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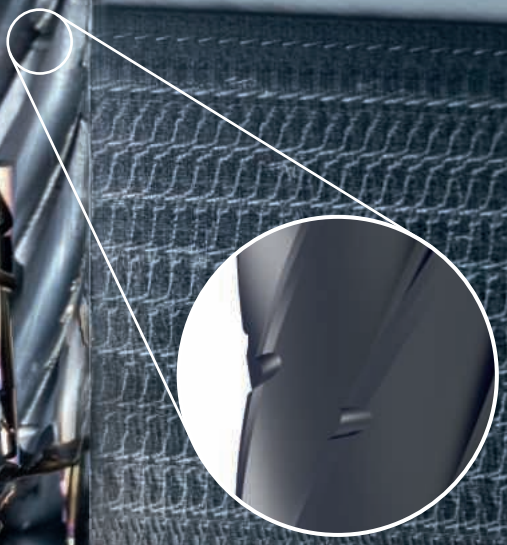
The next Evolution in Trochoidal Milling

CircularLine end mills
with integrated Chipbreaker
for shorter machining times
and extended tool life



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XYZ VMC

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The carcuss of the XYZ 1020 VMC shows the solid build construction of the XYZ VMC range.

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XYZ Vertical Machining Centres and Turning Centres

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MACHINE TOOL DEMOS ARE AVAILABLE AT ANY OF THE XYZ UK SH

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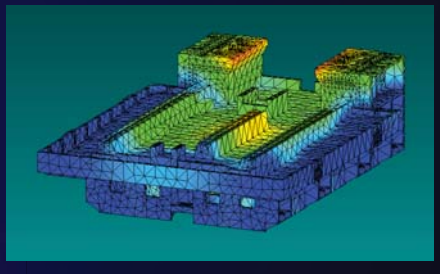
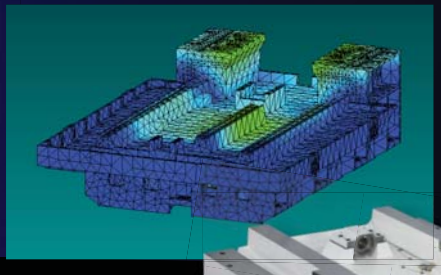
Finite Element Analysis on all VMC castings.



Areas of stress and weakness are identified and shown in yellow and red.



Finite Element Analysis of the final castings show areas of stress and weakness now eliminated.

The final VMC casting.

The final solid Meehanite ribbed casting gives superb vibration absorption and rigidity that you know you will be able to rely upon, well into the future.

Box ways or linear slides, that is the question

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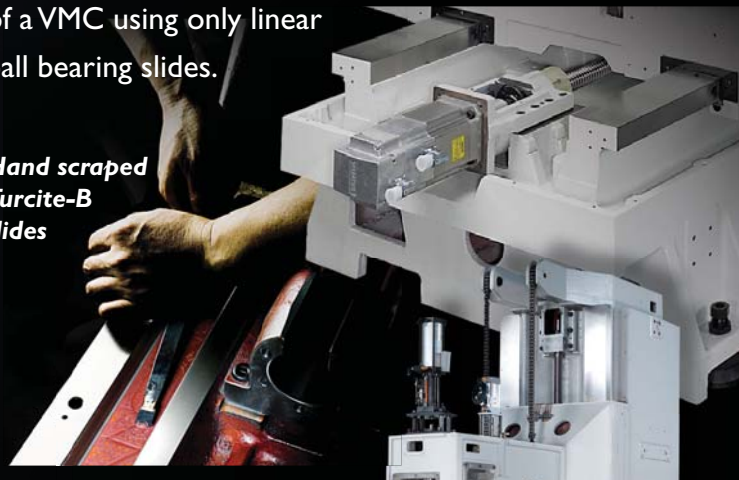
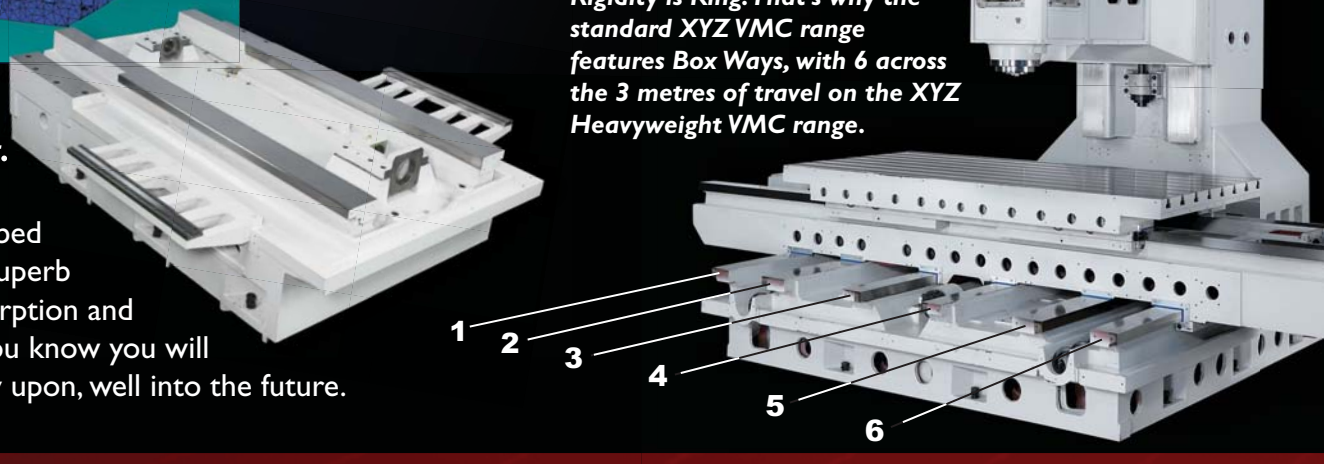


Hand scraped Turcite-B slides



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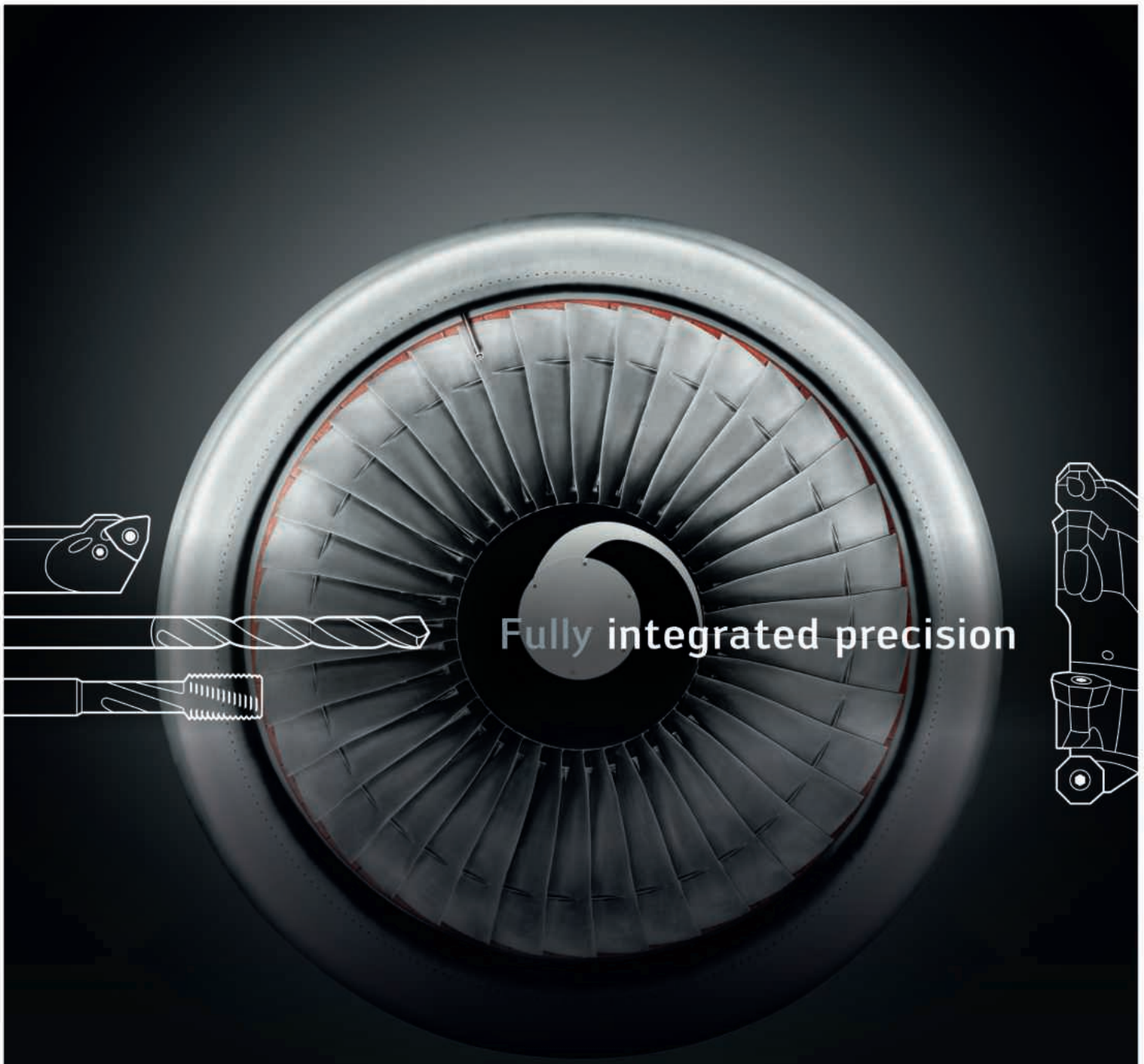

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The evolution in trochoidal milling

New CircularLine CCR end mills from WNT increase efficiency with intelligent machining strategies and process optimisation to deliver shorter machining times and an extended tool life. These strategies include trochoidal milling, where the new CircularLine CCR end mills from WNT excel in producing components even faster.

WNT's CircularLine CCR end mills are the first choice for optimum results with trochoidal milling enhanced by the use of WNT's Dragonskin coating, that helps create a robust and wear-resistant tool able to withstand large temperature fluctuations. The end mills also boast a special chip breaker that is ground into the cutting edge geometry that helps to generate swarf only 2xD creating optimum chip removal, even for problematic materials. Two versions of the WNT end mills are available: one for universal applications and another specifically for the machining of aluminium. The six flutes of the CCR-UNI ensure smooth operation and a high material removal rate, while the four

flutes of the CCR-AL ensure a high depth of cut. They are available in 3xD (steel) and up to 4xD (aluminium) cutting lengths, All can reach cutting depths that correspond to their cutting lengths.

With experience proving that it is possible to use significantly higher cutting data when trochoidal milling with CCR end mills compared to conventional machining processes, machining times can be greatly reduced. Even applications that were previously considered to be very difficult can be dramatically improved. For example, problems were always encountered with chip evacuation when cutting materials such as stainless steel 1.4404 (Duplex-VA). With WNT's CCR end mill this material can now be cut dry, minimising the thermal shock effect. As a result, a considerably longer tool life is achieved in comparison to wet machining. In one application the conventional machining time for the workpiece was reduced from 12 minutes to 5 ½ minutes and, the general service life was tripled. These figures clearly show what combining the optimum tool with the right machining strategy can achieve.

A visual representation of the gains that can be made using CircularLine CCR end mills and the trochoidal machining process can be seen in this video: **https://www.youtube.com/watch?v=uEx_5d18ss0**

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Anticipation builds for UK leading engineering trade show

ADVANCED ENGINEERING2016
2 & 3 November, NEC, Birmingham

Advanced Engineering, the UK's popular meeting place for engineering professionals, returns to Birmingham's NEC on 2nd and 3rd November 2016. The show, which has become the hub for the high performance engineering sector, brings together engineering professionals and decision makers to source new ideas, technologies and suppliers, all under one roof.

Katie Crocombe, Advanced Engineering event director, comments: "We are extremely excited about this year's show. It is fast approaching and we have so many fantastic features, exhibitors and speakers on board. The show presents attendees with the perfect platform to develop a deeper industry understanding from leading names and peers. As the largest UK event of its kind, it is more important than ever that we encourage the cross-pollination of skills and experience, across all of the industries at the show. Each and every one of us can learn so much from each other and this will only help to propel the industry into unchartered and exciting times."

Featuring four 'shows within a show', Advanced Engineering will span key industry sectors, including aerospace, automotive, motorsport, marine and civil engineering.

Composites Engineering Show

The total global composites market is estimated to be worth £80 billion and, in the UK alone, the market for affordable composites for just the automotive industry is predicted to grow to over £3 billion by 2030, demonstrating the magnitude of this sector. So for those interested in the ever-changing world of advanced materials, the Composites Engineering Show will highlight the latest breakthroughs in composite materials, the most up-to-date equipment used to produce the composites and the research and development that takes place at every level of the industry.

The UK's largest dedicated composite materials, design and processing event will host an array of exhibitors, many of whom will be using the show to present their latest technologies to the UK market, including Composites UK, PREA Ltd, Swift Composites Ltd, NetComposites, Irish Centre for Composites Research (IComp), epm Technology, Scott Bader and Gazechim Composites UK.

Performance Metals Engineering

The performance metals industry is worth £2.6 billion a year to the UK economy, so it is no wonder that the Performance Metals Engineering Show is one of the fastest-growing areas of Advanced Engineering UK. The show provides the latest information and trends for those involved in casting, extrusion, stamping and forging processes. Plus, it also caters for the areas of powder metallurgy, friction drilling, sheet forming processes, metal surface engineering and many more.

Sessions that will take place at its dedicated conference include: 'Simulation and virtual design for manufacturing technology of high performance metal parts' by Dr Nikolay Biba, technical manager at MICAS Simulations Ltd. For more information, follow the link: **http://www.easyfairs.com/fileadmin/groups/8/Advanced_Engineering/Advanced_Engineering_2016/AE_2015_presentations/Weds__Forum_4_-_Dave_MacLellan_-_Past_Present_Future_Lasers_AILU_at_Advanced_Eng_2015.pdf**

Dave MacLellan, executive secretary at the Association of Industrial Laser Users, will then explore 'Better by laser: Saving weight, money and time with lasers in manufacturing'.

Ian Oliver, marketing and communications manager and Jan Lukaszewski, technical manager at ALFED will be discussing 'Engineering with Aluminium'. Adrian Goodbrand, product sales manager at Vacuum Furnace Engineering will give an 'Introduction to Spark Plasma/ Direct Current Sintering for Commercial Applications', while Bob Aalund, business development manager at Thermal Technology will present 'Direct Current Sintering for Commercial Applications.'

Automotive Engineering Show

With 2.6 million new cars registered in 2015 and this number expected to rise in 2016, it is no wonder there is a need for an event like the Automotive Engineering Show. It brings together the best and brightest from the UK's auto community, offering numerous opportunities to do business and find the very latest technologies from leading automotive suppliers. Visitors will be able to see sessions from the likes of Jaguar Land Rover and Magna International, plus have access to big name exhibitors such as SMMT, High Value Manufacturing Catapult (HVM), North East Automotive Alliance, MIA (Motorsport Industry Association) and National Instruments.

Aero Engineering Show

The UK aerospace industry employs nearly 130,000 people and has grown by 39 percent since 2010, boasting a turnover of £31 billion. It has also been tasked to deliver new technologies to ensure that the next generation of civil aircraft is cleaner, quieter and more efficient than ever. With this in mind, the Aero Engineering Show will feature a plethora of key industry suppliers and research institutes, many of whom are committed to finding new developments and innovations within the aerospace industry, including aero structures, power plants, R&D, materials and production.

Open Conference

Advanced Engineering will host the most comprehensive Open Conference programme of its kind, offering visitors access to six conference forums, which include Automotive Engineering, Aerospace Engineering, Composites Engineering, Advanced Materials Engineering, Performance Metals Engineering and Enabling Innovation. These sessions will provide those in attendance with access to the latest information, from industry trends and supply chain opportunities to technical talks, case studies and innovation.

Throughout the two-day conference there will be a number of insightful and educational sessions from leading industry experts. Sessions confirmed so far include the likes of Jaguar Land Rover, Innovate UK, Magna International, SMMT, BOC, KTN, National Instruments, Women's Engineering Society, ALFED, Ricardo, ADS, NATEP and MIA.

The conference will also include on-floor feature displays of some of the world's leading engineering projects, giving visitors unique access to the latest industry innovations. The 2016 show features will include a showcase of the winner's projects from the Sapa-sponsored Young Designers Competition. The competition encouraged UK university students to work with aluminium to exploit its design capabilities and all the possibilities that the material allows.

Improving the world through engineering, the IMechE, one of the fastest-growing engineering institutions in the world, is on board as an official show supporter and will be running its two co-located conferences: Aviation Aerodynamics 2016 and Brakes 2016.

The Aviation Aerodynamics conference, taking place on Wednesday 2nd November, will give visitors a unique opportunity to explore the latest developments and network with specialists in aircraft manufacturing, testing and design. A series of key topics will be addressed by leading experts in the field including Airbus, The European Space Agency, Reaction Engines, QinetiQ and Rolls-Royce.

As the automotive industry continues to introduce both new hybrid and electrical components, key challenges arise with integrating braking systems and new technologies. On Thursday 3rd November, the Brakes 2016 conference will present those in attendance with the opportunity to learn from leading vehicle OEMs and senior level experts about key engineering solutions for the integration of new technologies and braking systems of the future. As well as participating in roundtable discussions with industry peers, attendees will be able to hear from industry experts such as McLaren Automotive, Honda, Bentley, Jaguar Land Rover and Volvo Truck.

Exhibitors

More than just a conference, the UK's largest annual engineering trade show brings together OEMs and tier 1 manufacturers to meet and do business with all levels of the engineering supply chain.

Visitors will have access to leading international suppliers who will showcase their latest products and innovations to the UK market. With over 700 companies anticipated to exhibit, it is set to have its largest exhibitor base yet. This includes Aluminium Shapes, Telsonic UK, Metalysis, Datapaq Ltd, ELESA UK and Material Processing Institute.

Show support

The show has piqued the interest of more than 80 industry bodies, associations and organisations, many of whom will be hosting content-rich conference programmes and seminar sessions. Numerous supporters will also be exhibiting at the show, providing fantastic networking and business opportunities for all those in attendance. These include The Institute of Mechanical Engineers, The Aluminium Federation, The European Powder Metallurgy Association, The Engineering Integrity Society and GTMA.

Katie Crocombe continues: "We are thrilled to have so many respected industry bodies on board this year. The support we have received really does span a number of sectors and it just reaffirms our market leading position."

New for 2016, The Manufacturer will run its Smart Factory Expo in partnership with Advanced Engineering, as part of a series of events to examine Britain's response to Industry 4.0. The Manufacturer Live events include the two-day exhibition, The Manufacturer Top 100, The Manufacturer Annual Leaders Conference and The Manufacturer MX Awards.

Rail Alliance, the rail sector's largest dedicated B2B networking organisation, will also be on board as an official show supporter. As part of the deal, Rail Alliance will host its own 'Rail Technology Hub' and run two dedicated seminars on the subject of composites in rail.

Advanced Engineering will also run alongside Lab Innovations, the UK's only event dedicated to laboratory professionals. Visitors will have the opportunity to access both shows with one badge.

For further information about Advanced Engineering 2016, visit: **www.advancedengineeringuk.com** or contact one of the Easyfairs team on 0208 843 8800.

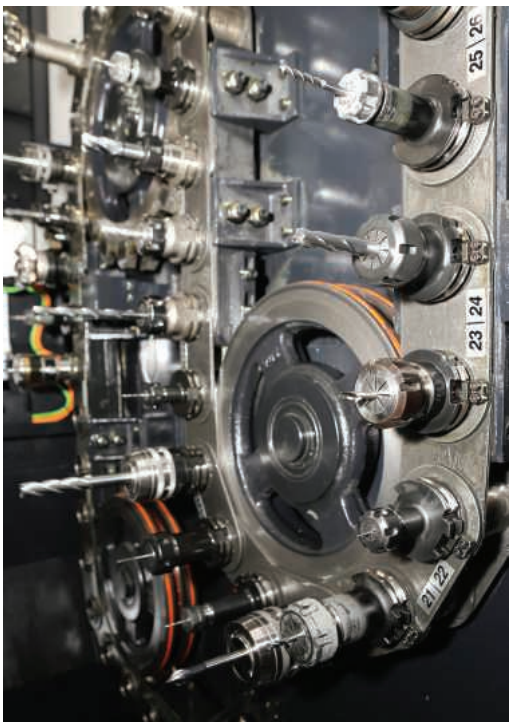
Altec invests for the future

The continued growth and diversity of the Altec Engineering Group has seen the demand for 5-axis CNC capacity at its Durham Facility beginning to overtake that of its traditional 3- and 4-axis machining centres, shifting the balance more towards multi-axis technology within the business

Altec has recently invested heavily in new multi-axis machine tool technology for its Durham facility. The first 5-axis machine to arrive was a MAZAK VCT800/30SR 5-axis machining centre. A moving gantry style machine with rotational B-axis and an impressive work envelope of 3,000 mm x 800 mm x 720 mm, this machine has proven to be a valuable asset to the business being used to fulfil a number of contracts for both aerospace and defence related components. The extended tool magazine, wireless Renishaw probe measurement, 70 bar coolant to cover gun drilling applications and a centre partition allows different components to be machined simultaneously.

