter setting and tip replacement, together with automatic restart functions, as well as fault notification by SMS, should operator intervention be required, add together to minimise the chance of an unplanned delay in production.

As users would expect, the new Platino Fiber offers all the advantages of fibre laser technology, such as low power consumption, less gas usage, the ability to cut reflective materials and minimised maintenance. But, in addition, it also offers significantly faster production cycles, technology aimed at improving both process and mechanical reliability and, automation options which will transform productivity levels.

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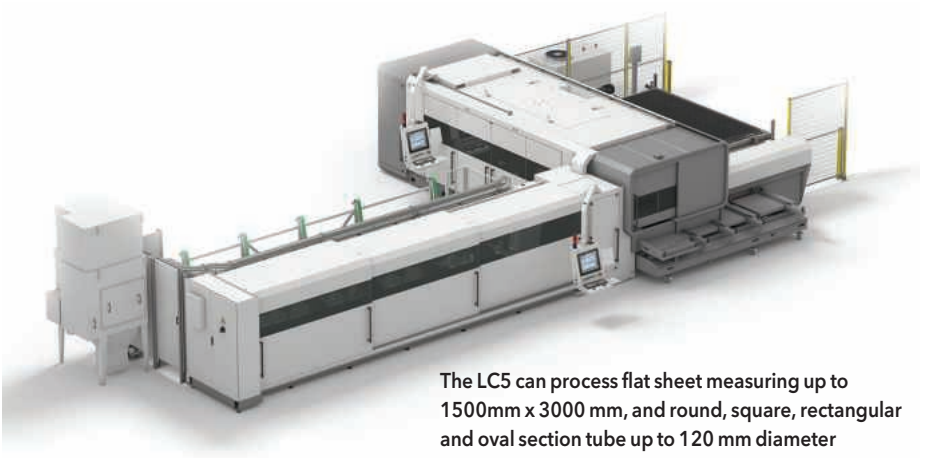
Laser cutting system for tube and sheet - a winning combination

Both flat sheet and tube section can be processed competitively on the new Adige LC5 laser cutting system. Available from BLM GROUP UK, this highly versatile and compact combination machine brings extra opportunities for purchase justification and for users to exploit the productivity gains that laser can deliver, particularly on shorter production runs.

The LC5 can switch from flat sheet processing to tube processing, and vice-versa, immediately and automatically without the need for any retooling, making it the ideal choice for both OEM and subcontract manufacturing facilities.

Capacity of the LC5 includes being able to process flat sheet measuring up to 1500 mm x 3000 mm (can be increased), and round, square, rectangular and oval section tube up to a maximum diameter of 120 mm, makes LC5 the ideal solution for companies who want to process both product types on a single system. The customer has the option of choosing either a 4.5 kW CO_2 laser source or, a 3 kW fibre laser, which opens up the potential to process reflective metals such as copper, brass and aluminium.

A key element in the design of the LC5 was to keep the footprint as small as possible. Adige has achieved this by incorporating all of the electrics/electronics within the machine itself. This also has a benefit at installation, which is greatly simplified by this approach. A further design feature that is customer focused is the ease of machine access and operation created by use of wide openings to the working area and the use of two touchscreen operator panels that allow the machine to be controlled from the best possible positions at all times. The LC5 also has a number of options, including adding higher levels of automation.



The LC5 can process flat sheet measuring up to 1500mm x 3000 mm, and round, square, rectangular and oval section tube up to 120 mm diameter

As the market for cut sheet and tube changes, with customers asking for smaller batch sizes and ever shorter lead times, suppliers have to adapt and find new opportunities. The LC5 laser cutting system provides the adaptability and performance that is needed in these circumstances, allowing users to respond flexibly and appropriately to specific requests and meet production quality and delivery times.

"The Adige LC5 laser cutting system is another example of how we are applying laser technology to assist customers to maximise their productivity and give them a competitive edge in the face of increasing competition and a changing market," says Paul Lake, managing director, BLM Group UK.

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SSC Laser expands its manufacturing capacity

SSC Laser, the UK leading nationwide laser job shop, has opened its 3rd manufacturing factory in Yate near Bristol.
The company specialises in both flat and tube laser cutting and has recently invested £1 m in an 18,000 square foot facility on Stover Trading Estate in Yate, near Bristol.

South West sales manager, Ben Cliss says: "We're really excited about the investment the company has made in the South West region, considering the company has only been established in this area since 2012. The past two years has seen massive growth for our business and we are very grateful to our customers for their support in helping us to grow our business so quickly.

SSC Bristol take ownership of their new Bystronic flat bed laser

Sales director, Andy Evans says: "The Bristol team have done a fantastic job in getting SSC Laser established in the South West so quickly. It's only fair they are rewarded by setting them up in their own factory with the very latest laser cutting technology. We intend to grow in to the 18,000 square foot factory by adding to the existing machinery during 2015".

A new Bystronic ByAutonom 6 kW flatbed laser was delivered to the factory on 1st December along with an Amada press brake.

Ben Cliss said in December: "We will be fully operational at the beginning of January 2015, offering both flat and flat and fold laser engineered components manufactured from mild steel, stainless steel and aluminium materials. Our big strengths are in reacting very quickly to customer enquiries and delivering the finished goods to our customers on very quick lead times. Our products are produced to the very highest standards available in our industry".

SSC Laser, whose head office is in Hixon, Staffordshire, was established in 2000 and now has six sites in the UK, Hixon, Derby, Sunderland, Motherwell, Slough and Bristol. The company employs 60 people across the six sites and is planning further expansion in 2015.

The new contact details for SSC Bristol are:
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UK's first TRUMPF TruMatic 6000 punch/laser machine

Buckingham-based Stratford Tools, a specialist in the provision of subcontract precision sheet metalwork, has acquired the UK's first TruMatic 6000 punch/laser combination machine from TRUMPF. The investment by this progressive manufacturing business has led to reduced lead-times and enhanced quality.

Stratford Tools has come a long way since it was established by the current managing director in 1965 using a manual lathe in his spare bedroom. Today, the company occupies a 75,000 sq ft temperature controlled facility filled with a plethora of modern manufacturing technologies that help it serve high profile UK customers in sectors such as audio, broadcasting, defence, retail, security, IT and industrial instrumentation. With 42 employees, Stratford Tools commands an annual turnover in the region of £4.2 million and growing.

One of the common denominators behind its year-on-year success is a planned programme of ongoing investment in the latest machinery, a case in point being the TRUMPF TruMatic 6000 with 2 kW TruFlow laser source, which was installed in April 2014.