Altec's group business development director Paul Lackenby sees the balance shifting towards multi-axis technology within the business

Installed just three months ago, Altec's latest MAZAK VARIAXIS i-700 features the new Smooth X control system This trunnion style simultaneous 5-axis machining centre has improved surface speed interpolation, seamless corner control to limit vibration and intelligent pocket milling allowing accurate processing of parts with complex profiled surfaces in a single setup. The machine's two-pallet changer provides unattended operations and lights out running plus the benefit of off-cycle changeover/fixturing setup. This simple, efficient form of automation allows operators to load, unload and inspect parts on one pallet while the machine works on the other maintaining the highest levels of productivity at all times.



The features on Altec's 5-axis machines include extended tool magazines to maximise productivity levels

Altec's venture into 5-axis machining continues with the announcement, following the Farnborough Air Show, that it has placed a repeat order for another Mazak VTC800/30SR. The specification for this latest machine is in line with Altec's other 5-axis systems, which manufacture a comprehensive range of components in aluminium and titanium. Due for delivery at the end of September 2016 with installation during October, the machine will be operational and ready for production in November, giving Altec's production planners welcome relief to the company's expanding order book.

Altec Engineering group business development director Paul Lackenby comments: "The multi-axis capability we have developed at our Durham facility is impressive and ranges in size from large bed machines to multi-pallet systems with in process probing. Our large bed machines incorporate high-pressure coolant for high speed machining and this feature also allows us to bring certain deep hole features in-house, making Altec a very viable and competitive machining partner in the market place. We are committed to expanding our capabilities in multi-axis machining as the recent order to Yamazaki Mazak UK demonstrates."

Originally founded in 1978, Altec Engineering's Durham facility, now the headquarters for the Altec Engineering Group, has over the years built up a reputation for excellence, supplying low to medium volume, medium to high complexity components into sectors such as defence, aerospace, space science, nuclear and renewables, oil & gas.

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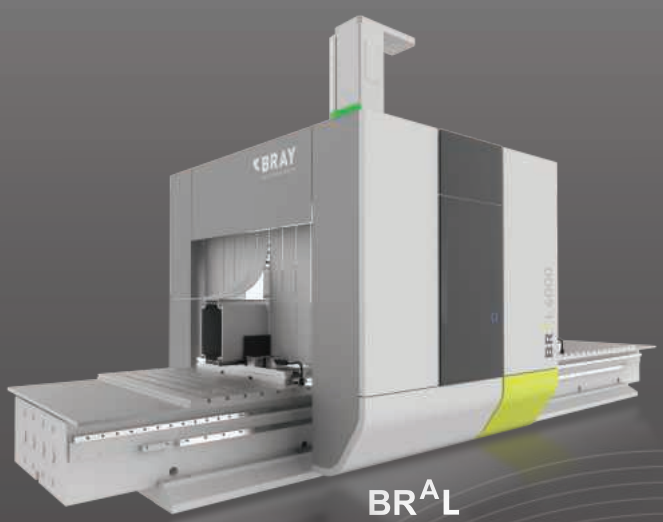

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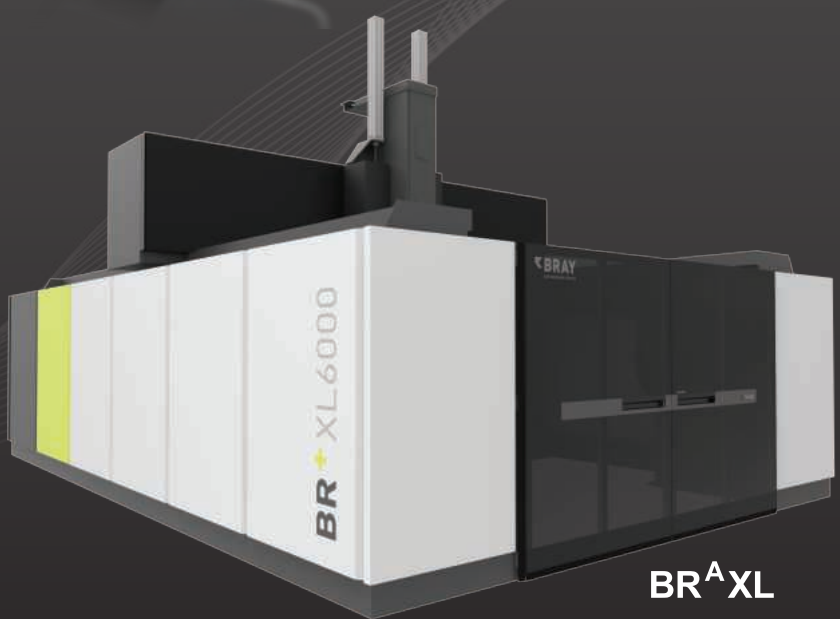

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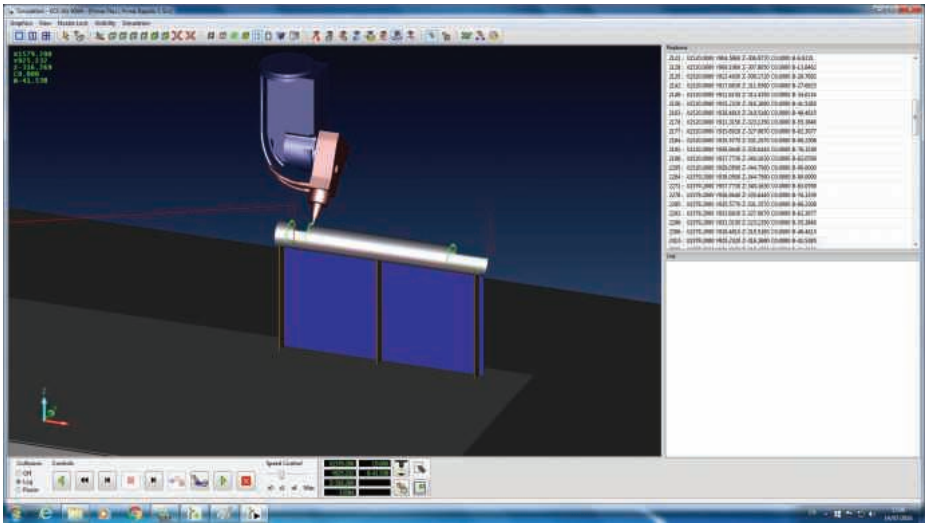
Radan provides "a springboard" for Irish subcontractor

The only sheetmetal subcontractor in the Irish Republic to offer 5-axis laser cutting is using Radan's specialist Radm-ax module as a springboard to becoming more design-focused.

ELC Laser Group was the first company to introduce laser cutting into the Irish market in 1989, and operations manager David Power says, as industry leaders they continue to develop the latest technology, providing customers with what he calls the "definitive choice in laser cutting solutions."

They offer quality assured design, cut and fabrication solutions for projects across a range of industries, including agricultural, aerospace, pharmaceutical, shop and hotel-fitting, automotive, materials handling and automation.



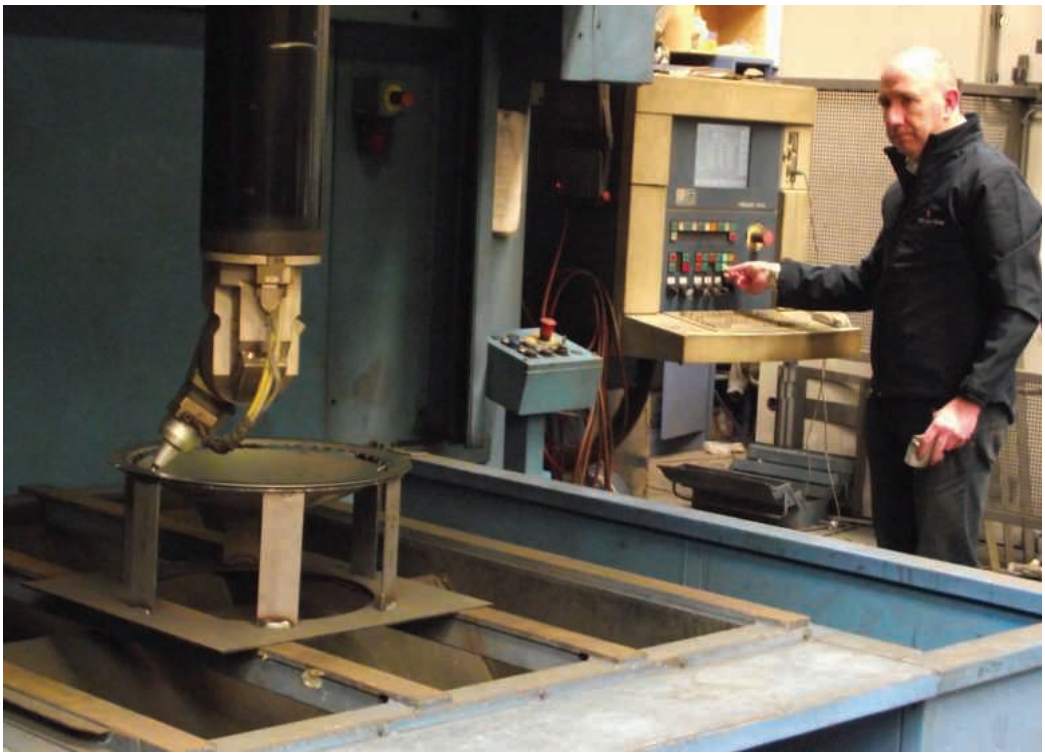
Having used Radan to program its two flatbed laser cutters, a BLS 4000 and Prima Domino, for 13 years, it was the natural choice for the company when they were looking to upgrade how they control the 5-axis Prima Rapido 2 KW laser. David Power says: "The machine has a 3-metre by 1,500 bed, with a 600 mm Z axis, which gives us tremendous flexibility in cutting 10 mm mild steel and 6 mm stainless steel."

The company, based at Waterford in the South-Eastern province of Munster, brought 5-axis laser technology to Ireland when a customer developed a need for products manufactured with it. Until recently they used another CADCAM software to drive it, but found its requirements had outgrown the system. David Power continues: "We've had excellent success with Radan programming the flatbed lasers, and discovered that its specialist 5-axis module, Radm-ax is ideal for what we need both now, and to help us develop.

"We can cut and trim complex pressed and formed 3D components, along with box and tubular sections, with total precision."

ELC's 5-axis laser system ensures total control of the cutting head, enabling chamfers to be cut on the edge of the material, or maintaining 90 degrees to the cutting surface throughout the operation.

With a long-standing, sound reputation for being a successful cutting company, ELC Laser Group are now looking to develop a more design-focused role and become a full design and fabrication one-stop shop. David Power explains: "This will enable us to attract new customers, and Radm-ax means we can take in the 3D model and lay it out on the computer simulation of the Prima bed, orientate it, apply toolpaths, then go round it setting the features we want."



Prototyping is going to play a big role in the company's plans, and all its Radan modules, the Radraft 2D CAD system, Radan 3D, Radnest and Radprofile, along with Radm-ax, means it will be able to add value in terms of how they create parts.

David Power says: "Customers can come to us with a concept and we'll design it from scratch, or they can provide a design and we'll value-engineer it. Where the parts are formed we take them directly on to the 5-axis machine, and thanks to Radm-ax we can now pre-fabricate some components and put the cutting operation on after we've fabricated them."

As well as a range of steels,

stainless steel and nickel alloy, ELC works with titanium and aluminium, along with plastics such as acrylic and High Density Polyethylene, and MDF.

Its use of Radm-ax is growing all the time, as more customers ask them to produce components on the 5-axis laser, and they are looking to extend services to the UK's aerospace and automotive industries. The software not only minimises programming time, but the cutpaths are more efficient, saving further time during cutting on the machine. And combining that with the comprehensive simulation and proofing tools, streamlines ELC's day-to-day production while reducing costly errors and eradicating the need for dry runs.

The toolpaths are accurately simulated on screen, showing the angle of the nozzle as it moves around the part, providing instant feedback on whether or not a specific move is possible. If any collisions are detected they are highlighted both on the model and via on-screen messages.

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Agile machining centres for 5-axis machining of light materials

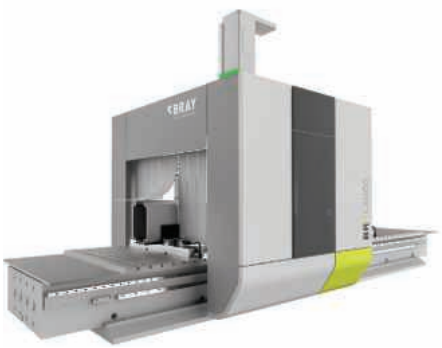
With their low-mass moving elements, rigid construction and wide range of spindle speed and power options, Sahos 5-axis machining centres from the Czech Republic are ideal for producing components from light materials. Aluminium, model board, plastics including varieties reinforced with carbon fibre and glass fibre, and composites such as bonded honeycomb and multi-layer structures can all be machined accurately and with a high degree of efficiency.

At Advanced Engineering 2016, this product programme will be the main theme on the stand of the manufacturer's sole agent in the UK and Ireland, Asquith Butler, along with the message that the entire machine range is currently being rebranded under the name Blue Ray.

Paul Hinchliffe, managing director of Asquith Butler says: "Machines in the Sahos/Blue Ray portfolio offer production solutions in many sectors, notably aerospace, motorsport and automotive, while larger models in the range are frequently used to manufacture parts in transportation, boatbuilding and even theatre and film set construction.

"The whole point of these machines is efficient milling and drilling of light materials at elevated speeds to close tolerances. Repeated light cuts taken at high feed rates replace deeper, slower cuts on traditional metal cutting machining centres.

"The benefits are that a heavy, expensive machine structure is not needed, spindle load is lighter and surface finish on components is better, as the highly dynamic motions and low chip load mean that there is less susceptibility to chatter."



BRaL 5-axis machining centre

Launched in 2015 at EMO, Sahos / Blue Ray's BRaL series of gantry-type, compact, 5-axis machining centres will be introduced to the UK at Advanced Engineering 2016. Designed with a generous X-axis for producing large components from aluminium profiles up to 30 metres long, it is especially well suited to processing parts in the rail, commercial vehicle and building industries.

Modular construction makes it possible for a customer to specify a machine that exactly suits specific requirements, assisted by the availability of a wealth of accessories. Moreover, the machine can be adapted quickly to suit the manufacture of a different range of components.

Fourth and fifth CNC axes (A and C) are incorporated into the liquid-cooled, high precision swivel head carrying the spindle. The head is equipped as standard with pneumatic Heidenhain iTNC530 HSCI or Siemens Sinumerik 840D SL

BRaM machining centre

Another highlight of the Asquith Butler stand will be the smaller, high speed BRaM 5-axis, gantry-type machining centre, which was also launched last year. The fully enclosed machine has rapid axis movements, with linear acceleration at 5 m/s^2 up to 80 m/min in X, Y and Z, with the theoretical possibility of raising the speed to 120 m/min. Different sizes of machine can be specified, based on an X-axis of either 3,000 or 4,000 mm, a Y-axis of 1,500 or 2,200 mm and a choice of 800, 1,200 and 1,600 mm in Z.

Paul Hinchliffe continues: "We have had a lot of success selling Sahos/Blue Ray machines in the UK over the past couple of years, since we were appointed the sole agent.

"There are now 20 machines operating across the UK in diverse industries, including pattern and mould making and F1 modelling, as well as in the aerospace and automotive supply chains.

"What is especially pleasing is that some customers have come back to buy a second and third Sahos/Blue Ray machine, which is a testament to their high quality.

"Our engineers have been factory-trained in the Czech Republic to service the machines and to provide customers with top-level applications and technical support."

He adds that there is considerable synergy between Sahos / Blue Ray and Asquith Butler, which manufactures a range of large-capacity, travelling-gantry, vertical machining centres and mill-turn centres at its factory in Brighouse, West Yorkshire.

One potential area of collaboration is the ability of Asquith Butler's engineers to retrofit a rotary table to a Sahos / Blue Ray machining centre. Another is the British manufacturer's expertise in carrying out complete mechanical and control system retrofits as well as machine relocations, with eight major projects currently in progress.

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A new slant on 5-axis machining

OKK celebrates centenary with the launch HM-X8000, 5-axis tilting-head

A 5-axis, tilting-spindle (A-axis) horizontal machining centre with a 45 kW drive, giving access to components that fit within a 1,200 mm diameter table and up to 1,250 mm in height, has been added to the high productivity range of machines in the portfolio of Hinckley-based 2D CNC Machinery.

This year OKK is celebrating 100 years of machine tool operations and has linked the launch of the HM-X8000 tilting-head, 5-axis machining centre to this anniversary, dedicated to high productivity, high precision cycles through a rigid 30 tonne structure. The -110 deg. to +40 deg. A-axis spindle head is able to tilt between horizontal and vertical positions creating increased levels of flexibility. It also enables high precision operations to be carried out, due to its advantage of greater stability compared when moving elements support the workpiece such as rotational and tilting movements of the more common trunnion unit.

The HM-X8000 has an 800 mm by 800 mm table (B-axis), with 360 deg. rotation and will accommodate parts weighing up to two tonnes and 1,200 mm diameter by 1,250 mm high. This unit is serviced by axis travels of 1,300 mm in X, 1,100 mm in Y and 1,550 mm in Z with rapid traverse rates of 48 m/min.

The 45 kW, 50 taper 12,000 revs/min spindle will accept tools up to 25 kg, 115 mm dia by 400 mm long or up to 270 mm dia with adjoining pockets left empty. Tool-to-tool time is fast at 2.8 secs and up to 60 tools can be held in the magazine.

Ergonomic access to the machining area is excellent with a 1.5 m opening door width. Also, due to the tilting spindle structure, excellent visibility is given to the cutting zone.

Established in 2009, 2D CNC Machinery Ltd is the sole UK distributor for Toyoda, Mitsui Seiki, CNC Machine Tools, REIDEN, WELE, FERMAT and Pal-TEC. Covering the

full spectrum of manufacturing needs, the product range comprises horizontal and vertical machining centres, including 5-axis, grinding machines and automation solutions, at the highest technical level.

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High-speed cutting for all

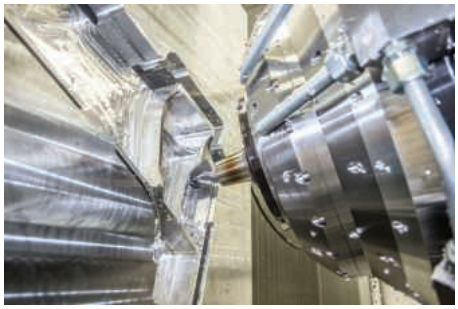
Starrag developments open up high-speed cutting to companies of any size

Starrag has expanded its range of 5-axis horizontal machining centres targeted at aluminium cutting, with a host of developments to satisfy all machining needs in companies of every size. Starrag has announced an uprated 83 kW range, added a 30,000 revs/min model and launched 150 kW spindle variants for larger workpieces.

These developments not only present a range of smaller yet competitively-priced and high-speed (rapid traverse rates of 65 m/min) 5-axis machines to subcontract machinists, but they also further enhance Starrag's impressive array of aluminium cutting machines for OEMs and Tier One and Two suppliers.

Available from Starrag UK, the portfolio now also includes 150 kW variants for the Scharmann Ecospeed and Ecospeed F models (complementing 120 kW units), that are capable of handling components from three to 20 metres long, while the new Starrag STC 800X features a 120 kW spindle and the three-machine Heckert HEC X5 range has been uprated with 83 kW spindles.

Indeed, the new 150 kW spindles have the potential to reduce machining times by a further 15-20 percent on typical aerospace structural parts, with the STC 800X capable



The new 150 kW spindle version on the Scharmann Ecospeed F

of removing aluminium at the rate of up to 10 litres a minute.

Metal removal rate is not the only aspect that sets the STC 800X apart. With an A-axis range of -110 deg/+60 deg, the machine can complete a range of complex machining features in a single setup, without the use of an angle head.

In addition, up to 465 tools can be held in the automatic toolchanger and tombstone fixturing permits multi-parts machining. The machine can easily be integrated into a FMS.

Accommodating pallets of 800 mm by 1,000 mm and workloads of 2,000 kgs, the STC 800X has a maximum workpiece swing diameter of 1,400 mm and feed rates of 60 m/min in the X, Y and Z axes.