"Over the past few years, sales have grown significantly in products that are suited to this machine configuration, and we needed to increase our manufacturing capacity and improve production efficiency in-line with this growth," explains manager Stephen Cooke. "The TRUMPF TruMatic 6000 outperforms other machines we had considered in terms of quality, scratch-free processing and automation."

The TruMatic 6000 is a robust punch/laser combination machine that offers a technically mature machine concept with intelligent software functions which provide the highest levels of process reliability. Features include scratch-free processing, automated tool changing, outstanding energy efficiency through ingenious laser technology and universal cooling interface, and a simple operating concept.

The configuration of the TruMatic 6000 at Stratford Tools includes SheetMaster automation and cart system, GripMaster automation, descending die technology and TruTops punch software. This level of automation allows the company to run unmanned, lights-out.

"To see a return on our investment and to improve production efficiency, one of the main factors in our decision process was the ability to run lights-out," explains Stephen Cooke. "The TruMatic 6000 is a very important purchase and complements our extensive range of production machines. As a subcontractor, we rely on flexible manufacturing so we can remain competitive and satisfy our customer's requirements. Typically we are finding that the TruMatic 6000 has improved the quality and reduced the run-time down to one third of the previous methods of production."

According to Stephen Cooke, the machine is being used to process everything from small brackets to large panels in all materials and thicknesses ranging from 0.7 to 3 mm.

"We assess the suitability of each product before production and focus on eliminating further tapping, forming and countersink processes," he says. "We also try to batch similar materials and products as efficiently as we can so as to increase machine uptime."

He adds that the TruMatic 6000 has introduced numerous advantages to production operations at Stratford Tools:

"Previously, the type of product that we now manufacture on the TruMatic 6000 would have been produced on two separate production machines: a standalone laser and a turret punch. Although this was effective it had a significant impact on capacity and labour content as sales increased."

The process of transferring existing products to the new TRUMPF machine at Stratford Tools is well underway, and the company is now looking to open new revenue streams and attract new customers.

Processes offered by Stratford Tools include estimating, planning, designing, programming, laser cutting, punching, folding, welding, finishing, assembly, packing and dispatch.

"First and foremost, quality and service are our key operating factors," concludes Stephen Cooke. "We operate in a competitive industry, so the price is an important factor. To ensure we are delivering value, we work closely with customers and mechanical designers to ensure their product suits our processes."

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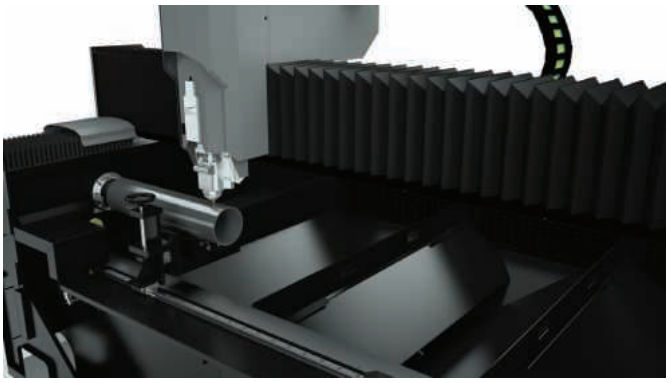
Radtube drives Nukon REX pipe cutters

A new pipe cutting attachment for Nukon's REX fibre laser machines is being driven by Radan Software's specialist Radtube module.



The pipe cutting function increases the flexibility of REX machines. Nukon development manager, Alper Tarkan says: "The new attachment provides an economical method of providing full pipe cutting functionality, increasing opportunities for manufacturers who incorporate it into their production."

Radan, from Vero Software, already provided a full CAD/CAM solution for standard REX machines and worked closely with Nukon engineers to create an integrated package which efficiently drives the new pipe cutting function.

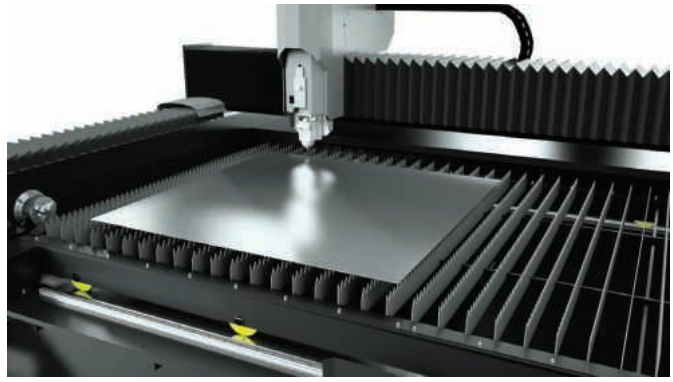
Paul Monte, Radan business development manager, says: "Having developed the functionality and post processor to drive this innovative solution on the Nukon machine, it not only provides the CNC code, but also gives full simulation of the processes, to eliminate error on screen, before any metal is cut."

The innovation was unveiled at the Brno exhibition in the Czech Republic and was also recently demonstrated at Maktek, Istanbul, and Euroblech in Hannover.

"It generated considerable interest at all three exhibitions, and a number of sales have already been made," continues Paul Monte. He also says that the co-operation extends the current partnership where Radan is supplied with Nukon laser machines as part of its overall sheet metal laser cutting solutions.

The pipe cutting function is suitable for cutting and engraving a variety of metal pipes and tubes, for sectors such as advertising, crafts, decoration, lighting and other metal processing industries.

Radan's Radtube is an industry leading laser CAD/CAM system for rotary and multi axis cutting machines, developed specifically for tube cutting and manipulation. The intuitive programming system allows tubes or sections to be parametrically defined from a library of standard shapes, allowing cutting apertures and profiles to be



defined. Radtube supplies a library of parametric tube shapes that simplify the creation of the tube material to be cut. If a suitable section does not exist, the 'Freeform' option is used to create the special shape section. Freeform shape tubes can even be created from one of the libraries of Radtube parametric shapes. If none of these standard shapes are suitable, the user simply draws the section centre line profile or outside / inside shape using the integrated CAD tools. All modelling in Radtube is carried out entirely in 3D.

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Salvagnini P2 panel bender slashes throughput times at CSM

Precision sheet metal fabrication specialist, CSM (Chorley) Ltd, has invested in a new Salvagnini P2Xe 21 CNC panel bender to save the setup times associated with conventional press brakes and ease the company's reliance on skilled operators in the forming section.

"Before we installed the Salvagnini, a batch of 10 components with a degree of complexity would take around 2 hours to complete on one of our press brakes, whereas now the same 10 components are on and off the panel bender in 20 minutes, that's six times quicker," states Paul King, the company's managing director.

Competitive gain of this ilk is vital in what has become a very competitive arena. To stand above the crowd, CSM has gained a reputation for excellence built over nearly 40 years of trading. However, when Paul King acquired the business in 2005, he had a vision to take CSM to an even higher level.

"I have always assured the workforce that through our policy of continuous improvement regarding productivity, automation, faster machines and a reduction in process handling, we would not lose jobs, we would create them," he says. "Today we have 92 people and growing."

CSM offers a complete one-stop, turnkey solution for all precision sheet metal fabricating needs. The company has an expression called 'from concept to creation', as it specialises in the design and fabrication of sheet metal for a wide range of commercial and retail customers. Around 15 percent of output is exported.

"Because of our continual and substantial investment policy we're equipped with the latest fabricating machinery," says Paul King. "We can offer innovative and inspirational ideas to valuate and enhance new or existing products, perhaps aesthetically, or functionally, to achieve a more efficient solution that reduces current production costs while maintaining the highest standards of manufacture."

Evidence of this ethos is supported by the acquisition of the Salvagnini P2Xe 21 panel bender.

"We had a situation where we were pushing thousands of sheets through our punching and laser cutting machines, and the press brakes were working night and day to keep up, in effect the forming section had become a bottleneck," explains Paul King. "As a result, we began to research panel bending technology and ended up with a shortlist of two machines. We opted for the Salvagnini P2Xe 21 for two main reasons. Firstly, we took comfort from the fact that Salvagnini has been manufacturing panel benders for an awfully long time, and secondly, the compactness of the machine meant we could produce a lot more output in the same footprint as a press brake."

Salvagnini arranged for Paul King and his team to see a P2Xe bending the company's parts at a factory in the south of England.

"On the visit, the benefits to our business became clear, not just the speed, but the potential for continuous quality and repeatability without any reliance on skilled operators," he says.

The P2Xe panel bender produces panels automatically from a punched/cut sheet of metal using a single universal bending tool. The blank is first moved horizontally by the manipulator before a rotator quickly and accurately places the side to be bent in front of the press. The blank-holder then holds the blank firmly in position so that the bending unit and its blades can make any number of bends, up or down, in rapid succession. The machine can process panels up to a maximum of 2180 mm long and form bends up to 165 mm high.

"Around 70 percent of what we produce here falls within the maximum bend height of the Salvagnini," says Paul King. "On some jobs we have one or two taller bends, but we simply finish those on the press brake. Our previous bottleneck in the forming section has completely disappeared."

The major selling point of the Salvagnini P2Xe is the ingenious ABA (automatic blank-holder system) technology, which can adjust the tooling in less than 4 seconds. Importantly, this is done in 'masked time', i.e. before the previous cycle concludes. This means that forward-thinking manufacturers such as CSM can now reduce WIP and run much leaner production.

"We are putting ABA to good use to ensure we make big savings in setup time," he adds. "Whereas on the press brakes each job takes 20-30 minutes to set, we can eliminate this using the P2Xe. Overall, cycles are much reduced. For instance, some jobs which previously took two men over an hour, can now be completed in less than 10 minutes."

Typical batch sizes put through the Salvagnini panel bender at CSM range from 5-off to 1000-off. Most sheets are predominantly mild steel ranging from 0.9 to 1.5 mm in thickness. However, the P2Xe 21 is able to bend steel up to 2.5 mm thick, stainless steel up to 2.1 mm, and aluminium up to 3.2 mm.

"Since installation we have been more than impressed with the flexibility and efficiency of the panel bender," says Paul King. "We have started producing complex bend sequences which has amazed even the most experienced press brake operators. We also had an open evening recently and our customers were very impressed with the panel bender's capabilities."

Today, despite Paul King revealing that the P2Xe has a "very big appetite" and can "destroy a pile of work in no time", the machine runs for 12 if not 16 hours a day.

"The Salvagnini hasn't missed a beat since it was installed and is helping us deliver an even more complete service to our current customers, and attracting new ones too," he concludes. "It's not too often that we come across technology that provides a genuine step change, but the Salvagnini P2Xe is a quantum leap in comparison with a press brake."

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Waterjet holds its own against laser cutting

Abrasive waterjet (AWJ) cutting is often compared to laser cutting as a competitive process. Rather, they are processes that complement each other and the market is reflecting that with a growing percentage of AWJ customers already having a thermal profiling capacity by way of laser, plasma or oxy-fuel.

Those existing laser users that go on to invest in a Water Jet Sweden system do so in order to enhance their capability. We are seeing that in such shops the waterjet machine is used mostly for non ferrous materials, with materials such as stainless steel, nimonics and even titanium can be cut in thicknesses exceeding 250 mm. Realistic process accuracies down to 0.2 mm are attractive for those wishing to produce parts, eliminating downstream machining processes. Where a near net shape is required for post operation machining, then the blank supplied by the Water Jet Sweden profiler has no heat affected zone, so machining is minimised and there is no compromise on the material structure.

In a recent test, a 75 mm thick billet of Titanium was cut on a WJS system to produce a blank for machining. Even by employing common line cutting to maximise material yield and reduce cycle time the profile of the part was within a 0.5 mm tolerance with flatness on a 150 mm long face better than 0.4 mm. A further benefit was that the clamping area could be minimised for machining, reducing the required billet size. The impressive accuracy and repeatability of the WJS system led to a major aerospace supplier placing an order for a new WJS system.

With the development of ultra high pressures such as 90,000PSI / 6000 bar

technology these thicker and harder materials can be cut faster and more efficiently and with x-axis beams extending up to 6 m in length, multi head cutting allows much higher output from the same machine. WJS recently delivered the first six headed abrasive machine in the UK for a non-ferrous application, traditionally four was the standard.

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New hand-held marking system for durable and tamper proof markings

The sale of plagiarisms costs the machinery and plant manufacturing industries several billion dollars every year. Next to the lost sales revenues there are also the quality defects because of the product copies. Very often production downtimes or risks to human health and safety are the consequences. Through durable and tamper-proof marking it is possible to identify the manufacturer and to track the batch number, production date, production plant, etc.

Quality assurance due to clear markings

Due to the reasons mentioned above, hardly a product leaves the industrial production plant without being marked with a character or number string or even with a two dimensional Data Matrix Code. In many cases the product is also marked with a company logo or a test mark used for the quality management.