Featuring NC-controlled rotary table, the trio of HEC 500 X5, HEC 630 X5 and HEC 800 X5 5-axis machining centres have X, Y and Z axis travels that extend from 1,000 mm by 800 mm by 1,000 mm to 1,450 mm by 1,100 mm by 1,000 mm and are capable of accommodating loads of 1,200 kgs.

In all cases, the 83 kW main spindle motor produces speed ranges up to 15,000 revs/min and torque up to 1,500 Nm, plus rapid traverse rates of 65 m/min.

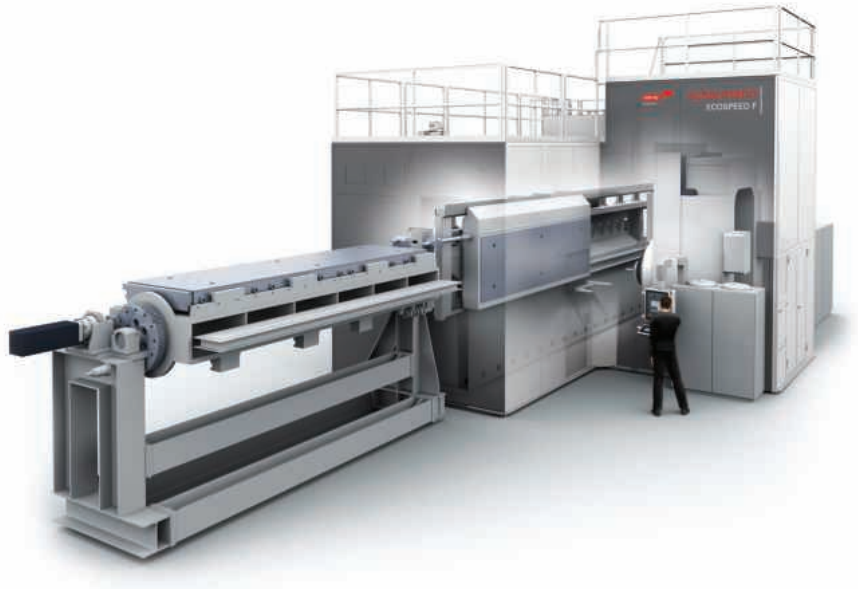
This reinforces Starrag's customer-focused policy of 'Engineering precisely what you value' by, for example, reducing production times and unit costs by offering complete machining in a single setup, through the ability to also utilise a wide range of adjustable angle and milling heads, as well as boring bars. High process

A view of the uprated 83 kW spindle on the HEC 500 X5

reliability is due to machine build principles based on, for instance, temperature control/compensation and thermo-symmetrical design.

In tandem with the new 150 kW spindles for the Ecospeeds, Starrag has also announced the development of chatter monitoring function for automatic recognition and analysis of unstable machining processes.

In short, the functionality continuously monitors spindle bearing temperatures, absolute vibration levels and tool imbalance, and can instigate a 'spindle stop' when pre-determined limits are exceeded.



The Scharmann Ecospeed F

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Top quality machining centre at an entry-level price

Hermle AG, the prominent German manufacturer of high precision, 3- to 5-axis machining centres, has added the C 250 to the C 400 model that it launched in 2012. In the process, it has started to create a new machine series that sits alongside the manufacturer's core range, which comprises six models from C 12 to C 62.

Sales and service agent in the UK and Ireland, Gosport-based Geo Kingsbury, says that here have been no compromises in the build quality of the C 250 machining centre or indeed its larger counterpart. The only limitation is that they are available with fewer options, which is the reason for their economical price.

The working envelope of the C 250 is defined by X,Y,Z axis travels of 600, 550 and 450 mm, positioning it in capacity between the C 22 and C 32. Every Hermle machine shares the same fundamental attributes including a modified gantry design, mineral cast bed and an integrated, trunnion-mounted rotary table for the fourth and fifth CNC axes, if specified. All these features contribute to rigidity, low vibration and high machining accuracy.

The new Hermle C 250 vertical machining centre in 5-axis configuration

In the 3-axis version, the rigid table can accept workpieces weighing up to 1,100 kg, while precision machining of components up to 450 mm in diameter by 355 mm tall and weighing 300 kg is possible on the ± 115-degree swivelling rotary table of the 5-axis version. Minimal idle times result from 6 m/s² acceleration to 35 m/min rapids in all axes.

Spindle options are 15,000 or 18,000 rpm (20 kW / 180 Nm) and both are equipped with Hermle's patented collision protection system. In the event of impact in the Z-axis direction, the energy is absorbed by six displacement sleeves to minimise and often prevent spindle damage.

The integral magazine for 30 tools can be expanded by 50 or 88 additional pockets. Various other options include enhanced cooling and chip management as well as tool breakage monitoring and measurement.

Standard CNC system is Heidenhain's TNC 640, which offers the full programming capability of this proven, high-end control. The GUI has a large, full colour, 19" TFT flat panel monitor and the control can be height-adjustable for improved ergonomics. Hermle macros are built in to provide the operator with additional support for complex milling.

Schematic of the Hermle C 250 showing the position of the optional tool magazine extension

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Innovation at the heart of new Feeler 5-axis machining centres

Feeler is releasing two innovative new 5-axis machining centres via its exclusive UK agent, TDT Technology. Designed to offer a cost-effective entry into 5-axis operations, the Feeler U600 vertical machining centre and U800-5AX gantry-type machining centre offer speed, precision and performance based on an intelligent machining platform and a host of novel innovations.

By way of example, the Feeler U600 offers a patented configuration whereby the machining capacity allows a workpiece diameter larger than its axis travel. Furthermore, the machine offers access to the working area via sliding doors on two sides of its periphery for ease of operation, monitoring and load/unload.

Intelligent machining is at the core of the U600. For instance, a 'Chatter Lobe' program is deployed to predict and prevent the occurrence of chatter during machining based on a few simple input parameters. In addition, due to the separation of the axes of linear and rotary movement, any curve tolerance or error that occurs during 5-axis machining can easily be controlled and adjusted. Among those set to benefit are manufacturers in the automotive, telecommunications, medical, aerospace and mould-making industries.

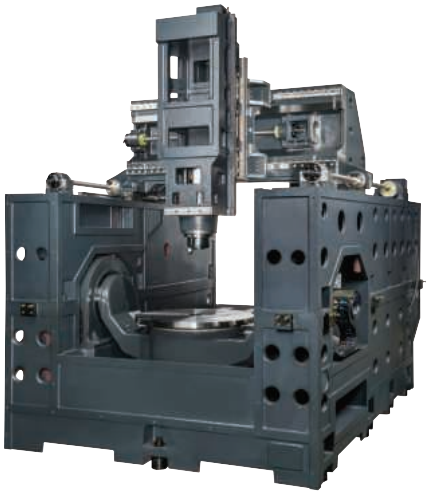
The compact Feeler U600 offers travel in the X, Y and Z axes of 460 by 520 by 400 mm respectively. A-axis rotation is possible from -40 to +110°, with full 360° rotation in the C- axis. Also featured is a 600 mm diameter table, manufactured by LCM of Italy and also represented by TDT Technology, that can support workpieces weighing up to 250 kg. The BT40 direct-drive spindle rotates at 10,000 rpm (12,000 and 15,000 rpm optional), although a 20,000 rpm built-in spindle is also available.

Rapid traverse rate in the linear axes is 30 m/min, while an arm-type 24-station (30-station and 40-station optional) ATC offers a tool-to-tool change time of 2.5 seconds. Among the options is linear scales and thermal compensation on all five axes.

Also released in the UK is the new Feeler U800-5AX gantry-type 5-axis machining centre, which is designed for where ultra-high precision and extra-fine finish are required. This is facilitated by the machine's gantry structure together with U-shaped base and column, helping bring stability to new levels. Furthermore, the 800 mm diameter swivelling/rotary table is capable of supporting loads up to 1200 kg. Tilt in the A-axis extends from -120 to +120°, with full 360° rotation in the C-axis.

Like the U600, the U800-5AX is configured to offer a separated design of the linear and rotary axes, thus making it easy to compensate for errors of radius in the rotating axes, for example.

A rapid traverse rate of 48 m/min in the linear axes is supported by a 12,000 rpm direct-drive spindle, although an 18,000 rpm built-in spindle is also available. Efficient chip removal, THK roller-type linear guides and a horizontal-type 32-tool (48-tool and 60-tool optional) magazine offering 2.5 seconds tool-to-tool time are among the



additional features of the Feeler U800-5AX. Travel in the X, Y and Z axes is 800 by 935 by 640 mm respectively.

TDT Technology is continuing to expand its impressive portfolio of CNC machine tools and ancillary equipment, enabling it to provide a wide range of high-quality machines and tooling to the engineering industry in the UK and Ireland. Its comprehensive range now includes: 5- and 6-axis high speed machining centres, gantry type machining centres, heavy duty vertical turning lathes, multi-axis VTLs, alloy wheel turning and balancing machines, vertical, horizontal and double column machining centres, five face double column machining centres, multi axis turning centres, heavy duty slant bed lathes, heavy duty oil country lathes and large capacity heavy-duty milling and boring machines.

TDT Technology Ltd is the exclusive United Kingdom and Ireland sales and service distributor for the following CNC machine tool manufacturers: Italian-based Fidia CNC machine tools; IMT Intermato; Taiwan-based Kao Fong Machinery Co Ltd; OMG Zanoletti CNC machine tools; Pama, with its range of milling and boring machines.

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Heavy-duty 5-axis machining centre investment

Specialist metals supplier Wilsons Ltd has invested £1.5 million in a Handtmann HBZ CompactCell 5-axis simultaneous CNC machining centre. This is seen as integral to the business in maintaining its position as a leading independent supplier of high performance semi-finished metal and alloy billets and bars.

Supplied by Engineering Technology Group (ETG), the Handtmann HBZ machining centre now enables Wilsons to offer customers' part machined billets to near net shape, saving high value processing time, scrap removal and recycling.

Its twin pallet configuration provides flexible high-speed machining of aluminium and alloys ensuring competitive pricing through high productivity achieved with 5-sided machining in a single setup.

Wilsons is based in Sawtry, Cambridgeshire and although a metals supplier to the global manufacturing supply chain, manufacturing semi-machined aerospace aluminium grade workpieces is a significant part of its business. Aerospace supply is challenging with the need to keep pace and evolve to meet the exacting demands of its customers being high among Wilson's priorities.

Director and general manager James Digby explains: "Very often 90 percent of the material sold into the aerospace sector is turned into swarf so we offer a service that supplies a billet already 80 percent machined allowing the customer to focus on the high accuracy finish machining operations and increase their machining throughput without any considerable investment.

"The vast majority of bar and billet products that Wilsons supplies into aerospace is semi-finished in some way. It is either cut to length, deburred and chamfered, part marked or etched and now we are able to offer another added value service with a comprehensive component milling facility.

"We chose Handtmann as the machine supplier because it has a long established reputation for designing and manufacturing high precision, heavy duty machining centres that offer high spindle power and torque. These features coupled with a generous workpiece machining capacity, to accommodate large components, influenced our decision to invest in the HBZ."

Combining heavy duty capability with precision, the HBZ CompactCell has 4x1 metre twin pallets capable of accommodating workpieces up to the full pallet dimension. It is especially suited to the high speed machining of aluminium.

Wilsons HBZ machine features a 30,000 rpm, 64 kW spindle with high chip removal rates. The spindle power creates estimated increases in productivity of up to 30 percent and a significant decrease of costs per part and machining times. These features have given Wilsons a range of advantages to pass on to its customers.

Having twin pallets further contributes to improved productivity as a second workpiece can be loaded and prepared for machining while another is being machined. This significantly reduces downtime between operations.

Supplied as a turnkey installation by ETG, the HBZ CompactCell's horizontal machining format creates a robust, economic machining process especially suited to environments where high volume metal removal and productivity are necessary.

Horizontal machining minimises heat that is influencing the workpiece and thus provides better thermal stability to cope with the high volumes of swarf when machining complex parts with deep pockets and cavities. Advanced swarf management has been developed whereby material cut from the workpiece is immediately transported out of the machining area via screw type conveyors to a rear exit.

As part of the turnkey, Wilsons also specified a RUF Briquetting machine, which added further efficiency to the machining process.

Among the benefits of briquetting swarf are the ability to reclaim cutting fluid, increase the metal yield, reduce chip volumes by up to 20 percent through compaction, improve chip handling and reduce chip storage areas.

James Digby concludes: "There are very few customers and competitive stockists that can offer the added-value capability that this machine gives us. The HBZ runs at 30,000 rpm, whereas most customer machines run at a third of that, so we can remove bulk workpiece material three times faster while giving them a massive increase in capacity to process finish machining operations through their machining centres.

"In effect customers can focus on spindle time in the areas that earn them most money, final component machining rather than pre-machining. We have also eliminated high volume swarf management from their cost base."

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Leaving nothing to chance

High-precision die-sink operations require a whole EDM process approach says Martin Spencer, managing director at GF Machining Solutions UK

High-precision die-sink electrical discharge machining (EDM) is an unforgiving process, and every aspect of it, from producing electrodes to workpiece setup, as well as maintaining a consistent machine temperature, must be controlled and optimised. This is because when part tolerances run as tight as two microns or less, even the slightest deviation at any stage of the process is magnified and will negatively impact the level of precision achieved.

For real high-precision die-sink operations, especially in micro-applications, manufacturers must take a total process approach. This involves more than just the EDM machine but includes processes for machining electrodes, transferring them to the EDM machine, and setting up workpieces within the machine. Every step is critical to achieving true high precision.

First steps

Starting with initial steps in the die-sink process, manufacturers should first eliminate any inaccuracies in their electrode manufacturing operations.

Electrodes must be machined to exacting sizes, even more so when burning micro-sized parts, and be as accurate as the machine that will use them. For maximum accuracy as well as superior part surface finishes, EDM machine builders often recommend metallic electrodes, such as those machined from copper tungsten, as well as using high-precision machines to cut or grind the electrodes.

When manufacturers move the electrodes from their high-precision milling or grinding machines to the EDM machines significant care must be taken when unclamping and re-clamping the electrodes for each process. Modular pallet systems can provide consistency and repeatability.

In most cases, the pallet systems repeat well within a micron and prevent positioning errors or stacked tolerances as electrodes move from one machine to the next Modular pallet systems offer the same positioning benefits for the machine setup stage as well.

Such workholding ensures the highest level of accuracy, especially when EDM machining very small parts. Manufacturers can quickly and easily clamp parts onto workholding pallets and then use a Coordinate Measurement Machine (CMM) or optical measuring device to determine the exact workpiece location data that the EDM will use to calculate the appropriate offsets. The EDM machine can perform the same measuring operations if equipped to do so.

Die-sink EDM machines can be equipped with an optical measuring device mounted to the C-axis, allowing them to autonomously determine exact part positions. This capability eliminates the risk of error involved with the transfer of workpieces from separate measurement equipment to the machine

Die-sink EDM machines with on-board part measuring capability can undertake high-precision machining because they provide extremely accurate axis movement. The key to achieving that on a consistent basis is temperature control.

Temperature control

Ambient room temperature and that of the machine must remain stable and consistent. An EDM machine that is unable to consistently maintain optimal operating temperature to within 1°F will fail to hold positioning accuracy, not to mention demanding part tolerances of one or two microns.

To control heat generation, many of today's EDM machine builders will not only construct machine bases and frames from other materials, they will incorporate some type of cooling system as well.

GF Machining Solutions uses a special polymer for its high-precision die-sink EDM bases and has developed a new machine design that incorporates cooling channels throughout the machines' entire base, table, and upper head (C axis) to control heat.

This internal thermal stabilisation system uses the machine's dielectric fluid/water as a coolant and is kept at an operating temperature of 68°F. The dielectric water circulates through all the internal cooling channels and keeps the machine temperature to within +/- 1°F of the set temperature to virtually eliminate any thermal machine growth.

In addition, for high-precision applications, EDM machines should have an actual chiller, as opposed to just a heat exchanger.

This helps maintain dielectric water temperature, especially if the machine lacks any other thermal management system. While locating the machine in a climate-controlled room helps keep heat generation in check, the dielectric water controls table and workpiece temperatures.

Besides temperature control, high-precision die-sink machines must provide accurate motion control and positioning. Most machines achieve this through glass scales on all axes, and, often, closed-loop control systems drive these axes to maintain high precision.

Positional and machining accuracy

Within its closed-loop system, GF Machining Solutions uses encoders on machine ball screws and glass scales on the machine axes.

The system first measures encoder resolution and then compares that to the absolute positioning of the glass scales. If there is discrepancy between the two the machine will automatically adjust the difference.

Separate from upper-head cooling, a liquid-cooled C-axis is also critical for accurate die-sink machine motion. Cooling jackets that envelop the rotating C-axis for temperature control can be incorporated for high-precision machines. The C-axis cooling system is in no way part of the coolant-through-spindle function, which is standard on practically every die-sink machine, and which provides optimal flushing during the burn.

The proximity of a machine's C-axis drive motor also influences the positional accuracy of that axis. The further away the motor is from the spindle and chuck, the higher the risk of error. Machines that have these motors as close as possible to the chuck and spindle, create not only a high-accuracy-positional C axis, they also result in extreme precision even if electrodes are slightly off-centre.

For high-precision operations, and even more so during micro-machine applications, a die-sink machine's generator has to continuously communicate with the machine's control. While many EDM machine builders are now incorporating fibre optics to enhance this critical communication link and to speed data flow, GF Machining Solutions has been using the technology for well over 20 years. Constant feedback, originating from sensors monitoring the spark gap and moving to the control and generator, allows machines to adjust generator settings for maintaining optimal spark and precision cutting conditions. This capability, especially in making very fine adjustments, is critical for micro-machining.

Machining parameters

To optimise programming for high-precision operations, machines must be sophisticated and provide in-depth application descriptions. They need to offer as many parameters as possible to cater for different electrode materials, cavity shapes, and part materials as possible.

The key is being able to define the process accurately and determine the correct technology settings prior to generating the first spark.

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Citizen extends successful L20 range

Citizen has extended its modular build concept with its top international selling, mid-range Cincom L-Series CNC sliding head turn-mill centre range by introducing three variants of its L20. Each machine introduces selectable modules to provide user functions able to cater for workpieces from up to 20 mm or 25 mm bar size with the economics and versatility to produce both simple and highly complex component features.

The new L20 range is available as a standard 5-axis Type-VIII with 37 tool positions enabling further improvements in the ratio of cost-to-performance. A mid-specification Type-X has 44 tool positions and the additional flexibility created from a -Y2 axis for the back spindle and a high-end 7-axis. Type-XII has, in addition, the incorporation of a fully programmable swivelling 135 deg. B-axis.

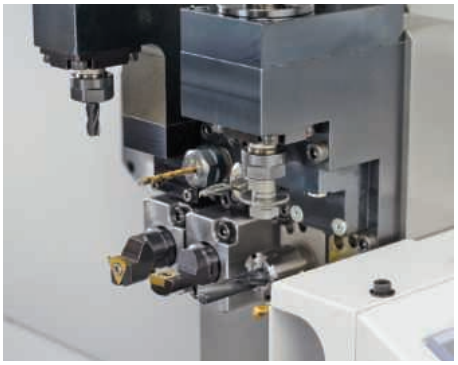
The latest machines also incorporate, in addition to a back toolpost, totally independent opposite and gang toolposts that are able to create a tandem tool motion to the machine's highly productive overlapping processes capability.

Indeed, the versatility of the L20's specification is further enhanced giving greater economic use of bar on shorter workpieces that can be invaluable on expensive material types. Here, a guidebush that can be removed or replaced within 30 minutes reduces the effect of long bar remnants. In addition, a selectable level of modular functionality can be made for the machine specification for example, there are two types of gang toolpost, five versions of opposite toolpost and three types of back toolpost.

The main spindle is powered by a 3.7 kW, 10,000 revs/min motor and the back spindle has a 1.5 kW, 8,000 revs/min drive. The driven tools on the gang toolpost are 1 kW, 6,000 revs/min while the opposite and back toolpost both have 0.75 kW, 7.500 revs/min drives. The B-axis driven tools are powered by 1 kW 8,000 revs/min motor.

The strategy being applied to the gang, opposite and back toolpost's modular function package on the L20 machine range gives four driven tools with three manually adjusted single ended spindles from 0 to 90 degree on Type-VIII and -X machines and three driven tools and a swivelling B-axis with adjustment between + 90 and -45 deg.

Latest Citizen Cincom L20 now available in 3 versions: L20 Type-VII, Type-X and Type-XIII



Four driven and four fixed tools can be mounted in the back toolpost of the Cincom L20 Type-X and -XII versions

with four double-ended spindles for front and back working.

On the opposite toolpost, which has the capability for pinch milling and deep hole drilling cycles, Type-VIII has options of three fixed tools and three fixed tools for deep hole operations. Also on Type-X and -XII there is the choice of three fixed tools or three rotary tools and in double deck stacking, six fixed tools or six fixed tools for deep hole machining applications.