The wide product range of the German company MARKATOR® Manfred Borries GmbH covers several solutions to mark work pieces of different kinds of durable and tamper-proof markings. Various kinds of materials can be marked from plastics, aluminum and construction steel to hardened steel with a hardness up to 63 HRC. Whether a marking system to integrate in an automatic production line, a table marking system to mark small work pieces on a bench-top work place or a flexible hand-held marking system to mark big and unmovable pieces directly on site; MARKATOR has a solution for every marking requirement.

Portable power package for deep and durable markings

To mark big and unmovable work pieces directly on-site, portable marking systems are perfect. Especially when markings are not done at one workstation but on the whole plant grounds, battery operated marking systems like the dot peen marker FlyMarker® PRO MOBIL are indispensable.

The marking is produced by an electromagnetic driven marking pin and the power supply comes from a powerful lithium ion battery. This means the marking task can be done completely cordless.

The mobile dot peen marking system

FlyMarker PRO has high marking speed, only weighs 10 pounds, and is of a small physical size. Equipped with a strong magnet and a powerful battery, the portable "power package" creates deep and durable markings. The markings are even readable after a sandblasting or coating process and a full traceability can be guaranteed.

The control unit is installed in the break-proof housing and with this is protected from external influences. There are no electrical or compressed air lines to interfere with the workplace location. The marking files can be programmed via the self-explanatory software of the integrated control unit. Only basic computer knowledge is necessary for the operation.

The hand-held marking system itself and the standard accessories can be stored in a hard, protective case for safe transportation.

The affordable FlyMarker PRO is available in four different marking area sizes to suit your requirements.

MARKATOR is an expert in durable and economic marking of industrial parts to help eliminate forgery. The company have been developing and manufacturing high-quality systems for dot peen marking, scribe marking and conventional marking for over 25 years. Customers' needs can be met both individually and precisely.

MARKATOR aims to achieve the highest quality possible attaching importance to solid consulting, customer-related development and user-friendly marking systems. Maintaining a constant dialogue with customers and their applications ensures the continual development, optimisation and innovations within their product range.

These key benefits are complemented with a committed and professional service manned by highly-qualified employees. Since August 2004 MARKATOR has been ISO certified.

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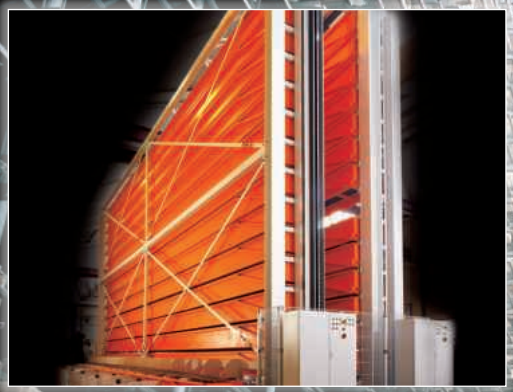

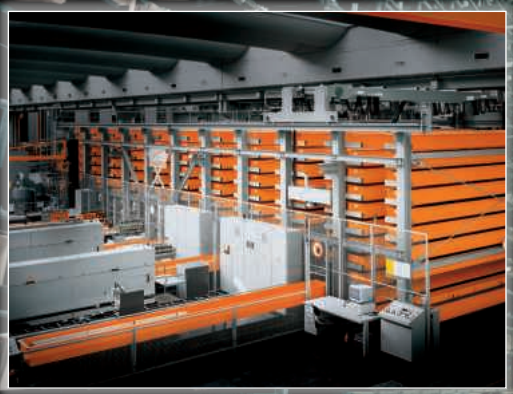

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An exciting few months for Kaltenbach

Kaltenbach Ltd, UK subsidiary of the German based Kaltenbach Group, has reported an 'incredible' end to last year and start to 2015.

The company, a world leader in the manufacture and supply of machinery solutions for steel processing, has secured a large number of significant machinery orders, hot on the heels of completing major installations including the new Tata Teesside steel service centre facility, which was announced by Tata in August of last year.

"We have seen a major increase in demand over the past six months" says managing director Barry Rooney. "Orders have come for equipment right across our product range, from our entry level KKS Cold Saws through to our very largest shotblast systems and including sawing, drilling, plate processing and beam bending"

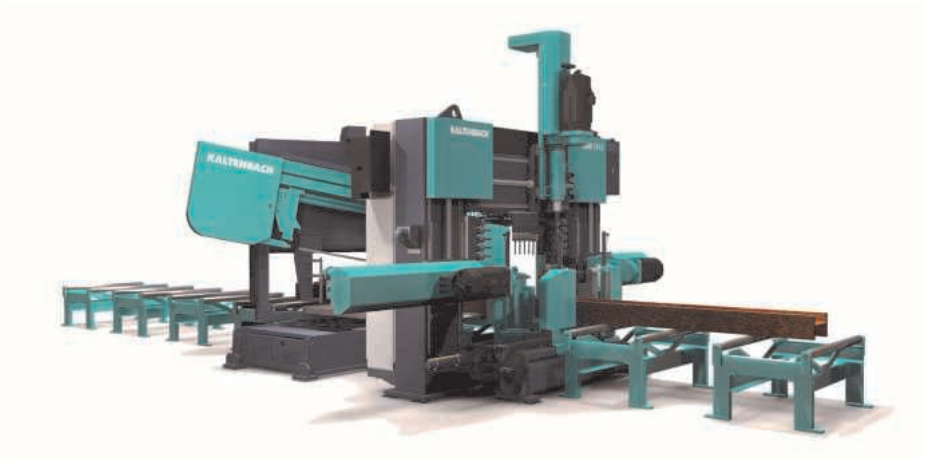
"It is very encouraging that not only have these orders been placed, the installations are right across the country including both Northern and Southern Ireland, where we also now work directly."

Kaltenbach Ltd has installed several heavy duty 'Marathon' shotblasting lines in the past 18 months, including a system complimented with an 'Intec' painting and drying unit at Tata.

The Tata steel service centre system boasts a 2 m width capacity with 6 x) 22 kW, frequency controlled shotblasting turbines that achieve an average line speed of an impressive three metres per minute, cleaning to an easily attained SA2.5 standard. The eight gun, automatic primer coating line then paints the blasted materials using water based paints that are precisely applied to ensure consistent coating thickness, full material coverage and minimal paint waste.

Kaltenbach has also installed five sawing systems at Tata Teesside, giving the facility a total output capacity exceeding 170,000

tons per annum. The saws include two Kaltenbach KBS1301DG models, a smaller KBS1010DG model and a KBS620DG for lighter sections and material packs. Also



installed in a bespoke building at the 40 acre site is a Kaltenbach HDM1432 cold saw for heavy section processing.