Meanwhile for the back toolpost, on Type-VIII, toolposts will accept either four fixed tools or four driven tools and on Type-X and –XII, four are fixed in a lower row as well as four driven tools in the upper row.

The Cincom high speed control now features even faster start-up and screen switching with on-screen program check and editing through the manual handle feed. Direct spindle indexing function gives further time saving as the spindle is still decelerating to stop at the designated index position in conjunction with C-axis commands. In addition, overlapping of the next cutting tool can be prepared thus avoiding any delay due to the current tool finalising its retraction from the job. Rapid travels are fast at 32 m/min in each axis and 8 m/min for Y.

Citizen Machinery UK Ltd, based in Bushey, 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).

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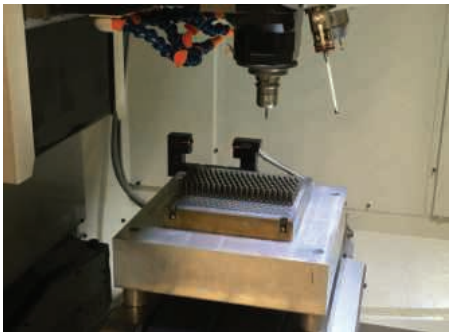
Subcontract machine shop buys first CNC VMC

When James Camden Engineering Ltd had an issue machining some complicated aerospace parts, it turned to FANUC and its renowned ROBODRILL vertical machining centre for a solution. The Warwick-based subcontractor conducted a comprehensive review of the CNC machine tool market and concluded that FANUC offered the best combination of cost, performance, precision, technology and service.

With a plant list that includes EDM, manual milling and lathes, the company was having difficulty completing certain parts and it was the expertise of the FANUC team that swung the purchasing decision.

For the small subcontractor, it was a paradigm shift in moving to its first CNC VMC and FANUC was only too aware of this. Jordan Coles, a tool room machinist at James Camden Engineering, explains: "There is often a perception, like the one we had, that VMC's and FANUC machines in particular are aimed at higher volume production and that FANUC is a premium brand with a higher price tag. However, Nigel House from FANUC blew such perceptions away and delivered a solution to our problems."

As the first CNC machining centre for the company, the 3-axis ROBODRILL was sold as an application solution to the prototype and small batch manufacturer. Jordan Coles



continues: "We haven't just bought this machine for production machining; it's been brought in for machining extremely accurate small batch parts. When we looked at the market, we wanted a super accurate machine that could work to high tolerances and would be very precise and very consistent in its performance."

The company manufactures aerospace and motorsport parts. One particular job, which led to the arrival of the ROBODRILL, was a titanium aerospace job that is 3D printed via the DMLS method. This part required complex thread milling and the specific taps for the unusual thread had a six week lead-time. James Camden Engineering attempted to thread mill the parts, but this was difficult on its manual milling machines

Whilst the spindle probing system guarantees the precision levels the subcontractor requires with its on-machine probing, the FANUC ROBODRILL platform achieves a bi-directional axis positioning accuracy of less than 0.006 mm with a repeatability of less than 0.004 mm. This is credit to the latest AC Servo motors and high precision thermal compensation that is clarified via the latest FANUC 31i-B5 CNC control unit. All this is built upon an extremely sturdy and compact platform that weighs in beyond 2,000 kg.

Providing James Camden Engineering the edge from a productivity perspective, the FANUC ROBODRILL has a 30 m/min feed rate and a maximum spindle speed of 10,000 rpm that is derived from a 11 kW spindle motor. This combination of speed

and power is ideally suited to the demands of the Warwick Company. Jordan Coles concludes: "From a service perspective, we couldn't ask for more. The sales team were attentive to our needs and understood our business and our goals.

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DMG MORI NLX 2000 SY | 500 combines machining operations

Nutberry's policy of manufacturing parts in house and automation of processes has led it to invest in a DMG MORI NLX 2000 SY | 500. The company based in Hailsham has been manufacturing gas springs since the 1980s and developments in the design and fields of application of these products increased the need for more milling and turning operations.

Antony Montebello, director at Nutberry says: "We started manufacturing gas springs for British Steel when it was looking for an alternative to compression springs for clamping at high temperatures. Compressions springs tend to relax at high temperature, while gas spring clamping forces increase, making them an ideal solution. Originally, we used to buy in the bellows for the gas springs, but now we manufacture our own, ensuring quality and continuity of supply. This has opened the door to other opportunities especially where high temperature or pressure or where a corrosive environment is involved. Applications include valve manufacture, the oil and gas industry, body scanners and vacuum pumps."

The company has experience with DMG MORI machines and, when it decided it needed a more versatile bar fed machine with driven tools, DMG MORI was an obvious contender. Antony Montebello says: "With the advances in gas spring design, we needed to perform both turning and milling operations to manufacture the end fittings. With the NLX 2000 SY | 500 we have eliminated these extra operations. Our new patented balanced spring design

includes two chambers, extra drilling operations and flats on the rams, all ideal for the NLX 2000 SY | 500's driven tooling. The aim of this new gas spring is a controlled clamping force. Sometimes the clamping force can be too great at high temperature. The second chamber pressurises as the temperature rises providing an opposing force, keeping the overall clamping force within tolerance. The NLX 2000 SY | 500 is also very useful for the manufacture of parts for our bellows making machine, as we require special tools to suit each new bellows shape we produce."

The NLX 2000 SY | 500 comes with CELOS® and has a spindle 2, built in motor turret, part catcher, controlled thermal displacement through coolant circulation in the machine body and high vibration damping performance from its rigid construction. Antony Montebello says: "We have noticed how accurate the machine is. It works to ± 0.02 mm all day. With our other machines we have to adjust the offsets to keep within tolerance but there is no need to make any adjustments on the NLX 2000 SY | 500. We have had an old DMG MORI machine since 1983 and it still works well with little maintenance. On the new machine, which we have had for nearly 12 months, we simply don't have any reliability problems, so we have not had any reason to use the after sales service. We are very confident in the performance, reliability and accuracy of the new machine."

The CELOS system lets the company switch between jobs easily and maintain setting and tooling information in one place. Programming of the driven tools and spindle 2 is simplified and speeded up with verification of the tool path, making it possible for a finished part to be collected by the part catcher.

Antony Montebello concludes: "The machine has plenty of power to cut the most demanding materials we work with, such as ESR stainless steel, and the accuracy reduces our scrap rates, while the reduction in operations frees up the operator for other tasks and gives us the opportunity to run extra shifts through automation. As our products develop with more complex geometry, not only will we reduce machining times, but we will also get extra capacity. We make high quality products, so we need a high specification machine to achieve our aims."

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Multi-tasking turning centre delivers multiple benefits

HEC Precision Ltd, established in 1993, manufactures high-precision, complex components and assemblies for a diverse range of industry sectors and, most notably, for a growing number of blue-chip aerospace and defence customers.

The company offers its customers comprehensive manufacturing services and solutions from prototypes, pre-production and production, and is ASEN 9100 and ISO 9001: 2008 accredited as well as holding quality approvals from a number of leading aerospace OEMs.

HEC Precision is a leading exponent in multi-axis machining. Regular strategic investments made in advanced 5-axis milling machines and multi-tasking turning centres have been instrumental in helping the company grow its aerospace business and develop preferred partnership relationships with a number of UK and international Tier 1 companies in the sector.

As well as building and maintaining strong relationships with its customers, HEC Precision adopts a similar integrity-based approach with its technology and equipment suppliers. Mills CNC, the exclusive distributor of Doosan machine tools in the UK and Ireland, is one such supplier and has, over the last seven years, sold four new turning centres to HEC Precision with the most recent being a new Puma 12" chuck 3100Y (Y-axis turning centre). This was installed at the company's Southall facility in August 2015.

The Puma 3100Y turning centre is currently being used by HEC Precision to machine a range of high-precision aluminium aerospace parts and families of components.

The machine is loaded with cut-to-size 50 mm, 80 mm or 100 mm diameter bar and, as well as being used to machine components during the normal working day, can be left to run overnight, with minimal operator intervention, thereby increasing work throughput and machine tool utilisation, and reducing the cost-per-part.

Although the machine is predominantly machining aluminium components, its box guideway construction and powerful high-performance, 30 kW/3,000 rpm, spindle means that HEC Precision could, if required, use the Puma to machine

components made from hard and difficult-to-machine materials like stainless steels, titanium, inconel etc. in the future.

HEC Precision's managing director, Kevin Manhood concludes: "The Puma 3100Y turning centre is a flexible and proven multi-axis machine. We Invested in the machine because it allowed us to offer our customer the flexible machining capacity required to accommodate the ramping up in demand of a range of parts for their A350 programme".

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Mollart secures £2 million export

Export gundrilling machine orders, worth over £2 million, have been won by Mollart Engineering for nine machines destined for European and Chinese automotive industry customers. The contracts from Poland, Czech Republic, Romania, China and northern Europe has set the company well into its machine build target for 2016-17 with projected extensions into 2018.

Sales director Ian Petitt says: "These are very significant orders for new machines taken against very tough European competition, with customers focusing on our project and application engineering. In one case, the final approval decision towards Mollart was aided by our long term production history of machine reliability, spindle utilisation and customer support on two previous Mollart installations in the company."

These orders add a high level of confidence to the new management team of Chris Barker, Ian Petitt, Mike Pragnell, Wayne Thomas and Jon Upton, who successfully acquired the Mollart business in March with the backing of HSBC and Vine Street Capital from the long term family-owned business of Guy Mollart.

The Mollart Engineering group of companies is a precision mechanical engineering business with an international reputation in the pioneering development and building of deep hole drilling machine tools, tooling, including gundrills, deep hole boring and bore finishing.

It also has a high level of expertise as a subcontract machinist and fabricator, based on adding value to deep hole processing and general machining. It has quality management systems certified to ISO9001:2008 and AS9100 Rev.C - EN9100:2009.

Mollart has its headquarters, design and manufacturing operations in Chessington, Surrey plus a modern production facility in Resolven, South Wales. On both sites multi-axis machining is carried out on complex, often high value components, along with part fabrication and the ability to assemble components in our ISO 7 cleanroom facility.

Mollart Engineering was originally set up

in 1929 by the previous managing director's grandfather Arthur Mollart and partner J Hendra as a production engineering source of components for the car and aircraft industries. Through the following years, Chessington, Surrey-based Mollart Engineering has benefited from boom years and survived multiple UK and world recessions to achieve a record year in 2015 and continues to invest in its future growth and development.

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Latest Sodick EDM doubles cutting speeds at Lynar

Harlow-based Lynar Manufacturing has replaced an ageing wire eroding machine with a new Sodick VL600Q from Sodi-Tech EDM, a move that has seen the company double its cutting speed, while simultaneously reducing wire consumption. The machine has been set to work producing press tools for lighting assembly brackets and other parts used on automotive trailers.

Lynar Manufacturing is a 10 employee, family-run business with a turnover in the region of £1.8 million. The company specialises in metal pressings, sheet metal assembly and finishing operations, predominantly for brackets and metal parts used in lighting circuits found on automotive trailers, everything from large articulated lorries down to 7.5 tonne trucks. Established for over 40 years, Lynar says it was one of the first companies in the UK to introduce wire eroding technology, and it continues to be recognised as a specialist in the field.

Sean Murrells, tool and design manager at Lynar Manufacturing explains: "Our wire erosion facilities enable us to carry out high precision, non-contact cutting of any metal shape, working with thicknesses ranging from 250 mm down to 0.05 mm. The flexibility and accuracy of this process also means that we can produce items to the most challenging client specifications, quickly, efficiently and on time."

With this in mind, Lynar implements a regular programme of investment in the latest wire erosion technologies. As one wire EDM nears the end of its useful life, a new replacement arrives. This was evidenced recently with the acquisition of the Sodick VL600Q.

Sean Murrells says: "To produce our pressed parts we also manufacture the tooling, hence the need to wire erode dies and punches. One of our older wire EDMs had become unviable economically in terms of repairs and spare parts, so we researched the market for a suitable replacement. Having looked at a range of different machines, we opted for the Sodick VL600Q based on its impressive price-to-performance ratio. For the money, we simply couldn't find anything else able to offer the same capabilities."

The Sodick VL series is an economical line of performance wire EDMs with linear motor technology that builds on the technologies of the VZ and SL series. The medium sized VL600Q is well-suited to a wide range of machining applications with its 600 x 400 x 270 mm of travel in the X, Y and Z axes respectively, as well as 80 x 80 mm in the U and V axes.

Sean Murrells continues: "Installed in November 2015, the machine offers a five times larger bed that is allowing us to produce bigger products or manufacture multiple smaller components on a single working platform. As a result, we can handle a more diverse range of projects, while making the process more efficient and cost effective."

Some parts produced at Lynar are up to 0.5 m in length, while others are very small. In all cases, the Sodick VL600Q must offer micron level precision. When used for the commercial manufacture of punches and dies from tool steel, the machine typically cuts to within 10 µm. However, in test cutting under controlled conditions, this can be as good as 2 µm.

"We produce some highly complex tools, but we simply program on CAD and transfer the file to the Sodick VL600Q using a USB stick," he continues. "Among the major benefits of the new machine is that it is at least twice as quick as the model it replaced, and it uses far less wire."

Along with new press tools, the Sodick VL600Q is also being used to manufacture replacement tool inserts as part of refurbishment projects. Maximum work tank dimensions are 1,040 mm x 780 mm, while workpieces up to 850 kg in weight can be accommodated.

"We were probably spending around £5,000 every quarter on repairing our previous wire EDM, which is a sum we are now saving," says Sean Murrells. "In addition to the increased cutting speed and reduced consumables costs, I wouldn't mind estimating that the machine has already paid for itself."

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Big as a house in Brighouse

Halifax Rack and Screw is a leading company in the manufacture and supply of high quality precision engineered gear racks, lead screws, pinions, nuts and complete mechanical power transmission systems from its 30,000 sq ft purpose-built manufacturing facility in West Yorkshire.

Based in Brighouse, HRS was established in 1953 and currently employs over 40 people. The company is considered Europe's largest specialist manufacture and supplier of gear rack, pinions and screws.

Whilst initially founded to serve the precision machine tool industry, the successful diversification into many other industrial sectors together with a strategy of capital investment of over £2 million in new CNC machinery, computer technology and training, HRS has seen continuous growth with exports worldwide now achieving over 50 percent of turnover. Part of that investment has been the installation of a Haas VF-12 50-taper vertical machining centre.

The VF-12/50 vertical machining centre easily accommodates the large-volume machining found in the aerospace, automotive and mould and die industries. The massive machine features travels of 3,810 x 813 x 762 mm (xyz) and has a 3,810 x 711 mm T-slot table. Standard equipment includes a side-mount tool changer, chip auger system, programmable coolant nozzle, rigid tapping, 95-gallon flood coolant system, 15" colour LCD monitor with USB port and much more.

The Haas VMC is equipped with a 30 hp vector drive spindle that spins to 7,500 rpm and provides 75 ft lb of torque. A 24+1 tool side-mount tool changer is standard, with a 40+1 tool side-mount optional. A 10,000 rpm spindle is available for high-speed work, and a two-speed geared-head spindle that yields 250 ft-lb of torque is available in both 7,500 rpm and 10,000 rpm configurations.

Its massive cast-iron construction, triangulated wide-stance castings and heavy-duty outriggers prevent flex and damp vibration to provide high accuracy and consistent repeatability. Linear glass scales are available as an option for

extremely precise positioning. Other high-productivity options include high-pressure through-spindle coolant, 4th- and 5th-axis drives, high-speed machining software, a wireless intuitive probing system and much more.

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Ward Hi-Tech introduces a range of long bed lathes

With an outstanding reputation for manufacturing high specification machines with exceptional build quality, the S.F.M. range of long bed lathes from Ward Hi-Tech are the ideal solution for heavy engineering applications.

The comprehensive S.F.M. line has flexibility at its core, with a choice of four, six or eight tool turret stations. The S.F.M. line also provides customers with the option of manual or hydraulic steady, additional boring bar stations, a double chucking system and also a C-axis. Offering these options ensures Ward Hi-Tech can provide a robust, high quality CNC turning centre with the flexibility to complete most turning tasks.

Ideal for production in the oil & gas, aerospace, power generation and additional industries that demand large turning capacity, the S.F.M. series is available with a distance between centres from 1 to 8.2 m.

Targeted at large capacity machining, the SFM line can provide a swing over bed diameter from 730 mm to 2 m depending upon the model selected with a spindle bore

from 105 to 532 mm. To machine such large components, the S.F.M. series is built upon a heavy duty and rigid bed design that enables maximum material removal rates. To optimise the material removal rates, the machines are given a powerful motor from 25 to 60 hp, depending upon the model chosen.

Ward Hi-Tech, based in Sheffield, is the sole UK distributor for the S.F.M. range of long bed CNC lathes. It offers a large, diverse and innovative selection of CNC machines throughout the UK and Ireland.

The company has a wide ranging product portfolio and provides a complete supply facility. This begins with the initial machine selection, moves on to include flexible funding arrangements and also incorporates long term extended warranty and maintenance plans. The technical advice and support helpline is available throughout the life of the machine.

Ward Hi-Tech provides all of the things you would expect from a major CNC machine tool dealer and a lot more. The industries that the company serve include: aerospace, automotive, defence, medical, oil & gas, renewable energy, power generation and subcontract manufacturing.

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Big savings for Sheffield Forgemasters

Everything is on a grand scale in the north machine shop at Sheffield Forgemasters International Ltd's sprawling city centre site in South Yorkshire. This includes the vastness of the production hall and the ultra-large capacity machines that are capable of accommodating workpieces weighing 500 tonnes.

The philosophy also embraces an ambitious continual improvement programme that, curiously, considers even the smallest advance in production and machining routines that potentially could also benefit this giant of production engineering.

Tooling engineer Derek Poole explains: "We're machining a range of workpieces weighing anything from half-a-tonne upwards for a global customer base involved in, for instance, heavyweight presses and rolling mills, offshore oil and gas, as well as power generation, defence and civil nuclear work. These are generally produced as one- or two-offs and involve mainly milling and boring routines.

"Our ram boring and milling machining capacity is obviously large, including one machine that has 17 m in the X-axis, 6 m in Y and 1.6 m in Z, plus it has a 1.2 m W spindle, and a vertical borer with an 8 m diameter table. This doesn't mean, however, that a new milling cutter which is proving successful on smaller components could not be relevant to us.

"We look at every advance and decide whether the tool or the process/its application can be scaled up for our routines. It is here that our working relationship with Walter GB's sales engineer, Phil Broddle, pays dividends.

"Phil's role means that not only is he privy to all of the latest tooling developments (solid and indexable insert products) that come from Walter AG's headquarters in Germany, but importantly because he is also visiting a raft of different companies with differing needs, he continually builds an extensive knowledge bank of applications engineering expertise, Walter calls it Engineering Kompetenz, that we regularly tap into."

With more than 30 years' experience in milling, Derek Poole has over the years worked with Walter tooling, including the eight years since the establishment of the North Machine Shop.

Tiger.tec Silver inserts feature a surface treatment that significantly reduces the in-cycle machining stresses on both wet and dry applications, due to its balanced combination of a high level of toughness and maximised hardness.

The CVD-Al2O3 grade coating counters any influence from thermal shock that can lead to thermal cracking at the cutting edge and minimises tribochemical wear on the flank face. These are key areas that can lead to premature insert failure.

In one rough milling case, Blaxx and Tiger.tec Silver combined at Sheffield Forgemasters to reduce machining time from 272 minutes to just 29 minutes, slashing the machining cost on this component from £249 to just £26. Over a year on 100 components, this produces substantial savings in machining times (2,922 minutes compared to 27,271 minutes) and overall cost savings of an incredible 81 percent.

Derek Poole continues: "When you're taking perhaps one hour to make a single pass on components that even before being touched are worth a lot of money, tool longevity and reliability is crucial. We cannot afford to get it wrong, and that is exactly what we avoided with these inserts."

Indeed, average machining times extend to 15 weeks (at 100 hours/week) on components weighing 250 tonnes and above, extending to 19 weeks for finishing.

Derek Poole adds: "Crucially, the quality of the tooling is first-rate, but equally important is the ability to deal with individuals who understand your business needs, and in Walter's case that includes even the CEO. There's not many companies nowadays that you can say that about."

Sheffield Forgemasters International is, he says, unique in that from one site it has the in house capacity and capability to take even the largest workpiece from initial melting/casting/forging through to machining and finishing, then packaging and dispatch.

Derek Poole concludes: "We are renowned worldwide for the quality of our steels and our manufacturing capabilities, even on press frames of perhaps 3 m by 2.5 m. We regularly achieve the drawing's tolerances of 30 microns and the requirement of being 30 microns perpendicular to the bottom face."

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The evolution in trochoidal milling

New CircularLine CCR end mills from WNT increase efficiency with intelligent machining strategies

For most manufacturing companies nowadays, process optimisation with regard to shorter machining times and an extended service life for the metal cutting tools are the keys to greater efficiency. Intelligent milling strategies, such as the trochoidal machining process, are the solution. In conjunction with the new CircularLine CCR end mills from WNT, tool service lives can be extended and components produced even faster.

Over the last five decades, the demands placed on the machining industry have changed considerably. On the one hand, components are becoming ever more complex; on the other, companies are under immense time pressure and must minimise personnel and machine costs. To remain competitive in the short and long-term, it is becoming increasingly important to fully exploit new technological advances as they become available: advances such as the trochoidal milling strategy. This ensures optimum and effective machining processes thanks to the use of new CAM programming systems and control cycles. Together with the right tool, this machining strategy offers some attractive benefits, including increased process reliability and noticeable time and cost savings.

The benefits of trochoidal milling are particularly noticeable when machining high volumes, deep slots or high flanks. In addition to extremely high process reliability and considerable time savings, an increased service life can be achieved, along with reduced tool wear. This is because the angle of engagement remains as small as possible during trochoidal milling, reducing the vibration caused. Also the fact that the end mill has more time to cool down during the process reduces the amount of wear.

Another particularly interesting aspect is the raw material utilisation of the carbide. Although the amount of carbide powder required to produce the tool is somewhat greater, the cutting length of the tool is twice as long. Wear in relation to the volume being machined is therefore distributed across the entire length of the longer cutting edge. If this is compared again with the raw material input, the result is positive and absolutely cost-effective. Due to the higher radial forces, greater demand is placed on the tool, which requires special, more stable core geometry. Furthermore, both the carbide and coating must have high thermal shock resistance, as the temperatures generated at the cutting edge fluctuate strongly due to the engagement and cooling intervals. If the wrong tool is selected, micro-cracks may form on the cutting edge or chipping may occur.

The new CircularLine CCR end mills from WNT possess all these properties and are the first choice for optimum results with the trochoidal milling process. As demonstrated, in particular by the application of the legendary Dragonskin coating, maximum emphasis has been placed on ensuring that the end mills exhibit a high degree of resistance. Like all high-performance tools that have a "Dragonskin", the new CCR end mills are extremely robust and wear-resistant and can withstand strong temperature fluctuations. These end mills also boast a special chip breaker that is ground into the cutting edge geometry. The need for this becomes apparent when considering that chips produced by a cutting length of 4xD and a diameter of 12 mm without a chip breaker, for example, would be 48 mm long. The chip breaker restricts the chip length to 2xD and optimum chip removal is ensured, even for problematic materials. Two versions of the WNT end mills are available: one for universal applications and another specifically for the machining of aluminium. While the six flutes of the CCR-UNI ensure smooth operation and a high material removal rate, the four flutes of the CCR-AL ensure a high depth of cut. They are available in 3xD (steel) and up to 4xD (aluminium) cutting lengths, and can reach cutting depths that correspond to these cutting lengths.

Tests have shown, it is possible to use significantly higher cutting data when using trochoidal milling with CCR end mills than with conventional machining processes, shortening machining times considerably. Even applications that were previously considered to be very difficult could be dramatically improved.

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Solving the problem of idle chatter

Chatter, i.e. vibration in metal cutting, poses a headache for manufacturers throughout the world. When machining, vibration brings about poor surface finish, a decrease in accuracy, reduced tool life and increased wear on critical machine tool parts. When attempting to prevent these unwelcome effects, the engineer is obliged to use strategies such as employing expensive vibration resistant tooling devices in addition to reducing feeds and speeds. Invariably, these approaches lead to increased production costs and reduced productivity.

Ensuring stable cutting across a wide range of applications, without incurring considerable production losses, is a reasonable customer demand placed on tool producers. When searching for an appropriate response, a tool manufacturer is relatively limited in the range of available design solutions. Of course, tool manufacturers rely on the basic design fundamentals as the foundation of successful tool developments, such as ensuring the highest possible rigidity and strength of a milling cutter and the adoption of progressive cutting geometry.

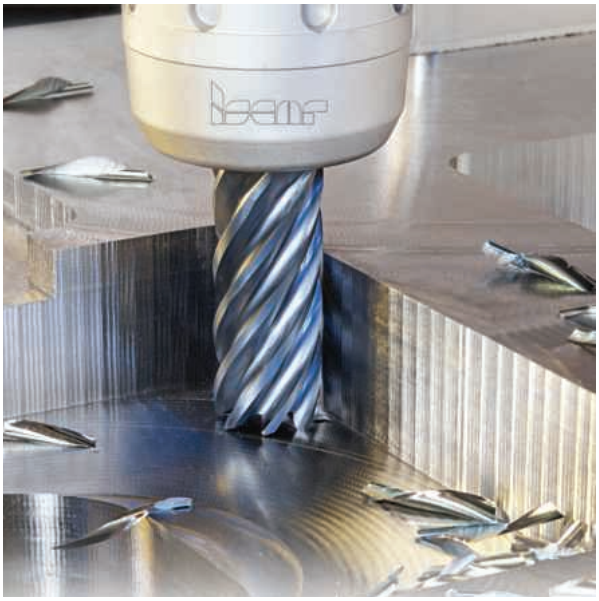
Following market demand, and a period of development, ISCAR has expanded three of its popular ranges of solid carbide CHATTERFREE endmill families. The new endmills offer an effective solution to chatter and open-up new opportunities for the reduction of vibrations in metal cutting.

ISCAR Chatterfree solid carbide endmills for machining titanium

The ever increasing use of titanium for aerospace applications is due to the extremely advantageous properties associated with the metal. Titanium's beneficial characteristics include outstanding mechanical attributes, an exceptional strength to weight ratio, high corrosion resistance and fatigue resistance and the materials ability to withstand moderately high temperatures without creeping.

Aerospace applications cover a wide range of airframe structural and engine parts, from massive highly stressed, forged wing structures, through landing gear components, to small critical fasteners, springs and hydraulic tubing.

The increasing complexity of titanium aerospace parts and the growing demand for ever more efficient manufacturing methods has prompted the introduction of new machining technologies and the development of innovative tooling solutions designed to assist users in increasing their productively.



With the aim of supporting manufacturers involved in the generation of complex shapes in titanium components, ISCAR has developed a range of advanced turning, milling and hole making tools. These innovative new products are able to considerably increase titanium machining efficiency whilst maintaining tight tolerances.

Following the successful introduction of the ECK-H4M-CFR four flute endmills, ISCAR has introduced a new ECK-H7/9-CFR solid carbide endmills family featuring a unique patented design. Available in 7 and 9 flute, and different helix and variable pitch configurations, the new family was specifically designed for finishing and high-speed titanium machining applications

Available with an assortment of corner radii, the new solid carbide endmill family features optimised edge preparation which prevents chipping on cutting edges and corners rendering it suitable for the stable machining of titanium.

Suitable for a wide range of speeds, feeds and applications, the new ISCAR solid carbide endmill family provides efficient chatter dampening, whilst the range's optimal flute and tooth geometry deliver high metal removal rates.

The new high-accuracy tools are made from PVD coated grade IC900 providing longer tool life when machining titanium and are available in a diameter range from 6 mm to 20 mm, with each tool diameter available with either cylindrical and Weldon shanks.

EC-E4L-CF

1 and 2 mm diameter tools have been added to the solid carbide endmill EC-E4L-CF family to further extend its small diameter application range. These tools are characterised by a four flute, 38° helix with variable pitch for roughing and finishing operations, providing high material removal rates and chatter-free operations.

EC-E7/H7-CF

Further extending its small diameter application range, the addition of 2 mm to 5 mm diameter tools has been added to the EC-E7/H7-CF family. The seven flute endmills, with different helix and variable pitch enable efficient and CHATTERFREE high speed / trochoidal milling and finishing operations.

ECA-H3-CF

1.5, 2 and 2.5 mm diameter tools, and seven tools featuring 3 mm corner radii have been increasing the ECA-H3-C F family's, small diameter application range. The tools with 3 mm corner radius are very popular mainly for the machining of aluminium aviation parts.

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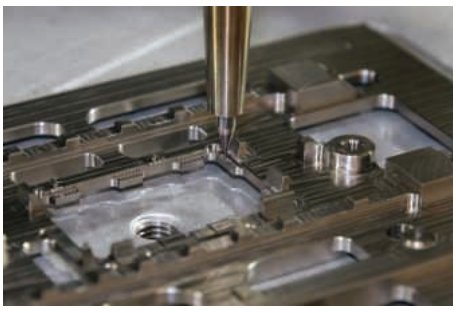
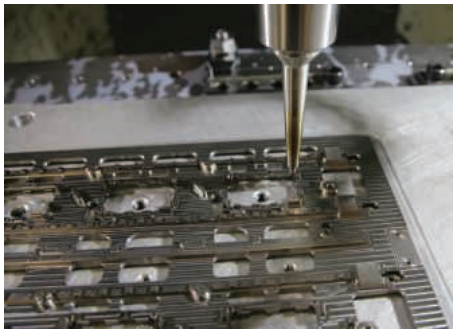
A steely determination to succeed

Operating under the towering shadows of the chimneys at the much publicised Port Talbot Steel works, Formagrind is a subcontractor that is certainly playing its part in supporting the local manufacturing community. The company based in Neath has recently won a significant order that has led to the delivery of two Hurco machining centres and new tooling innovations from Mitsubishi Materials.

Founded in 1983, current managing director Mike Couser says: "Like any subcontractor, we've had our ups and downs. The business grew steadily through the 1990's with the prominence of consumer electronics giants Panasonic, LG and Sony along the M4 corridor. Simultaneously, we've had difficulties through the numerous downturns. However, we've continued with our program of re-investment into new technology during these times and diversified into additional industries so as not to become too exposed to sector downturns."

With a plant list that includes Mazak, Hardinge and Gildermeister turning centres, Hurco VMCs and Sodick EDM's to name a few, the ISO: 9001 company has invested heavily. In October 2015, the company moved to a new 11,000 sq ft factory and also purchased three seats of iMachining CAM software. When the 26 employee business won a major automotive order in February 2016, Formagrind bought two new Hurco VMX30Mi machines. Mike Couser recalls: "The new order was for over 100 complex titanium fixtures that each consist of a carrier base and corresponding top plates that clamp electronic PCBs assemblies during their production and final assembly processes. Firstly, we needed two new VMC's to give us the additional machine capacity; and secondly we needed consistent lights-out production. This is when Mitsubishi stepped in with their solid carbide end mills."





Like many subcontractors, Formagrind was primarily using the services of a local distributor that sold multiple tooling brands without the required expertise to best service the end user. The frequency that Formagrind was processing materials such as molybdenum, tantalum, titanium, inconel and other difficult to cut materials was increasing and made the situation more prominent. At this point, the company called upon the expertise of Mitsubishi's local application engineer, Jason Gardner for support. The expertise and the consequent results has seen the Formagrind tooling on Mitsubishi products rise from 10 percent to beyond 80 percent of the total spend in just over five years.

The confidence that Formagrind has in Mitsubishi products has seen the subcontractor evolve from an occasional purchaser of Mitsubishi tools to a consignment stock customer with a complete range of solid carbide end mills, indexable end and face mills, a desktop shrink-fit unit and corresponding toolholders, plus high quality back-end tooling.

The base plate and corresponding top plate cover units that clamp the automotive electronic assemblies were initially required in a batch size of 105 bases and 160 cover plates. With over 14 hours of machining for each base and one hour 50 minutes machining for each cover plate, Formagrind realised that it needed to run its new Hurco VMX30Mi machines 24 hours a day, seven days a week for almost two months. With iMachining optimising the process and the Hurco machines purchased for the project, the key factor for unmanned lights-out production was the cutting tools.

Formagrind developed a fixture to clamp and subsequently machine two 300 mm x 200 mm by 9.5 mm thick base plates at a time. The grade 2 titanium plates are firstly machined with a Mitsubishi 8 mm diameter solid carbide four flute VQ Series end mill at a 4.5 mm depth of cut with a 1.2 mm step-over and a feed rate of 1,400 mm/min. After almost two hours of non-stop

machining, the 8 mm tool is followed by a 4 mm and a 3 mm diameter VQ end mill for the remaining machining of the finite details. Once the surface and the respective details are complete, Formagrind uses the 2, 3.5 and 4 mm diameter VQ end mills for rough and finish machining the pockets that are waterjet cut prior to machining as this reduces on-machine times. For the smallest details, a 0.5 mm diameter MS2-SLB end mill is used. With a total machining time of nine hours for the top-face of the two parts, tool life is critical.

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KYOCERA introduces new cutting tool solutions at AMB

Japanese ceramics specialist Kyocera introduced its new cutting tool solutions at this year´s AMB trade fair in Stuttgart, Germany. The innovative products include the 4JER solid endmill, an update for the face-milling cutter MFWN, the CA3 Series with a new CVD coated carbide grade and chipbreakers for cast iron machining. SGS, which was acquired by Kyocera in May, was also a part of the exhibition.

4JER solid endmill for super alloy machining with high productivity and stability

The new solid endmill is resistant to breakage and capable of stable slotting and trochoidal machining. Kyocera´s original Megacoat Hard coating technology ensures long tool life and stable machining. With improved chatter resistance and variable helix design, the 4JER solid endmill prevents chattering due to its unique four-flute design.

Update for MFWN face-milling cutter

Kyocera has updated its MFWN face-milling cutter, a 90° low cutting force cutter for reduced chattering with a max. A. R. of 13°, including neutral inserts for shouldering and facing. The line-up expansion enables highly efficient aluminium machining due to changed geometry and the new grade PDL025. The fine-grain cemented carbide tool grade with DLC coating ensures stable and high quality machining and a long tool life. The new grade is furthermore applicable for turning and cut-off applications.

In addition to the MFWN expansion, Kyocera previewed a completely new development for aluminium milling, the MFAH. It offers a new insert geometry with two cutting edges and features an adjustable insert seat pocket. The MFAH is available in two versions, the PCD insert grade KPD001 and the new PDL025 grade.

Enhanced high feed cutter family

Kyocera's successful high feed cutter series combines several geometries, grades and a toolholder with line-up ranges from 16 mm to 160 mm, which enable a variety of applications. The extra small diameter high feed cutter MFH Micro starts from 8 mm. The low cutting force design ensures high efficiency machining and stable high feed machining in a wide range of cutting parameters. The features, such as a maximum ap = 0.5 mm, offer a cost down solution compared to the application of solid tools.

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Extensive BIG KAISER toolholder line

Every millimetre counts in metalworking. That's why it's important to think twice when selecting conventional tool holders such as face mills and shrink fit holders. If you've ever used tooling from BIG KAISER to help solve a cutting or production challenge, you will understand that quality, engineering and of course "higher performance" are guaranteed.

As BIG KAISER products are only offered in dual contact interfaces, these superior levels of rigidity will reduce deflection and allow extended gauge lengths off-the-shelf. For example ITC customers can now acquire face mill holders up to 300 mm long that will deliver excellent performance levels comparable to that of a stub length tool.

Another highlight of the conventional BIG KAISER toolholder program, that is now available from ITC, is the variety of

incremental gauge lengths. This allows end users to match tooling to the exact parameters of each cut without having to get creative or take unnecessary risks. No one wants to use a toolholder longer than necessary.

Constantly in search of ways to make life easier for the customer, ITC can also supply imperial sizes for traditionally all-metric offerings like BBT and HSK. This also applies to metric sizes for some traditionally all-inch CAT tools.

One of the impressive newer additions to the BIG KAISER face mill holder line-up is the BIG-PLUS® high-rigidity BBT30/40/50 holder.

ITC is a specialist tooling supplier. Its objective is to supply customers with the best possible products, at the same time making them more efficient by introducing productivity and method improvements. To achieve this it continues to invest in a team of capable and enthusiastic engineers and technical sales people, backed up by an in-house team. From solid carbide and PCD tooling, through to indexable milling, turning and boring, plus top quality tool

holders, ITC has an enviable product range.

ITC's state-of-the-art production facility includes CNC grinding machines from world-leading manufacturers including, Walter, Deckel, Rollomatic and ANCA. The company has invested in a centralised oil filtration system, to ensure that grinding takes place under optimum conditions with clean oil, and the inspection department includes computerised laser measuring equipment, to maintain the high standards for which ITC is renowned.

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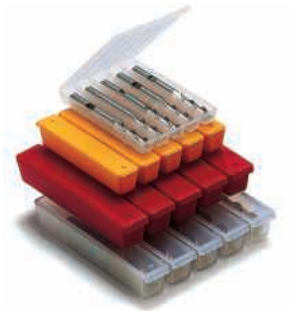
Take control of your cutting tool packaging

10 good reasons to take control of your cutting tool packaging
rose plastic is a leading company in the field of plastic packaging systems for cutting tools. From the smallest micro drills, to precision milling cutter heads weighing several kilos, from diamond tooling to carbide inserts. Whether it be single or multiple packaging, set packaging or bulk packaging, there is hardly a tool which cannot be packed, protected and well presented in the rose plastic range.

BlockPack opens as it turns. It features the patented packaging concept with TwistLock closure technique and ratchet-length adjustment. QuadroPack has square telescopic protective packaging tube with ratchet length adjustment. Unibox is a packaging box for a set of three hand taps. InsertBox is packaging boxes for carbide inserts. FivePack features a multiple packaging system with individual detachable units. TwistPack has round telescopic protective packaging tube with twistlock length adjustment. MK-Pack is the packaging box for face milling cutters and



shell end mills. TopPack Xpress is the new generation of plugs with patented shankholding system. SplitPack is a multiple packaging system with individual detachable units. Protective End Caps are ideal for the protection of delicate/sharp cutting edges

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rose plastic develops, produces and sells innovative products with an outstanding quality level and optimum delivery service. Whether standard solutions at favourable prices or tailor-made solutions with individual design, its comprehensive customer service and vast product range make the company a unique supplier of special plastic packaging with remarkable diversity.

For a free full review of your packaging, contact **jo.buck@rose-plastic.co.uk**

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The deep end of versatility

Dormer Pramet's PFX range offers the versatility and productivity to meet most deep-hole drilling needs. Providing a cost-effective option for a wide range of applications, all PFX drills are manufactured from high speed cobalt steel and suitable for use in a variety of materials for drilling depths from 3 x D to 25 x D.

This includes 3 x D stub (A920, A921), 6 x D jobber (A900, A901), 10xD long series (A940, A941) and 15xD to 25 x D extra length (A976, A977, A978). All feature a straight shank and parabolic flute design for increased chip space and improved evacuation. This design allows greater hole-depths to be achieved in some cases without the need for pecking.

A thick web increases the structural strength of the drill for greater rigidity and minimises the risk of tool breakage. In addition, a special point geometry provides additional benefits including

excellent centring which eliminates the requirement for a pilot hole and reduces the cycle time of the application. Also, it reduces thrust force and power requirements, ensuring accuracy is maintained throughout the depth of the hole.

Available in bright finish across the full range, a smooth-flow coating option is available on stub, jobber and long series drills. This AlCrN-top coating reduces friction, increases wear resistance and, in combination with the parabolic flute, eliminates chip packing at greater depths.

The merger of round tools manufacturer Dormer Tools and cemented carbide tooling specialist Pramet Tools was instigated in 2014. The combined product programme now encompasses a comprehensive range of rotary and indexable drilling, milling, threading and turning tools for the general engineering sector.

An expanded sales and technical support service extends to over 30 offices serving more than 100 markets worldwide. These are supported by state-of-the-art production facilities in Europe and South America and a global distribution network consisting of five strategically placed hubs.

To find out more about the Dormer Pramet PFX range or watch the A940 in action, contact your local Dormer Pramet sales office, or:

Dormer Pramet
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Email: laura.herriman@dormerpramet.com
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MAPAL delivers triple benefits with new drilling system

At the start of 2016, MAPAL brought a number of world firsts to the cutting tool industry with its patented QTD drill and HTC toolholders that are both produced with additive manufacturing technology. Now, it is strengthening its drilling line by bringing another industry first to market, the new TTD-Tritan Drill.

The new TTD-Tritan Drill is the industry's first triple cutting edged replaceable head drilling system. Interchangeable heads are the tools of choice for manufacturers aiming to streamline stock and reduce inventory, improve resource efficiency and combat raw material prices. With such incentives to develop interchangeable tooling systems, MAPAL has created the new triple cutting edged Tritan-Drill to define a new standard in replaceable head drilling.

The TTD-Tritan-Drill, tool head and tool holder are fixed by an innovative new interlocking Hirth serration system. This connection is extremely stable, so all the benefits and performance of the solid carbide equivalent can be achieved with the replaceable head variant. The new drilling line can be used reliably and with immense stability even in difficult drilling applications such as inclined bore or cross bore drilling. The tool is perfectly centred via its pronounced drill tip and this ensures impressive connection stability and rigidity. Performing on a level equal to solid carbide drills, the new TTD-Tritan Drill incurs lower customer costs by limiting the need for costly carbide. Furthermore, the TTD-Tritan Drill reduces changeover times by enabling on-machine tip changes that also retain consistent precision performance.