These installations are backed up by a full planned preventive maintenance program, delivered by Kaltenbach on a monthly basis and working jointly with Tata's own maintenance team. This includes comprehensive machine maintenance, online services and thermal image scanning of critical components to ensure maximum up-time and attainment of Tata's customer service targets.

Darren Hartley, Tata Steels head of UK operations at the facility in Teesside says: "The Teesside installation was complex, with time scales far shorter than any installation that Tata Steel or Kaltenbach have undertaken. The project was delivered on time, in budget and has continued to develop under the modernisation of the Kaltenbach after-sales care, which includes a new PPM system"

"Kaltenbach has continued to listen, revise and adapt to our changing demands, which has resulted in modifications and enhancements to achieve our customer and production needs. Kaltenbach has partnered with Teesside to ensure the initial project and subsequent support is exactly what we require"

Other installations include the first new Kaltenbach KDM series drill to enter the UK, paired with the latest, high performance KBS1051DG bandsaw. The KDM1015 features three drill axes, each equipped with powerful 29.5 kW drill spindles, able to drill with HSS, carbide tipped and solid carbide drills. The machine is also able to undertake contour marking and has full milling functionality, thanks to the machines rigidity, drive performance and sophisticated material control via the Kaltenbach M151G material feed gripper.

Kaltenbach is also installing a number of new shotblasting systems into the industry, ranging from the smaller 1.5m width capacity 'Sprint' model through to the very largest 'triathlon' machine with a 3 metre capacity and no fewer than 10x, 22kW turbines for blasting fabricated steel sections immediately prior to painting. Upon completion of a recent Marathon shotblaster installation, one customer reported "The new blaster is absolutely flying, we are delighted with the end product, best yet from Kaltenbach without doubt. The machine is a revelation and we are extremely pleased with its performance"

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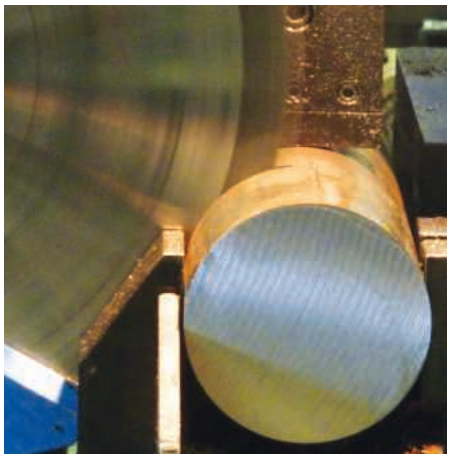
Prosaw's problem solving expertise ensures customer satisfaction

Cogne UK was established in the great steel city of Sheffield in 1997 by Italian parent company Cogne Acciai Speciali, one of the leading producers of stainless steel long products in Europe and indeed, the world.

The UK Company is now a market leader in the stockholding and processing of stainless steel, tool steel and construction products, with over 4,000 tonnes of steel held in stock. When Cogne were contracted to supply stainless steel components that required completion in a time of less than 4 hours, compared to the more usual 60 hours, they turned to Prosaw to find a solution to a problem that even the most recently developed high speed production bandsaw was unable to fulfill.



The solution lay in the use of circular sawing technology, but whilst high-speed cutting with carbide circular saws has been available for some time, they have generally been limited by cost to processing carbon steel rather than stainless steel. Additionally, in order for the project to be financially viable, Cogne needed to process at least 500 components with each saw blade.

However, Prosaw, using the latest in circular blade technology engaged in a lengthy testing programme using a Mega CS150S saw, that finally resulted in each blade producing over 700 components with the remarkably short cut time on 131 mm diameter stainless steel of just 28 seconds.

Equally impressive was the performance on 76 mm diameter stainless steel, resulting in 2,700 cuts with a single blade, reducing the total job time from 70 hours to just 6.5 hours.

Cogne UK, group operations manager, Tony Evans says: "The philosophy at Cogne is to provide our customers with the best product and the quickest delivery possible and while we have made significant investment in time working with Prosaw and a significant capital investment in the purchase of new machines, it allows us to continue to offer our customers the very best of service."

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AJS Profiles turns to Kerf 'Monster Machine'

Continually maintaining a delivery lead time in the region of 2-3 days can be a daunting prospect for most manufacturers, but for Smethwick based AJS Profiles Ltd, it has become a promise that enables it to outperform its competitors. For anybody purchasing steel profiling services, long lead-times are often the norm and that's why AJS has become the envy of the industry with its capacity, capability and of course short turnaround times that have generated growth in the region of 45 percent over the last two years.

As one of the largest and most successful steel profiling companies in the UK, AJS Profiles has maintained its commitment to customer satisfaction by investing in the most productive and reliable plant. Over the last few years, this has seen the West Midlands company invest heavily in oxy-fuel and plasma cutting technology from Kerf Developments.

Until the first Kerf Machine acquisition in 2011, AJS Profiles had a 22,000 sq/ft facility with cutting machines from a variety of vendors that were all selected on their merits. However, reliability and the consequent lack of support from some machine suppliers led to the purchase of a Kerf RUR3500G multi-head oxy-fuel cutting machine. The productivity, training, ease of use through the Burny control unit and the support from Kerf, led to the installation of an RUR2500P high definition plasma machine just a month later. Over a three year period, the build quality and productivity levels of the Kerf range has been second to none. This addition of Kerf machines and new staff has underpinned the phenomenal growth levels that took the company from its long-serving 22,000 sq/ft facility into an additional 25,000 sq ft in May 2014. With new employees taking the staff numbers to 25 and an increased floor space, the subcontract supplier to the aerospace, nuclear, automotive, construction and rail industries has now embarked upon filling its remaining floor-space with more Kerf machines.

As AJS Profiles Ltd director, Neil Webb says: "Bringing in new staff and increasing the plant list and capacity levels have generated huge growth and a lot of this was initially consumed by the third Kerf machine we bought last April, a RUR3500P high definition plasma machine with a six by three metre bed. As the order book filled, we wanted a machine that could rapidly cut the most common steel thicknesses from 3 mm to 32 mm. The performance of the RUR3500P theoretically absorbed the workload of two alternate oxy-fuel machines and gave us the capacity to maintain our lead times despite a huge influx of work. With the business enjoying growth, 2014 SAW us purchase an additional three Kerf machines."

The glowing endorsement for the Kerf reliability and service was confirmed when AJS Profiles took delivery of a multi-head oxy-fuel cutting RUR3500G machine in October. In fact, the growth at AJS Profiles and its confidence in Kerf then noted the profiling specialist buy a second machine in October 2014 from the 2nd hand market, an RUM4000G multi-head oxy fuel machine. The final acquisition in November 2014 can only be described as a monster of a machine. The RUM3000G multi-head oxy-fuel machine has high powered cutting heads for efficiently cutting through steel profiles up to a staggering 500 mm thick. The plant list at AJS now stands at 10 cutting machines (six from Kerf) that is complemented by the UKs largest range of Lumsden Grinding Machines capable of processing diameters up to 3430 mm. Whilst the UK's largest range of Lumsden grinders is impressive, it's undoubtedly the new Kerf RUM3000G that heats the enthusiasm and shop floor at AJS. As Neil Webb explains: "The specification of the RUM3000G says it is capable of cutting up to 450 mm thick material and we have already cut steel profiles at 330 mm. It's so powerful, I wouldn't be surprised if it could cut plates over 600 mm thick! Having this capability takes us into new markets that are far beyond that of our competitors."

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Starrett saw blade technology gets mobile

The L.S. Starrett Company has recently launched a mobile version of its popular PowerCalc band saw selection tool, developed to help with the selection of the correct band saw blade for any specific metal cutting application, and also provide guidance on the correct blade size for a huge range of popular band saw machines. Free to download and use from the Starrett website, the original PowerCalc software is easy to install and runs on any windows-based computer device. Now, the free PowerCalc app has been developed to work on mobile device technology, including handsets running Apple, Android, Windows, and BlackBerry operating systems.

Starrett technical support team leader, Graham Munro, explains that whichever version of PowerCalc is used the data required by the software is straightforward and very user friendly. "It requires the composition of the material to be cut to determine the hardness. From a simple table the shape and size of the raw material to be cut is selected and the details

regarding any bundling are input, along with the band saw machine being used and if it is a cooled cut or not. This allows the software to determine the optimum blade type that should be used as well as the blade dimensions,"

As well as the Starrett band saw blade, the software will also display the recommended operating information relating to the number of break-in cuts, cooling recommendations, and cutting time and speeds under both break-in and normal conditions.

Graham Munro adds: "Starrett produces a wide range of bi-metal and carbide band saw blades that offer exceptional cutting performance and extended blade life. Choosing the right blade for the job and applying the correct blade speed and feed rate are really important factors and will directly influence the performance and life of the blade. The PowerCalc software, used on a desktop PC or mobile device, takes the stress and strain out of blade selection and application cutting data."

PowerCalc is available as a free download from the Apple App store for iPhone and iPad, Google Play for Android devices, Windows store and Blackberry world.

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JHP represents Bewo at Southern Manufacturing

Bewo Cutting Systems B.V, the Dutch developer and manufacturer of the strong manually operated circular saws (the Bewo CPO) and the high performance automated tube cutting lines, was represented by JHP Engineering Services at the Southern Manufacturing Exhibition in Farnborough. At the show Justin Paddick of JHP displayed a fully operational manually operated circular saw; the Bewo CPO-315 with pneumatic clamp.

JHP and Bewo have been collaborating for decades. Justin Paddick is Bewo's "qualified sales & service partner". UK based companies who are interested in new Bewo cutting lines and manually operated circular saws can contact JHP. JHP covers the whole of England, Wales and Northern Ireland and they provide specialised service engineers. The combination of the high quality service of JHP and the powerful brand of Bewo together with a large installed base is distinctive and is able to give the UK market what it deserves.

Bewo recently relocated their headquarters to a new and more spacious location in Waalwijk, The Netherlands. In moving Bewo anticipated a growing demand in the market for automation solutions. The new location is modern, offers representative training facilities and enough room for expansion. It's also more accessible logistically.

Operations manager Frans van Gorp says: "With the new location in Waalwijk we have found a good place for making our ambitions come true. We are ready for an innovative future!"

With the recovering economy, Bewo has seen a rise in demand for the further automation of production processes. The new premises in Waalwijk facilitates this increase in demand. Also Bewo's automatic cutting lines are becoming more extensive and now require a greater production surface. A complete Bewo cutting line usually consists of an automatic cutting machine, a deburring machine, a length control system, a cleaning machine and a stacking robot with discharge unit. In Waalwijk a showroom and education centre will be established where Bewo will present their intelligent cutting solutions and where agents and operators will be educated in the world of automated cutting.

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A finger on the pulse of controlled and fast welding

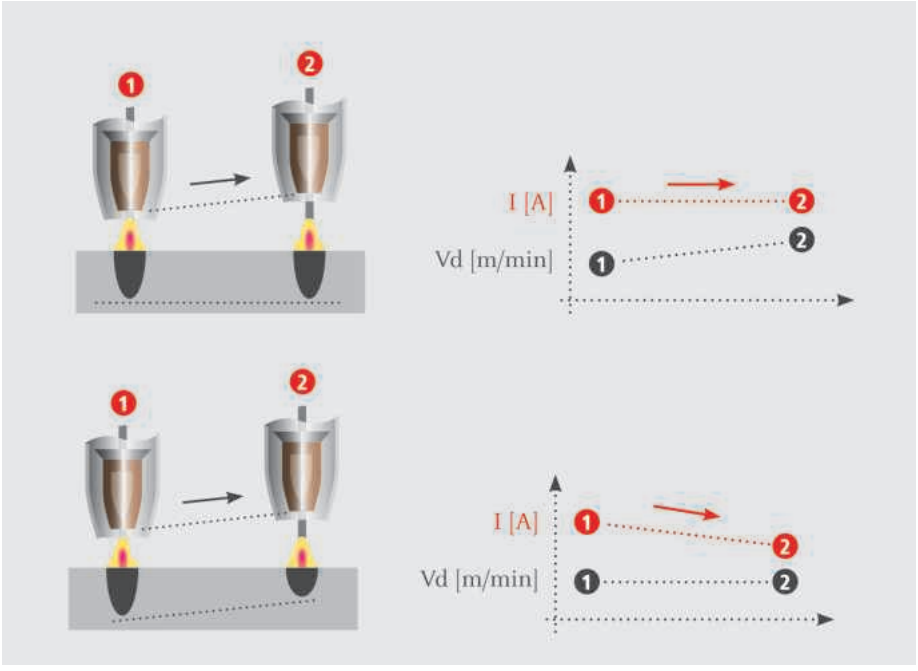
Fronius has refined its proven pulse welding process and enhanced its technical edge with regard to weld seam quality, deposition rate and heat input even further in comparison to the conventional arc process. Brand new functions such as the penetration and arc length stabiliser sit alongside improved functions to provide significantly more control over the pulsed arc. Not only does this mean that hardly any spatter arises during gas shielded arc welding of steel, aluminium and chrome-nickel, it also ensures consistently good penetration, results in less undercutting and offers the user quicker, more cost-effective welding than ever before.