The three cutting edges ensure a homogeneous load on the connection, so the forces applied during machining are transmitted uniformly through the steel tool holder. In addition, the connection guarantees optimum torque transmission whilst guaranteeing radial run-out accuracy.

Initially developed as a 'universal variant', the TTD-Tritan Drill is suitable for machining cast iron, stainless steel and carbon steels. The cutting edge geometry on the replaceable heads will improve drilling performance whilst reducing machining costs and tool inventory. Available in diameters from 12 to 32 mm in 0.5 mm increments, MAPAL also has extended diameters for drilling up to 45 mm.

Tooling the customer's success

MAPAL Präzisionswerkzeuge Dr. Kress KG is one of the leading international suppliers of precision tools for the machining of practically all materials. The company, founded in 1950, supplies leading customers in particular from the automotive and aerospace industries and from machine and plant engineering. With its innovations the family-owned company sets trends and standards in production and machining technology. MAPAL sees itself as a technology partner, supporting its customers with the development of efficient and resource-conserving machining processes using individual tool concepts. The company is represented with production facilities, sales outlets and service partners in 44 countries. In 2015 the MAPAL Group had 4,800 employees, generating sales of EUR 540 million.

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Modular tooling helps shops standardise

The inherent modularity of three Sandvik Coromant tooling product families, Coromant Capto®, Coromant EH and CoroTurn® SL, can prove highly advantageous to manufacturers looking to tool-up a machine or an entire factory. In contrast to spending money on a separate tool for each machine, component and feature, modular tooling solutions allow machine shops to build optimised tooling assemblies to suit all applications using just a small inventory of standard items.

Åke Axner, global product manager of machine integration says: "Adopting a modular tooling strategy imparts a standardised solution across the workshop, eliminating the need for expensive engineered tools with long delivery times."

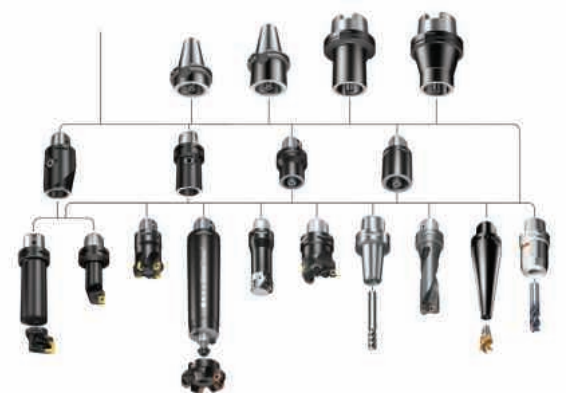
"The established Coromant Capto is a case in point. This modular tooling concept offers quick-change tool holders with direct integration in the spindle and a large variety of extension and reduction adaptors that enables the assembly of tools with different lengths and design characteristics, regardless of the machine interface."

Similarly, the recently introduced Coromant EH system of exchangeable cutting heads for rotating applications up to 32 mm offers users a wide assortment of solid carbide cutting heads, indexable milling cutters, boring heads, integrated machine adaptors and shanks. It delivers advantages in large machining centres requiring long reach, as well as in small to medium-sized machining centres and turning centres having critical gauge length.

A further modular product family from Sandvik Coromant is the CoroTurn SL turning modular system. The Serration Lock (SL) interface is highly robust and lets users create a wide range of tool combinations, from a small inventory of adaptors and cutting heads, for both internal and external machining operations.

To provide examples of where tooling modularity can prove invaluable, consider those hard-to-reach component features. Here, Coromant Capto can offer solutions for all different lengths and machine types, while combining the right Coromant EH shank and modular adaptor delivers both reach and accessibility in rotating applications.

Alternatively, consider the need for stability in operations prone to vibration. This is where the modularity of CoroTurn SL benefits from Silent Tools™ damped boring bars, ensuring productivity and close tolerances in operations with long overhangs.



Sandvik Coromant Tel: 0121 504 5422
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Precision clamping technology

In addition to the special solutions individually tailored to the workpiece or tool, Emuge now offers its first modular clamping system. The simple, versatile construction offers flexibility for appropriate clamping ranges and allows quick conversion.

The modular clamping system Emuge ExaClamp consists of the components connecting flange, traction device and clamping device. The connecting flange is available for the popular machine connections KK6, KK8 and KK11 (DIN ISO 702-1-A6/A8/A11). It offers a universal interface that is suitable for the three versions of the mandrel and the flanged chuck. The traction device, individually adapted to each machine type, is offered as a standard or a quick-change version for a mandrel as well as for a flanged chuck. Up to 50 percent can be saved for the retrofitting by using the quick-change version, because it offers quick-change connections to the other devices.

The three versions of the mandrel cover a clamping range from 18 to 36 mm and allows a maximum torque transmission between 24 and 35 Nm, depending on the clamping diameter. For best reliability and operation, the mechanical Emuge System SZ (slitted collet with a mono-taper) is used for the mandrel with the smallest clamping range and System SG (slitted clamping bush with a special buttress thread) for the two bigger versions was chosen. The flanged chuck, which is based on the SZ clamping system, offers a clamping range from 65 to 120 mm and a maximum torque transmission between 180 and 350 Nm.

With these specifications, the Emuge ExaClamp is focused on applications with large quantities and high accuracy requirements, accompanied by frequently changed setups in both hard and soft machining. The quick-change version supports saving time and money through its easy handling of changed setups.

Optimised clamping system for micro machining

Emuge-Franken has also launched an extension of its proven powRgrip®-clamping system which reduces the interference contour of the tool holder and expands the area of application for milling and drilling tools.

The powRgrip clamping system provides a quick, simple and safe clamping of tools by means of mechanical pressure and without heating up the toolholder.

The new PG 6 collets extend the application range of the powRgrip clamping system for both milling and drilling tools. Its target area is, in particular, the micro-machining sector, which is increasingly becoming more important in the watchmaking industry, dental technology, medical engineering, and in the optical and electrotechnical industry. High revolution speeds of the machine spindles, smallest tool diameters and highest accuracy requirements pose extremely high demands on the toolholder.

These requirements are perfectly met with the unique clamping principle of the powRgrip system. It offers a run-out accuracy of <3 microns and a precise length adjustment repeatability of <10 microns in the tool change. The design-based vibration reduction results in an excellent surface quality of the workpiece and a much longer tool life. In addition, the powRgrip clamping system shows a higher durability in comparison with conventional clamping systems because it is not subject to heat induced deformation and the collets are fitted with a special coating. Even after 20,000 tool changes, the transferable torque and run-out accuracy are the same as in new condition.

Furthermore, with the addition of the smallest collet size PG 6, it became possible to reduce the interference contours of the toolholder from Ø 16 mm to Ø 10 mm and this way to expand the areas of application. The PG 6 collets reliably clamp tool shanks from 0.2 to 3.175 mm with h6 tolerance. Above all, the PG6 collets are suitable for use with internal coolant-lubricant supply.

In order to press the new PG6 collets into the collet chucks, the clamping units had to be modified. Both clamping units, the automatic PGU 9006 and the manual working unit PGC 2506, offer adapted clamping inserts, pressure gauge and pump.

For nearly 100 years, Emuge-Franken has been a leading manufacturer of precision tools for thread cutting, gauging, clamping and milling. With 1,700 employees, the company offers an innovative product program with 40,000 in-stock items and a multiple of that with customer-specific tools.

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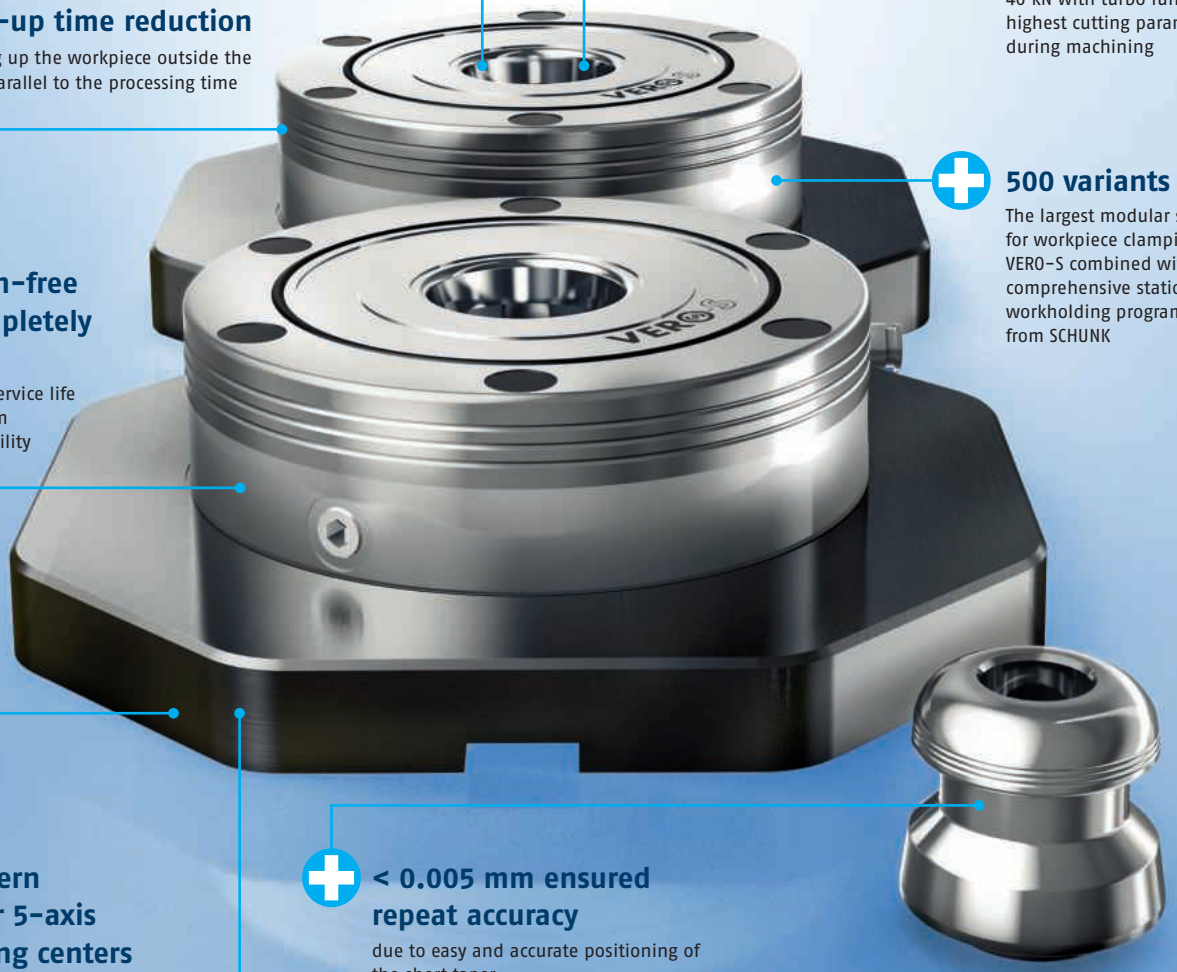

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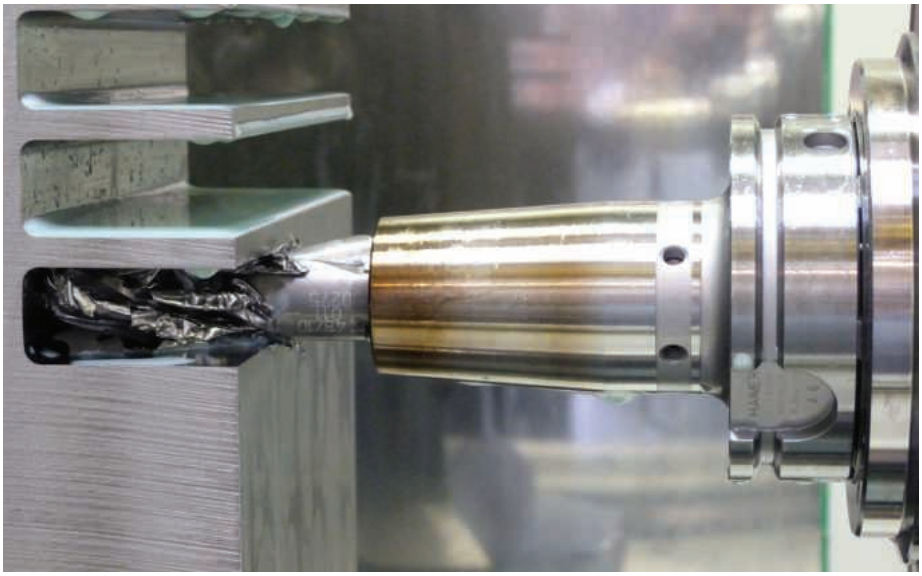
Safe heavy-duty machining

The importance of the toolholder is still understated, especially when it comes to roughing and heavy duty machining. Metal removal rates in these types of processes are absolutely crucial for the productivity of the machining operation. By using special shrink fit chucks with drive pins and spiral grooves in the tool shank, it is now possible to perform high-feed full slotting of up to 2xD (50 mm) or more difficult to machine materials. Application studies conducted by machine tool manufacturer Heller have proven the effect of the Haimer Safe-Lock™ system.



Especially within the aerospace, energy and mechanical engineering sector, production managers have to bridge the gap between economic efficiency and high process reliability when working with materials that are difficult to machine. Fortunately there is peace of mind in knowing that the machine technology innovations continue to develop to meet the ongoing demands of manufacturing. Heller Machine Tools is known as a source of inspiration for these kinds of innovations.

The company, located in Nuertingen, Germany, is known for its high quality 4- and 5-axis CNC machining centres, CNC mill/turning centres, CNC machines for crankshaft and camshaft machining as well as flexible manufacturing systems.

Customers value its availability of products and its competency in managing special processing demands. Both qualities stem from Heller´s in-house manufacturing, which relies on closer collaboration with customers, suppliers and research institutes to remain at the forefront of innovation.

Werner Kirsten, from the technology development department at Heller, explains: "our service includes optimising the machining processes together with our customers and suppliers. To support such services with practical trials, our technology centre is equipped with a variety of machines. In most cases the aim is to increase the productivity without compromising the process reliability. We often achieve this aim with an optimised roughing operation which ultimately results in a reduced finishing process. By maintaining the same technological values, but shortening the finishing depth of cut by 50 percent, the overall machining time is reduced to half. However, this requires process reliable and controllable systems during roughing."

In this regard, all machining components in the process chain have to be considered in order to improve productivity. The machine tool is the most evident component of the machining process. However, the tool, toolholding system, coolant supply and other elements are also essential for a successful operation. Werner Kirsten says: "In the end the weakest link of the process chain limits the success. Many of the trials which we carried out during the last few years have proven this point. We realised that the tool holder has an incredible influence on the machining process. In the case of reinforced shrink fit chucks, for example, the vibration node is closer to the bearing point due to the larger mass. The result is a smoother machining process with less vibration and a better surface finish quality while using the same tool, machine, process parameters and fixturing technology."

By selecting the right tool holder you can even achieve good productivity and surface quality results using basic standard cutting tools. As an alternative to a standard shrink fit chuck, Werner Kirsten selected a Haimer Power Shrink Chuck with Cool Flash which ensures that the coolant is transported directly to the cutting edges.

Werner Kirsten says: "Compared to using a normal shrink fit chuck and external coolant, we were able to achieve significantly better results."

When a group of representatives from the aerospace industry, the technical university of Dortmund and technical university of Hamburg-Harburg visited Heller, an especially extensive milling application study was conducted in Titanium Ti-6Al-4V.

The available machining centre was a 4- axis Heller H 5000 with a gear unit and HSK-A100 spindle, which yields torques up to 2.290 Nm. In order to demonstrate the machining potential, different 25 mm diameter end mills were used to mill full slots into a titanium plate. To simulate holder conditions used in the aerospace industry, the tools were clamped into reinforced shrink fit chucks. At an axial cutting depth of 0.5 to 1.0x D the machining process was found to be very reliable.

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Designer jaws increase efficiency in machine finishing

The intelligent jaw design of the UVB-HS soft chuck jaws from SCHUNK, the competence leader for clamping technology and gripping systems, defines a new class of efficiency in lathe chuck technology. With a combination of overheight and angle cutting, it achieves excellent efficiency during the machining of workpieces. The unusual jaw height allows for a larger clamping surface on the workpiece, which reduces deformations. Alternatively, the distance between the workpiece to the chuck face can be increased and thus accessibility can be optimised. In comparison to conventional monoblock jaws, SCHUNK UVB-HS reduces the jaw weight by at least 20 percent depending on the size. This increases energy efficiency and shortens the processing time, since the lathe chuck can be accelerated and slowed faster. At the same time, the reduced jaw centrifugal force allows for higher holding forces on the workpiece, which means increased process reliability.

Improved fluid dynamics

But it doesn't stop there. Angle cutting minimises the danger of collisions with the turret and improves the fluid dynamics during machining. At high speeds, SCHUNK UVB-HS chuck jaws lower noise emissions by up to 10 dB, which halves the level of the perceived noise. Since significantly lower cooling lubricant is swirled around the machining area, it is easier to see the machining process. This also lowers the amount of aerosols in the air when the machine is opened. The highly efficient monoblock jaws with angle cutting are part of the over 1,200 jaw types in the world's largest standard program of chuck jaws from SCHUNK. They are available immediately for wedge bar lathe chucks with straight serration in the sizes 200, 250/260 and 315 and can be turned individually to the desired diameter.

Clamping technology

The manually actuated SCHUNK KONTEC KSC clamping vices are highly efficient all-rounders for raw and finished part machining. They combine high clamping forces, convenient operation, and short setup times, and are very cost-effective. Particularly for use in automated machine loading, SCHUNK has further expanded its standard program with the affordable SCHUNK KONTEC KSC-F single-acting clamping vices with a fixed jaw. It offers quick adjustment of the clamping range, flat design and a low weight, perfect conditions for an unmanned workpiece handling on pallet systems. The three sizes KSC-F 80, KSC-F 125, KSC-F 160 are particularly designed for the common pallet sizes 320 x 320 mm, 400 x 400 mm, and 500 x 500 mm.

Due to the 160° quick clamping, workpieces are clamped with a torque wrench in a second, and the vice is safely locked. Due to clamping by tension, the bending load at the base body is minimised, making the vices suitable for use on a SCHUNK VERO-S quick-change pallet system. With reversible jaws, the vice covers enormous clamping ranges between 0 to 192 mm, 0 to 308 mm or 0 to 434 mm, depending on the unit size.

Centric clamping vices with encapsulated drive

SCHUNK has also expanded its range of centric clamping vices and upgraded the program with larger vices. Besides the sizes 80 and 125, this all-rounder is now available in size 160 with a base body length 280 mm, and high clamping forces of up to 50 kN. A preloaded precision ball bearing mounted, backlash-free spindle ensures an excellent repeat accuracy of +/- 0,015 mm, and allow precise machining of the first two sides in one clamping system. The completely encapsulated drive and the integrated chip removal ensures a particularly high process stability and minimum wear. Due to the jaw quick-change system it is possible to exchange the workpiece-specific jaws in just a few steps and cover a broad workpiece spectrum.

Wide selection of chuck jaws

The new KONTEC KSC and KSC-F clamping vices seamlessly fit into the SCHUNK modular system for highly efficient workpiece clamping. Clamping pins of the VERO-S quick-change pallet system can be directly mounted into the base body of the vice. Combined with the quick-change pallet system, they can be quickly exchanged on the machine table and at maximum repeat accuracy. The vices can be quickly equipped with different jaws from the SCHUNK standard chuck jaw program for stationary workholding, which generates a high degree of flexibility.

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High pressure hydraulic chucks from WNT

Precise gripping of small diameter cutters has been the domain of shrink fit for many years. Now, with the application of additive manufacturing techniques, WNT has developed a series of precision high pressure hydraulic chucks capable of gripping cutter shanks as small as 3 mm diameter with improved process security and enhanced cutter performance.

The application of additive manufacturing techniques has enabled WNT to create the high pressure chamber that operates the hydraulic chuck directly into the stem of the toolholder. This eliminates the previous requirement to braze this chamber in place, which was impossible to achieve accurately at these small diameters. With availability for shank sizes of 3 mm, 4 mm and 5 mm, with the main body having a three degree inclination, hydraulically clamped tools can now be used in applications that were previously excluded to this type of toolholding.

The arrival of precision high pressure hydraulic chucks at these diameters brings productivity and financial benefits to users. With a hydraulic chuck tool, setup time is around a third of that when using shrink fit, the tool is immediately available for use; all that is needed is to clamp, and measure. The chucks are suitable for both high speed steel and solid carbide cutters and can operate at temperatures up to 120°C, with the added benefit that as temperatures increase, so does the gripping pressure. With the superior damping characteristics of high pressure hydraulic chucks it is possible to achieve improved surface finishes when compared to shrink fit holders, especially when increased stepovers are employed.

Due to the high pressure clamping and increased damping and high torque capability provided by these chucks tool life is also increased, further reducing manufacturing costs. The WNT high pressure hydraulic chucks are available with SK40, BT40 and KSK-A 63 spindle taper fitments able to accept tool shank diameters of 3, 4, 5, 6, 8, 10 and 12 mm.

Tony Pennington, managing director of WNT (UK) concludes: "At WNT we are always looking to innovate in order to develop new solutions to issues faced by our customers. The clamping of small diameter cutters that require extended reach was one area that featured regularly in discussions. By embracing new technologies, such as additive manufacturing we are able to develop products such as this new range of toolholders."

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New compact hydraulic sliding clamp

Roemheld has introduced a range of compact, hydraulic sliding clamps designed for clamping in tight spaces on systems, press beds and rams. The new compact version provides the same clamping force as the classic sliding clamp, but both the size and the weight have been reduced. A new ergonomic design with recessed grips and rounded edges for simple insertion into the T-slots has made handling safer and installation easier. The new compact sliding clamp is ideally suited for retrofitting without the need for standardisation of the width and depth of the dies.

The compact sliding clamp consists of a clamping block and a T-slot adapter that is used to manually position the clamp in the T-slots on the press bed or ram. Various versions are available for the DIN widths of 14, 18, 22 and 28 mm. When used on other systems, the clamping blocks can also be mounted directly without the adapter, for example onto fixed spacer bars.

Clamping takes place by applying a maximum of 400 bar to the piston, achieving clamping forces between 19.6 and 78 kN depending on the version. The piston is released by means of spring force. Depending on the element, the overall stroke is 8 or 12 mm. The anti-corrosion surface protection enables the clamp to be used in demanding conditions with temperatures up to 120°C.

To allow use in particularly narrow construction spaces, the front of the clamping element has been redesigned. Both the clamping block and the insertion edges on the adapter has been ergonomically rounded, allowing smoother insertion of the element. A special recess on the block ensures a better grip on the clamping element and thus facilitates changing of the die.

To enable quick and simple setup, Roemheld also offers an angular rotary coupling as an accessory part as well as a parking station, which accommodates the clamp during the die change.

The Roemheld app for tablets provides comprehensive and descriptive information about products and solutions for die clamping and changing systems in sheet metal forming. It contains the entire product catalogue with over 1500 articles and variants, features many product videos, some animated 3D illustrations, application pictures and technical data sheets, showing a variety of application areas on presses and die-cutters. The app can be found at **www.roemheld-gruppe.de/app**.

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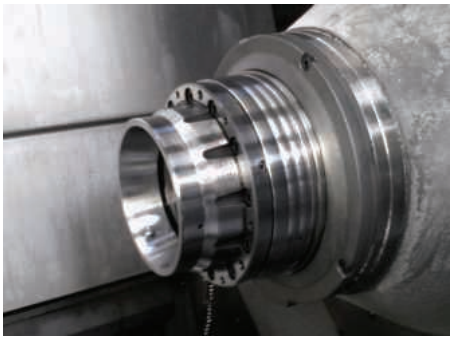
New mini chucks grip with speed and flexibility

When it comes to workholding, flexibility, the minimal interference contour and precision levels are all key factors. Luckily these core benefits can all now be combined with the new range of TOPlus and SPANNTOP mini chucks available from Hainbuch.

The launch of the new modular mini chucks marks a new era of compatibility and flexibility for customers buying this exceptional new modular system. The workholding specialist has now developed the SPANNTOP mini chuck to make it compatible with an adapter ring in order to use the new modular system. The existing MANDO Adapt mandrel and the corresponding jaw module already work perfectly with the new SPANNTOP mini, meaning complete autonomy for small component clamping needs.

Unlike the SPANNTOP mini chuck, the configuration for the TOPlus system is a little different. Whereas the SPANNTOP uses an adaptor ring, the TOPlus system has a ring of attachment holes that secure the jaw module. At present, Hainbuch is developing an innovative new MANDO Adapt series of adapters that will also work in harmony with the popular TOPlus system. In addition, both the SPANNTOP and TOPlus mini-series are available with a full through-bore plus a variety of standard lengths to suit all machine types and drawtube configurations. For the customer, this exciting new range of possibilities gives maximum flexibility with O.D. clamping via the clamping head and I.D. clamping with the mandrel adapting MANDO Adapt system whilst complete jaw clamping can be accommodated with the new jaw adapting module.



Of course interference of the clamping station is always a key factor when selecting a suitable solution. From this perspective, the new Hainbuch mini chucks minimise the interference contour to provide better workpiece accessibility and more room for manoeuvre in confined work envelopes. This is more prevalent in modern machine tools with multiple tool posts and driven tooling configurations where setup times and access to tooling is critical. In addition, the smaller and more compact mini chucks have a lower mass and this reduces the centrifugal forces and retains the clamping pressure when machining at high speeds.

This high clamping force is underpinned by a robust design that generates remarkable rigidity levels regardless of the machining application. The combination of uncompromising clamping forces and unsurpassed rigidity deliver precision levels that cannot be achieved by alternate clamping systems.

New magnetic clamping module

To complement the existing range of modular workholding chucks, Hainbuch UK has now introduced its latest new innovation, the Magnet Module. This exciting new concept has been developed for the processing of complicated components or thin walled parts.

Designed and developed with Neodymium 'super strength' magnets, the new magnet modules are compatible with standard Hainbuch workholding chucks, such as the extremely popular TOPlus and SPANNTOP systems. With just a single screw that activates the magnet, the new magnet module provides ease of use and very fast clamp and unclamping times. Incorporating a magnet on/off operation screw and super strength magnets that provide a maximum holding force of up to 140 N/cm², the Hainbuch magnet module is an extremely flexible and robust system.

Suitable for use with the Hainbuch range of 'pull-back' clamping devices, the magnet modules can be set up in the machine tool in less than 30 seconds. Furthermore, a lifting eye bolt enables this sturdy and robust module to be manoeuvred into the work envelope of the machine tool with remarkable ease. In addition to offering exceptional clamping forces, unfathomable

ease-of-use and the most simplistic setup and changeover configuration available, the Hainbuch magnet module also delivers a positional change over accuracy of 2 µm. With all these attributes, it may be time to call your local Hainbuch representative.

For 60 years Hainbuch has been constantly developing new clamping solutions focusing on customer's essential wants and needs. Setup times and cost savings, flexibility, productivity, energy efficiency and security, all that you expect from clamping solutions. Its products has these essentials, including CE certification, and the promise to be environmentally friendly.

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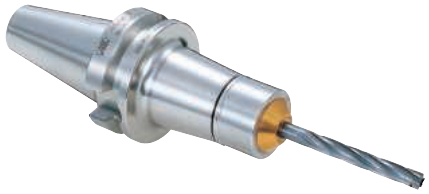
ITC takes precision to a new level

The new BIG KAISER Mega E-Chuck, now available from Industrial Tooling Corporation (ITC), has made a major impression in the marketplace since its recent launch. The thick body design, rigidity and precision of this line can deliver performance gains across the board with tool life, precision, surface finishes and productivity improving significantly.

This impressive new collet chuck has been designed for milling, drilling and reaming up to 12 mm diameter with astounding levels of concentricity and rigidity. Suitable for clamping tool shanks from 3 to 12 mm diameter, the Mega E-Chuck has a shallow collet taper to improve concentricity. The result is one micron run-out at the nose and three microns at 4xD. This precision is



guaranteed as every collet and holder is individually inspected before being released to the market. This uncompromising commitment to precision and quality is matched by the innovative design that ensures the ultimate in rigidity.

The rigidity is assured by the shallow collet taper and a clamping nut with thrust bearings that eliminate distortion during clamping. This nut design generates a much higher gripping force and enhances concentricity. The result for the customer is that long overhang machining is possible with complete process stability, as the deflection of cutting tools whilst end milling is minimal. One ITC customer has witnessed huge performance improvements when

changing from a standard ER collet to the Mega E-Chuck. The customer was previously drilling holes with a runout of 15 microns, which achieved a tool life of 800 holes. With the E-Chuck and a concentricity of two microns, the tool life was increased to over 2,300 holes.

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Matrix pin gripper system

Now exclusively available from Coventry-based ETG Workholding, the Matrix range of pin-based X clamp fixturing systems is ideal for 5-axis machining, creating a part-specific fixture in seconds.

It offers highly secure workpiece gripping without the need for special purpose fixturing and, being compact in design, is well suited to fixturing in 5th axis applications. Here, the trunnion is often smaller than on a 3-axis machine and when long reach toolholders are used, access is all important.

There are two variants available, Blue Clamp and Silver Clamp, which offer a combination of short setup times for varying shape workpieces, an economical alternative to custom-made fixtures and dimensional accuracy. Workpiece stability is assured due to the 'all round' component clamping as opposed to a conventional two or three point holding vice.

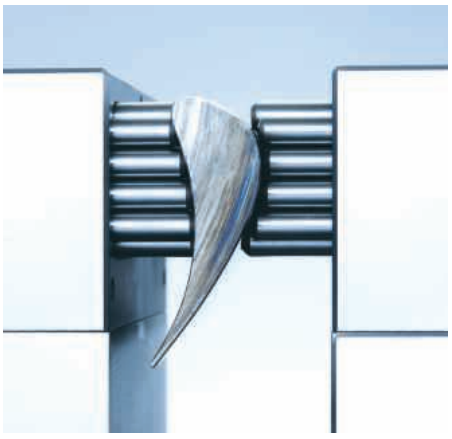
The clamp effectively creates its own component support, holding and clamping parts even with complex geometries, varying dimensions and sensitive surfaces. This creates a part-specific fixture in a matter of seconds which is fully repeatable yet still offers fast re-setting for the frequent changing of parts.

The Blue Clamp for metrology consists of X-support, X-Grip and accessories such as T slot plates and guide rails. The Silver Clamp is for the supporting of machining parts and consists of X-clamp and X-support in various sizes such as X-Clamp 100, X-Clamp 125, X-Clamp 40 along with the X-Support systems.

As well as for machining, the Matrix system can hold workpieces in assembly operations with pin material options for delicate surfaces or hot applications.

The Support XS is for supporting and fixturing small and sensitive workpieces featuring 142 pins with a diameter of 2.5 mm to guarantee a safe hold. This variant is particularly compatible with delicate surfaces.

Support SXS is suited to securing small, complex surfaces while guaranteeing high



accessibility for use in CMMs and measuring arms. It offers 37 pins providing a safe hold, combined with a minimal interference contour.

Finally the X 40 support offers reduced vibrations in light machining, holding small workpieces in a dense 58 pin, 3 mm pad.

ETG Workholding offers the MATRIX pin system either from stock or with short lead times.

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The holistic approach to testing of stylus-marked lettering

Automatic marking, reading and testing station (DMC & OCR)

In today's world of industrial manufacturing of goods and products, there is an increasing demand for traceability of individual components from consumer to manufacturer. This requires marking of products to enable their unambiguous assignment right back to the manufacturing process for individual components. Due to the increasing complexity of products consisting of a multitude of components, direct markings are applied with increasing frequency to existing surfaces for identification. It is necessary to ensure in this respect that marking of these components is realised correctly and completely. This is the only way to guarantee the traceability of the product. As a consequence, automatic testing of lettering is an indispensable prerequisite for a fully automated production process. The marking is ideally examined to ensure it has the required visual and geometric characteristics.

Employing state-of-the-art technology, a comparison is conducted through reading back or comparing the characters using OCR (optical character recognition) or an OCV system (optical character verification).

One critical point is the fact that these systems repeatedly need to be adapted each time to the respective layout of the labelling fields, a procedure which involves a considerable effort. This effort increases even more as the marking system needs to react with greater flexibility to different components with different labelling fields. The content of labelling fields changes in any case from part to part and, where small batches are processed, the layout also frequently varies.

In addition to dynamic application of the flexible text content of labelling fields, e.g. date and time stamps, part numbers, consecutive serial numbers, etc., modern marking systems can also transpose stored layout data remotely, thus enabling fully automated marking. It is therefore important to maintain precisely this high degree of marking system flexibility and, simultaneously, to transfer it to a functional, integrated testing system.

This is achieved through the marking system transferring information on the layout of the labelling field to the testing system as a dynamic test program. Testing criteria can already be determined or linked during creation of the layout in this respect. The testing system can then compare the expected marking with the actual marking using the specified testing criteria (point-to-point comparison). As this transfer occurs during each labelling process, highly flexible testing of the lettering can be conducted here.

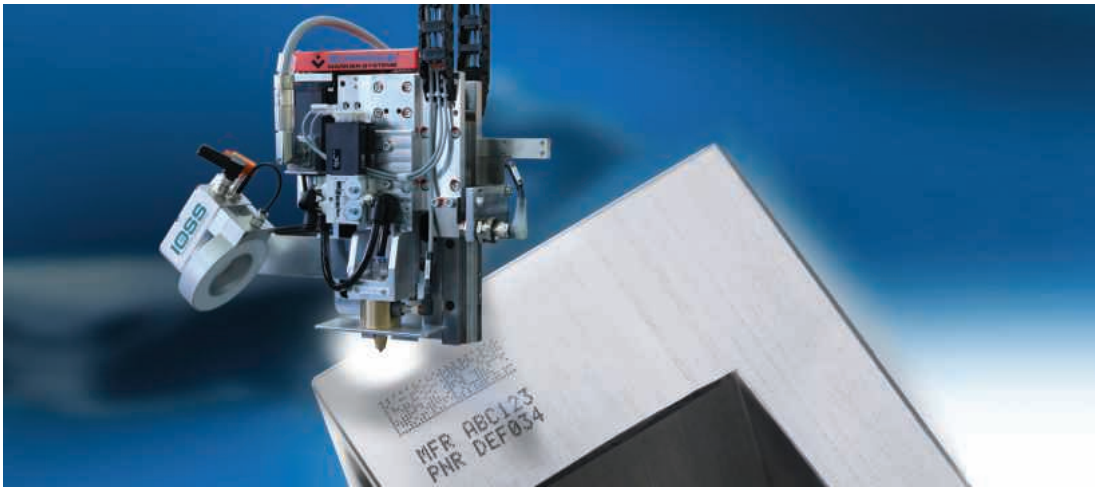
Lettering content, position, size and alignment can be dynamically adjusted for any number of individual labelling fields during this without the need to adjust the test program. This procedure reduces testing system setup costs and enables flexible and fully automated marking of components with 100 percent control of lettering.

Implementation of the concept for a Borries marking system and IOSS OCR520 testing system

The task described above was completely implemented for the marking system from Borries Markier-Systeme GmbH in conjunction with the OCR520 system from IOSS GmbH for the labelling of flat, round and oval metal tubes with differing diameters. The marking system can realise sheath marking and lettering along the cylindrical axis in this respect. The marking system has a total of four axes. The component is moved by a rotary axis during this, while both the marking head and testing system are moved using the three other system axes.

Both flat and slightly curved surfaces, e.g. on components with oval cross sections and sheath markings on components with round cross sections, can be labelled and checked in a fully automated process. Individual labelling fields are linked to appropriate testing criteria when creating the labelling layout. Standard specifications such as positioning accuracy requirements or requirements regarding the completeness of individual characters can also be imported in this context. Testing criteria can also be specially adapted where necessary for each labelling field. As a result, the test program for the testing system is simultaneously compiled when creating the labelling layout for the marking system.

Different camera positions can also be determined by the marking system if these are required to check a component. The marking system can move the testing system to the desired position using the appropriate axes. The position moved to is itself calibrated and saved in the testing system through the marked text and



position data available for this purpose. Following specification of the labelling layout and indication of all inspection positions to the camera system, it can be selected fully automatically and assigned flexible data for marking and checking. In the event of test results not corresponding to the requirements, a simplified or, where necessary, detailed diagnosis of the flawed lettering can be conducted in the testing system.

A fundamental difference should be observed in relation to marking systems, namely that printers, ink jet or laser systems, for example, generate contrasting markings which appear either light or dark, while marking system create geometric markings that are devoid of contrast and only stand out through their 3D structure. Contrast-based markings can be observed vertically, while geometrically based markings generally cannot be observed from a vertical perspective. The OCR520 system was configured in this case to reflect the special features of geometrically based markings.

During this, the OCR520 system exploits the fact that each marked point is part of a character or symbol and, consequently, the layout of several such points ultimately defines the complete character, lettering or symbol. The OCR520 system checks dotted plain lettering and symbols (logos) or special characters on the basis of individual measures points and their arrangement in the image. A modular lighting concept enables uncomplicated adaptation to practically any reading situation. The user can avail of sophisticated operating software for configuration which enables everything from global diagnosis of the complete marking to detailed evaluation of individual characters or points in a character.

The system, controlled completely by Borries, is distinguished by the fact that it can be used as both a line and matrix camera system or in alternating operation. It receives layout data for the marking during the marking process which can consist of several different character strings, individual characters, DMC codes or symbols. The marker typeset can be imported, enabling advanced specification of the optimum marking image to be expected in each case and its subsequent comparison with the marking image recorded. All position data of the lettering and scaling, rotary orientations and character spacing are taken into consideration in this respect in the layout data. The typeset is defined through files, meaning both the marker and OCR520 system can load and use these.

The OCR520 system can save up to 50 operating modes and as many as 50 labelling fields. An operating mode defines a geometric calibration, the parameters of the image recording, the definition of an ROI (region of interest) and requirements for the evaluation of individual points. Precisely one image is imported for each operating mode. The respective character strings and test conditions are transmitted during the marking process. Testing tolerances are also dynamically transmitted. This enables checking of everything from character strings, individual characters and symbols to individual points. A diagnostic tool integrated in the graphic user interface then enables precise analyses of the complete marking using all the recorded images of individual operating modes.

Lettering with variable content can be dynamically exported to a test program using the OCR520 testing system in combination with the Borries stylus marker without any intermediate effort. This means that fully automatic checking of markings is possible on level or oval objects with the matrix camera or on cylindrical objects using the line camera. Aligning of lettering during sheath marking can be realised radially or along the circumference during this. The evaluation result is transmitted in the form of a quality string from the testing system to the Borries marking system pursuant to the testing criteria. The quality string provides information on the quality of the marking. The quality strings and associated images can be saved in a database and/or transmitted to a traceability system.

Trend analysis

In addition to verification of the marked text, detailed examination of the geometry of individual points also offers a further advantage. Data collection over several labelling processes and its subsequent analyses can be exploited to monitor the marking system itself. As mechanical components are subject to wear, this influences the quality of the lettering after a certain period of time. Individual testing criteria or their combinations also provide some indication of the condition of machine components.

The Borries software can be supplemented with an optional function which collects test data in a database and analyses it. Evaluation of data (trend analysis) can be realised at regular intervals. For example, the onset of stylus wear or stylus breakage can be identified through statistical analysis of individual data such as trend and outlier testing and special image evaluations.

A first article inspection can be conducted at the start of a new production batch in the same manner as through comparison of the transmitted geometry data with stored reference values. The system informs the operator that parts need to be replaced in the near future or recommends servicing or maintenance. Early identification of worn parts and their timely replacement helps to avoid breakdowns and downtimes and achieve a permanently good level of lettering quality.

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Lasers secure part traceability for automotive fuel vent valves

Reliability, consistency and traceability are mandatory attributes for components being supplied into the automotive industry and this applies to even some of the smaller parts, often hidden from view but which can still be safety critical items.

This is the case for the fuel tank venting systems produced by Raval, the world leading manufacturer of these components, that rely on FOBA's laser systems to generate the alpha-numeric codes necessary to guarantee reliable identification and traceability.

Headquartered in Israel and with manufacturing sites in the USA, China and Europe, Raval now has over twenty FOBA CO_2 laser-marking systems in operation marking traceability codes on the vent valves used in fuel tank systems.

The permanent machine-readable traceability codes produced by the laser are used to track where and by whom the fuel tank venting components and valves have been manufactured, processed, stored or shipped. Should any defects be identified or problems regarding the fuel venting systems arise, the history of any part must be readily available to identify at which point of the production process the defect or error occurred.

The laser marks produced on these components are inherently simple, yet exhibit the excellent machine-readable characteristics required for identification and traceability.

In addition to the consistency and clarity required when marking, Raval also required sub one second marking times to match production line rates. Automotive component manufacturers such as Raval experience enormous cost pressure from OEM's, who often may be unwilling to pay for traceability marks on components, even although they would not accept components without these marks. This means that the marking process itself has to be inherently economical.

A comprehensive package for a smooth marking process

Raval's manufacturing site in Luxembourg has six FOBA Alltec CO_2 laser markers that are used in round the clock production. The compact design of the Alltec LC300 system means that the lasers and beam delivery units were easily integrated within the company's existing production lines and provided all required interfaces to ensure a smooth data exchange (RS232, TCP/ IP).

Lasers can make a substantial contribution to improved product quality and process reliability in many applications within the automotive industry and the comprehensive range of solutions offered by FOBA ensures that there is always an optimum solution available.