The penetration stabiliser is one of the outstanding innovations on offer thanks to the new PMC (Pulse Multi Control) pulse arc characteristic from Fronius. It automatically keeps the penetration stable during stick out changes (changes of the free wire end protrusion)

On standard MIG/MAG devices without a penetration stabiliser, the welding current, and thereby the welding power, drops as the stick out increases (while the voltage remains the same). This results in any or all of the following; insufficient penetration, lack of fusion, undercutting and porosity. If the stick out is too small, the weld seam may drop through on thin sheets as the arc pressure is too high. Stick out fluctuations are often unavoidable in practice: the stick out varies depending on how precisely the welder guides the welding torch. Restricted view, poor accessibility, out-of-position welding or other difficult welding tasks often leave the welder with no choice other than to increase the stick out. Even in the case of robotic welding, deviations from the optimum path dimensions result in stick out fluctuations. Excessive welding heat that leads to distortion, moving outside the manufacturing tolerances are the culmination.

Easier handling for improved welding results

This is where the Fronius penetration stabiliser comes into its own. It automatically reacts to the changing stick out and regulates the wire feed speed accordingly. This function is optimally supported by a highly dynamic motor in the wirefeeder of the latest MIG/MAG device platform, the TPS/i. As a result, it is possible to maintain the arc length and therefore the penetration at the same level over a large area. The value of the maximum regulated wire feed speed can be set and limited by the user over a large range so that compliance with the requirements set out by the welding procedure specifications is ensured even when the stabiliser is activated.



Arc length stabiliser for quick, spatter-free welding

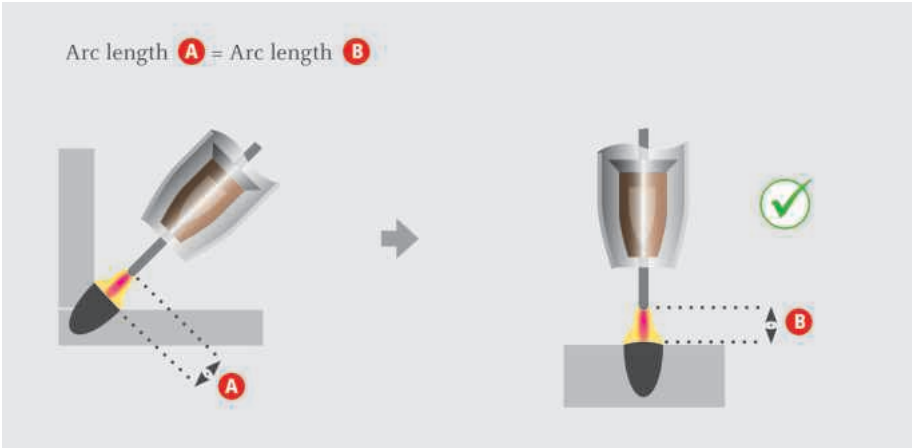
In addition to stick out fluctuations, weld pool temperature differences or geometrical changes to the arc, also due to external changes, can have a negative effect on the process stability during pulsed arc welding.

For example, colder weld pool temperatures or a change to the weld seam profile or welding speed lead to many undesired short circuits, which destabilise the process and create a lot of large spatter.

To prevent this, the arc length, welding voltage must be adjusted (increased in our example) until only controlled short circuits occur so that the droplets of filler material are once again directly and cleanly transferred to the weld pool. For this reason conventional MIG/MAG devices offer the welder an arc length correction function for directly adjusting the welding voltage. The problem with this approach, however, is that the welder has to manually readjust the parameters each time there is a change.

Manual readjustment of the arc length is unnecessary

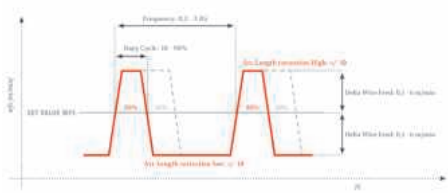
The arc length stabiliser developed by Fronius for the TPS/i takes care of this task for the welder. It automatically adjusts the arc length to the optimal setting. The new algorithm along with the high computing power and the large memory of the TPS/i ensures that short circuits always take place in a controlled manner and that the voltage is quickly adjusted so that spatter is effectively suppressed. As a result, the arc length stabiliser keeps the arc permanently short, thereby ensuring deep penetration



without undercutting. When the stabiliser is active, welding can be carried out at higher speeds, which is of particular benefit for robot-assisted applications.

Optimum droplet detachment without affecting the energy input

The stability of the pulsed arc and thereby the tendency to spatter can also be influenced via the droplet detachment. Functions such as pulse dynamic correction have been available for this purpose for many years. This allows the pulse energy to be increased or reduced to achieve optimum droplet detachment. The engineers at Fronius have also made progress here by taking further steps to optimise the current profile for the droplet detachment and by integrating additional parameters into the control, so that, unlike previous correction functions, the energy input remains constant.



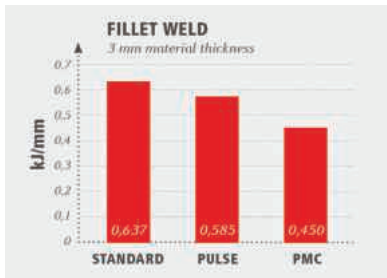
Intelligent start and stop

A good quality and visually immaculate join in the middle of the weld seam is no use if the weld seam is not equally as flawless at the start and end. MIG/MAG welding has proved to be particularly susceptible in this area.

On conventional welding systems, the electrode distance is set by targeted wire burning (burnback) at the end of welding. In doing so, a droplet forms on the wire end. It is not always possible to remove this with a final pulse, so this can result in spatter during the next ignition. Slag residue on the base of the ball also hampers ignition.

To counter this, Fronius has used the high dynamic and reaction speed of the TPS/i wirefeeder motor to carefully retract the wire from the weld pool at the end of welding. The welding system also ensures that the current is interrupted at the right moment so that no undesired droplet or slag residue can form on the wire end.

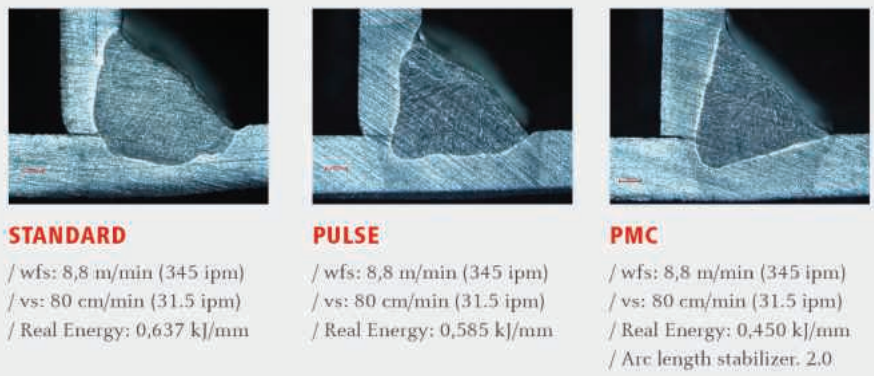
When the next arc is initiated, the power source also determines the current temperature of the wire from the length of the last welding pause and reduces the ignition energy accordingly if the wire is still hot. This is excellent news for wearing parts.



High quality right from the start

Fusion defects occur, especially on thicker aluminium sheets, at the start of welding due to the high thermal conductivity of the material. This is especially true when low-spatter SFI (Spatter Free Ignition) is used, as its heat input is low in comparison. Rather than lose the benefits of SFI, this can be worked around in practice with the aid of start-up sheets or by pre-heating. However, for many workpieces, there is no space for this or the preparation time is excessive. This is one of the main reasons why Fronius has refined the SFI function and introduced the HotStart parameter. It allows the welder to insert a parameter of up to two seconds in the start process, in which the welding power is increased. This ensures that sufficient material is melted in the start-up phase.

Typical TIG weld seam flaking



A function that Fronius calls SynchroPulse which automatically swings back and forth between a high and a low power level has even proven its worth, particularly in efficient aluminium welding. The frequency with which it switches can be selected. While the root pass is reliably formed during the high current phase, the process is stabilised during the low current phase and the base material cools down. This makes it possible to achieve flaking (weave pattern) in the weld seam typical of TIG welding in a particularly cost-effective manner and without any weaving.

Thanks to the new functions and improvements, Fronius has ultimately taken the proven pulsed arc to a whole new level with the PMC package. The user can also utilise additional options for process control and optimisation. The stabilisers reduce the manual interventions or readjustments required so that even less experienced manual welders can also carry out demanding welding tasks. The package therefore offers clear advantages in the form of improved weld properties and easier handling.

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Towable compressors are compact, powerful and energy efficient

Providing a dependable, efficient and environmentally-friendly source of quality compressed air in a compact, towable unit are the important benefits of two new portable compressors introduced by HPC KAESER. Compact and simple to operate, the M114 and M115 portable compressors are both powered by 85 kW engines and deliver similar free air deliveries up to 9.7 m³/min (342 cfm) at 10 bar.

Both compressors meet the requirements of the Stage IIIB emissions as standard and feature the recently developed SIGMA Control Smart controller which provides users with valuable operational data including maintenance due alerts. The M114 is powered by an efficient Deutz engine equipped with an oxidation catalytic converter, whilst the M115 features a new generation Kubota engine and a diesel particulate filter.

The M114 is available in 10, 12 and 14 bar versions and can be equipped with various compressed air treatment options to suit a range of applications. For example, a compressed air after-cooler and centrifugal separator along with filters, and / or plate heat exchangers for reheated or dried compressed air.

With a new chassis design and further optimised compressed air treatment features, the M115 is available in 7, 8.6, 10, 12 and 14 bar versions.

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Fortress and Troax partner up for Perimeter Guarding

Fortress Interlocks and Troax have combined forces to create a new perimeter guarding system to protect workers from dangerous machinery. The system utilises a unique new bracket for fitting Fortress interlocks to Troax perimeter guarding panels, enabling the safeguarding of virtually any machinery installation.

Very easy to install for both end users and OEMs, the brackets are 100 percent compatible with Fortress' modular amGardpro and tGard ranges of modular interlocks and Troax's modular mesh panels. This means that whatever configuration of interlocks or mesh panels is specified first, the brackets will always fit. Both the amGardpro and tGard interlocks combine solenoid or non-solenoid safety switches with full control functionality in one device, allowing their use across a vast array of industrial applications.

Not only is the new perimeter guarding system easy to install, it is also impact resistant to 1600 joule, making it highly robust.

"This alliance between Fortress and Troax offers a simple, modular and very tough machine guarding option for virtually any application," says Fortress' managing director Rob Lewis. "We're delighted to have partnered up with Troax in this way and believe it offers a great alternative to existing guarding systems."

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Elcometer publishes new catalogue

Elcometer Ltd has announced the release of their 2015 inspection equipment catalogue.

The new 328 page catalogue has been formatted into five distinct sections; software, coatings inspection, appearance, physical test (laboratory equipment), concrete inspection and metal detection; allowing users to easily search for products most relevant to their inspection requirements.

The new 2015 version has 22 product group sections comprising of new photographs, helpful inspection tips, updated national and international standards and comprehensive product group introductions.

Available either as a free printed copy or as a digital download via the Elcometer website, the new catalogue is available in seven languages.

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New Araldite industrial adhesives website

Huntsman Advanced Materials has released a new website which provides the definitive guide to its range of Araldite® Industrial adhesives.

Conceptually, the site has a significant degree of harmonisation with the company's corporate website, featuring a clarity of layout and design that reflects the reputation of the business for innovation and high performance.

Information is helpfully categorised within the menu structure by both industry sector and technology, providing clear pathways to the data that design engineers and production executives will need. Visitors to the site will also be able to reference case studies and applications that are familiar to them within their own market.

The website is a major resource for technical data.

Huntsman Advanced Materials (Switzerland) GmbH
Email: patricia_albisser@huntsman.com

ESAB introduces new three-year parts & labour warranty as standard

ESAB, a world leader in welding and cutting technologies, introduces a new three-year parts and labour warranty as standard for ESAB manual welding power sources, manual plasma cutting machines and wire feed units sold throughout Europe. ESAB's new warranty makes great products even better, providing buyers with additional reassurance that ESAB's industry-leading products will meet their expectations.

ESAB's three-year warranty covers both parts and labour. ESAB warrants that it will repair or replace free of charge any parts or components that fail due to defects in materials or workmanship under normal use through three years of ownership. Certain warranty exclusions apply.

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