FOBA also offers its unique HELP (Holistic Enhanced Laser Process), a three-stage closed-loop marking process that ensures process reliability before and after laser marking. Parts are validated prior to marking, and with the combination of a TTL (Through-The-Lens) vision system and IMP (Intelligent Mark Positioning), only the correct mark will be applied in the correct position and only on the correct part.

Just one of the six FOBA laser marking systems used by Raval at their Luxembourg manufacturing site

FOBA laser marking systems are available within the UK and Ireland from Bromsgrove based distributor TLM Laser, who also offer application advice plus spares and service support for all laser applications.

For further information, contact:

TLM Laser
Tel: 0845 260 2220
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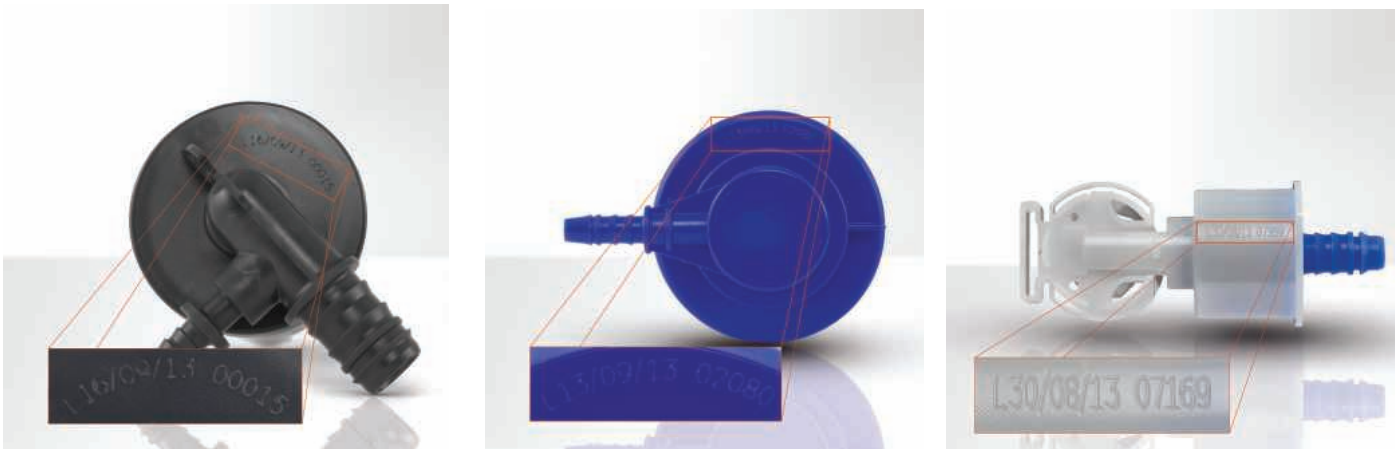
www.tlm-laser.com



Laser marked Raval fuel valves: (from left to right) FLV fill limit valve, ROV roll over valve, small roll over valve

Green laser light leaves its mark

SCANLAB expands Scan System product line for efficient materials processing

SCANLAB AG has rounded out its range of attractively-priced scan heads. New to the 'compact class' is the basiCube 10, optimised for use with 532 Nm green laser light. As a basiCube product family member, this scan system excels in laser marking applications at the new wavelength, as well as in laser-based (internal) glass engraving. The same applies to processing of precious metals, silicon wafers and other materials that respond poorly to typical infrared wavelengths.

Numerous industries are increasingly adopting laser processes for the marking of products. The benefits are obvious: laser markings are waterproof and resistant to smudging, abrasion and solvents, plus they offer full design flexibility by not requiring stencils or solid moulds. The inherent contactless nature of laser processes makes marking and processing wear-free. Benefits accrue to other applications too, such as durable direct bonding of electronic components on circuit boards.

Introduced in early 2015, the compact, remarkably cost-effective and very fast basiCube scan head quickly met with market success. Now SCANLAB has expanded this product family with a variant specially optimised for green laser light applications at the 532 nm wavelength. Such lasers are particularly well-suited for processing of glass, silicon wafers and (precious) metals. They enable generation of even the finest contours by focusing to very small spot sizes while simultaneously maintaining excellent beam quality and low heat development. This allows engraving 3D shapes inside a glass body or welding copper wires directly onto the silicon substrates of integrated circuits. Application areas are virtually unlimited, ranging from medical products, decorative items or jewelry, all the way to the semiconductor industry.

Like SCANLAB's other scan systems, these new scan heads are manufactured in Germany to the highest quality standards. The system is exactly as energy-efficient as

the other 'family members' for equal writing performance, with less electrical power consumed compared to other systems. This characteristic also positively affects the system's positional stability under load.

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Technifor supports more than a sprinkle of success

As part of the Hemlock Group, HPC Services provides high precision machining services to demanding customers in many industry sectors. When the company became involved with the production of tight tolerance parts for a new system for suppressing building fires, traceability became a necessity. This is efficiently and cost-effectively achieved by a TD412 laser-equipped LaserTop 2000 workstation supplied by marking and traceability specialist Technifor.

Initially established in 1986 by Paul Cobb's father, today the Derbyshire-based Hemlock Group has an annual turnover of around £7 million and employs 70 highly skilled staff. Hemlock invested in 3- and 5-axis prismatic machine tools, while HPC Services provides multi-axis turning with Swiss-type sliding head and turn-milling machines, to provide a one-stop shop service for companies across a wide spectrum of industry sectors. Both were early adopters of CNC technology and look to automate and improve efficiency whenever possible.

"It was the drive for efficiency and cost-effective results for the customer that initially prompted us to review the various component marking solutions available," recalls Paul Cobb. "We are machining 15,000 parts a month, and there are a lot of variables. One particular customer, Dual Mist, required component traceability to meet end customer expectations and industry safety standards. It requires part number, date and location it was manufactured, as we don't know when we are making a batch of any particular design we had to have a flexible solution."

That flexibility came from a Technifor LaserTop 2000 workstation fitted with the company's TD412 diode-pumped Nd:YAG laser to efficiently generate high definition marks. With a marking power of 12W it provides consistent, high contrast character quality on a wide range of materials and is capable of marking at up to 2.5 m/sec.

An innovative workstation, the LaserTop 2000 can accommodate any of the highly capable Technifor YAG or fibre technology lasers fitted with any lens. Compact in design the LaserTop 2000 can be installed on a desk or a worktable. It is quiet enough to be used in an office and no external cooling is required. The useful 520 by 580 mm working area provides maximum flexibility in the size and weight of workpieces accommodated. It makes laser part marking more accessible and can be operated with minimal training.

The Class 1 enclosure, certified against laser emissions, is fully interlocked to ensure maximum safety. The counterbalanced door is equipped with sensors and an anti-pinch system. Opening vertically up to 420 mm, it allows access and loading on three sides of the working area, while a large viewing window ensures operator confidence during marking.

LED lighting is embedded in the marking head so the marking area remains perfectly illuminated. A red diode marking pointer and 300 mm Z-axis motorised height-adjustment with positional display makes sure that parts are positioned correctly in the 240 by 240 mm maximum marking area and processed correctly every time.

For HPC Services the Technifor laser is used to drive a rotary axis to allow the cylindrical nozzles to be clearly marked around their circumference. By repurposing the plastic collet designed to be used by the installation engineers to screw the nozzle into the water feed pipework HPC Services has created an effective method of holding the nozzle body without risk of damaging it.

Paul Cobb recalls: "We investigated the various methods and suppliers and selected the Technifor TD412 for a number of reasons. First, as a bench-top machine it is very compact; while we are not restricted for room, we are keen not to waste floorspace. Secondly it is extremely well designed and built, when you have seen a few you know a good one. The third reason is the intuitive ease-of-use of the software. It is so straightforward even I can use it!"

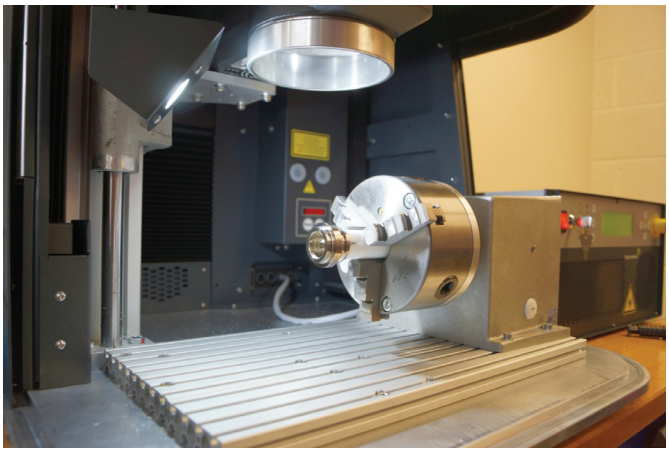
Prior to investing in the Technifor marking system, the company used the engraving capability of its Nakamura Tome CNC mill-turning centre to achieve the required traceability information. "When we first started producing the parts the volume was low enough to engrave the data on the circumference of the body. However, it added a minute to the machining cycle time of a lathe that cost £200,000. We are currently producing to order 2,000 parts per month, and that would be a lot of lost machining minutes. The Technifor system allows us to run the turning centres more efficiently and the mark generated on the component is of a much higher quality," he explains.

Although the quality of the mark was not a requirement at the outset, it is an

unexpected benefit that has impressed customers in other industry sectors, particularly the train braking sector that HPC Services supports. Components for this sector are now also marked using the Technifor laser, and there is enough capacity for HPC Services to offer its capabilities as a subcontract service to other engineering businesses.

With the sprinkler-based fire suppression industry worth around £500 million per annum, Paul Cobb is confident that the Dual Mist product range will grow significantly. In fact, he is so confident he has invested in the company: "Our paths crossed when a couple of businessmen approached Hemlock looking for 5-axis machining and also sliders to make some nozzles they had designed. I could see the potential, but they were difficult to machine and therefore expensive to produce.

"We redesigned the nozzles using our engineering skills to simplify the design to make it both easier and more cost-effective. We spent a few years getting the design as effective as possible, with the nozzle exit controlling the mist-to-water droplet ratio. It is so efficient now that we can literally replace nine sprinkler heads with a single Dual Mist nozzle. The potential cost saving for the construction industry is huge and we expect exceptional growth, so the marking machine will have to work even harder as we produce more nozzles."



It was not just the body of the nozzle that the team at HPC Services redesigned; the internal components have also been focused upon. The aim was to remove any rubber seals as these can perish with associated warranty and maintenance penalties. "We wanted to produce a 'fit and forget' nozzle, and every element has been driven by that goal. These systems have to remain operationally ready for the life of the building, and we are confident that the traceable marks created by the Technifor TD412 will remain completely intact and legible for the same timeframe," concludes Paul Cobb.

Technifor is a world-leading manufacturer of micro-percussion direct part marking machines for quality control, automatic identification and permanent traceability for metallic or plastic parts. With over 35,000 machines installed worldwide, Technifor is a proven global supplier of industrial marking equipment and verification solutions for in-line, stand-alone and mobile applications.

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Quality leaves a lasting impression

75 years of Röltgen

Founded in 1941 in Solingen, Wald by Paul Röltgen with only 5 employees, Paul Röltgen Junior OHG expanded rapidly within the first 20 years. In 1961 it became necessary to move into a new building in Solingen Merscheid, which has since been extended several times.

The second generation of the Röltgen family joined the company in the 1960s and the firm was renamed Röltgen GmbH & Co KG in 1969. New ideas and developments led to further expansion, including the production of coding tools for the packaging industry.

In the 1970s, there were around 70 employees and the second generation took over complete control of the company in 1983 and was the first to enter the German market with dot marking machines n its product portfolio.

Extensions to the building began in 1991, when the production facility in Solingen Merscheid was enlarged to 3,000 m². Frank and Marc Baehr, both grandsons of Paul Röltgen, joined the family business in 1995 and 1997 respectively.

In 2001, Röltgen GmbH & Co KG designed and developed the world's first 3-layer tablet press on a laboratory scale, called the FlexiTab.

Due to continued growth and the third generation of the family assuming control after the sudden passing of Siegfried Baehr in 2006, the facility was expanded once again, with new facilities built in 2008 for assembly, programming and quality assurance.

In 2016, 75 years since the company was established, Röltgen GmbH & Co KG is still family-owned and manufactures marking tools and equipment for the metals, plastics, pharmaceutical and food industries. There are currently 45 employees, seven of whom are apprentices.

The company recently exhibited at the AMB exhibition in Stuttgart.

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How Dixons Surgical chose its laser marker and laser welder

Established in 1948 and with the third generation of the Dixon family at the helm, Dixons Surgical Instruments Ltd is an Essex-based manufacturer of surgical and orthopaedic instruments, operating table accessories and portable autoclaves - pressure chambers used to carry out industrial processes at high temperatures. Offering a full service from design, through prototyping and on to full production runs, all Dixons Surgical equipment is manufactured at its Wickford factory using the latest technology.

In 2012, the company added a diode-pumped laser marker to its portfolio, alongside its lamp-pumped laser marker.

Managing director, Jay Dixon explains: "Not only were we running out of capacity using just one laser marker, but we also needed to be able to do smaller, more intricate marks, particularly when it came to part numbers and scales on orthopaedic instruments, something that a diode-pumped laser is particularly suited to."

After surveying the market thoroughly, the company chose a Datalogic V-Lase 10 laser marking system from Laser Lines.

Jay Dixon continues: "As well as the accuracy of the mark, one of the things that Laser Lines could offer was a bigger enclosure. For the type of work we do, we need the flexibility to mark larger items. Other brands at similar price points offered similar products with smaller enclosures of around 500 mm wide, as opposed to the 870 mm wide enclosure with the Datalogic system."

This flexibility was also one of the reasons why Dixons Surgical Instruments turned to Laser Lines for a laser welder to replace its silver soldering capability. The company knew that it didn't need a particularly high-powered laser and was on the look-out for the type of laser welder most commonly associated with the jewellery end of the market, most of which come with a small cabinet.

"We trialled a few different machines as part of the procurement process," he adds, "but we found that Laser Lines' product portfolio was different to others as we

weren't restricted to a small cabinet. We chose to invest in a laser welding system from OR Laser: the ECO 3300, which is a 120 W 'open' device that gives us the ability to weld parts as large as necessary. We also took a trip to the OR Laser manufacturing facility in Germany with Laser Lines and were very impressed with the excellent results that can be achieved with these particular laser welding systems."

Chris Ogden, business development manager for the Laser Lines Industrial Lasers Group, adds: "As Dixons Surgical discovered, Laser Lines has one of the most comprehensive industrial laser product portfolios on the market. The range of solutions we offer ensures we can provide the right product at the right price point, to suit very specific customer requirements."

For more information, contact:
Laser Lines Ltd
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Laser marking enables reliable traceability of medical products

The 17th of September was declared international Patient Safety Day, which takes place for the second time in 2016. Medical and health care professionals as well as patients themselves are challenged to implement adequate measures and standards to reduce treatment risks, but manufacturers also contribute to patients' safety by producing low-risk medical devices. Reliable traceability of these devices for safety reasons depends significantly on direct part marking.

FOBA Laser Marking + Engraving, the leading manufacturer of laser marking machines, is part of "MedicalMountains", a cluster initiative with over 200 member companies, which represents quality and innovation in medical technology. FOBAs high-performing laser marking machines form an important part of the production lines of medical device manufacturers worldwide.

The latest changes in the European medical device regulations will be subject of a training offered by "MedicalMountains" in the first quarter of 2017, providing help and information for management to adapt necessary changes in their businesses. Direct part marking (DPM) on medical devices ensures continuous traceability from manufacturer to patient and is mandatory for many industries. In this context, "MedicalMountains" provides support for its member companies to find adequate marking technologies.

Laser marking appears to be the most reliable technique for medical devices, which require biocompatible and hygienic marks. High marking quality with excellent long term resistance ensures traceability throughout the whole product life cycle. In terms of medical implants for example, these marks contain data on time and place of production, further processing, attending physicians, time and place of surgery and patient data. All information can be taken directly from the product and transferred further into hospital and other documentation systems.

Manufacturers benefit from FOBA's HELP (Holistic Enhanced Laser Process), a vision-based marking system that verifies parts and marking contents before, during and after marking. An efficient and nearly

error-free production can thus be guaranteed and production costs can be reduced by up to 80 percent.

The flexible vision-based FOBA marking systems solve the current demands of medical device manufacturers for industrial parts marking.

FOBA Laser Marking +Engraving
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Low Stress Marking

Durable marking without notch effect

In many industrial fields a durable and tamper proof marking of materials is an important issue. In this context, the term "Low Stress Marking" has been established. Next to conventional stamping methods like, for example, impact marking, the marking of characters and logos in dot matrix format have been proven. For this marking method a CNC-controlled dot peen marking system can be used.

The carbide marking pin of the CNC-controlled dot peen marker is similar to a centre punch. The pin is sharpened and rounded and thus enables the fast and economic marking of different matrix fonts. To get a matrix marking of characters, an interruption of the motion sequence of the marking process is needed. This means that the marking pin works not by oscillating but by a defined up and down movement. In this way, single points will be forced into the material.

The dot peen marking method has proved

to be successful in several industrial sectors. This includes suppliers of semi-finished products in the metalworking industry, gas and oil production, precious metal sector, machining centres (metals or plastics), shipbuilding and offshore industry, automobile industry, aerospace industry, plant engineering and construction, mould design and construction, pipeline construction, maintenance workshops and many more.

The FlyMarker® mini electromagnetic driven, hand-held marking system from

German company MARKATOR is particularly suitable for low stress marking. The FlyMarker mini is cordless, space saving and, with a light weight of 2.4 kg including battery, a very lightweight hand-held marking system with an integrated control unit. The hand-held marking system can easily be mounted on a column and can then be used as a table marking system to mark small workpieces or identification tags.

For further information on this highly effective marking system, contact:

MARKATOR
Manfred Borries GmbH
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www.markator.de

FARO 'inserts' quality for MSA Foams

Part of the Peli UK Group since 2012, MSA Foams Ltd offers a wide range of transit cases and produces bespoke foam inserts and packaging for the protection and presentation of items being transported.

To help satisfy the growing demand for the company's high quality products, Dorset- based MSA Foams has invested heavily in relocating to new premises, employing further skilled staff and purchasing the latest foam design and cutting technologies.

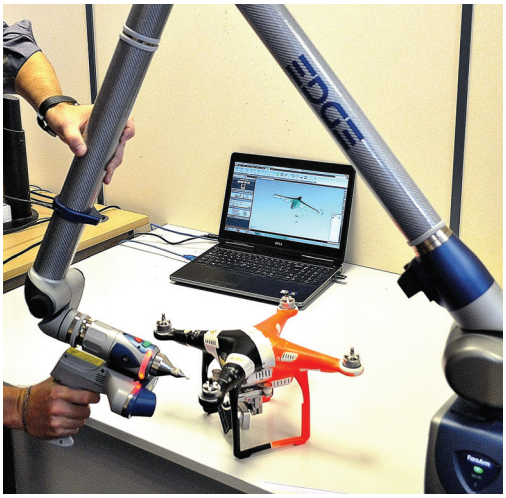
MSA tailors its services to correspond with each individual customer's specific requirements. Foam inserts can be custom designed and produced to accommodate the majority of customers' products and to match almost any type of case or container.

In order to be as responsive as possible to customers' needs and to provide the most accurate, custom cut foam inserts, MSA recently invested in a FARO Edge ScanArm HD and Geomagic software. The use of the advanced portable device that features rapid action and quick setup times enables customers' products to be scanned quickly and accurate profiles and dimensional data to be captured. After a product's scanning routine has been completed, if required, the acquired data allows the viewing of virtual representations of foam inserts and cases to be shown to customers.

On receipt of an order, the scanned product data enables the rapid programming of MSA Foam's range of advanced CNC conversion machinery. The extremely efficient, design-to-manufacture process, facilitated by the use of the FARO Edge ScanArm HD, enables the accurate production of precise foam inserts that, when incorporated into a chosen case, ensures the optimum protection of the items being transported.

Neil McMillan, MSA Foams managing director says: "To enable MSA Foams to remain a market leader in our chosen field we pursue a policy of employing highly skilled staff making regular investment in the best available technologies.

"Every one of our foam products is custom designed by the largest and most dynamic design team in the UK, who ensure that our design process is as flexible as possible for our customers. As our designers are able to produce optimum designs, and as we offer a wide range of foams, including flame retardant, static dissipative, anti-static and water resistant options, we are able to provide excellent levels of protection in transit for all of our customers' products, and when needed ensure the delivery of outstanding product presentational values.



"In accordance with our policy of striving for constant process improvements, we recently decided that the use of an even more advanced means of precise contact and non-contact measurement would further improve our design department's accuracy capability and speed-up our design processes. Also, we determined that the chosen technology would help fast-track the transfer of design data to our CNC manufacturing plant.

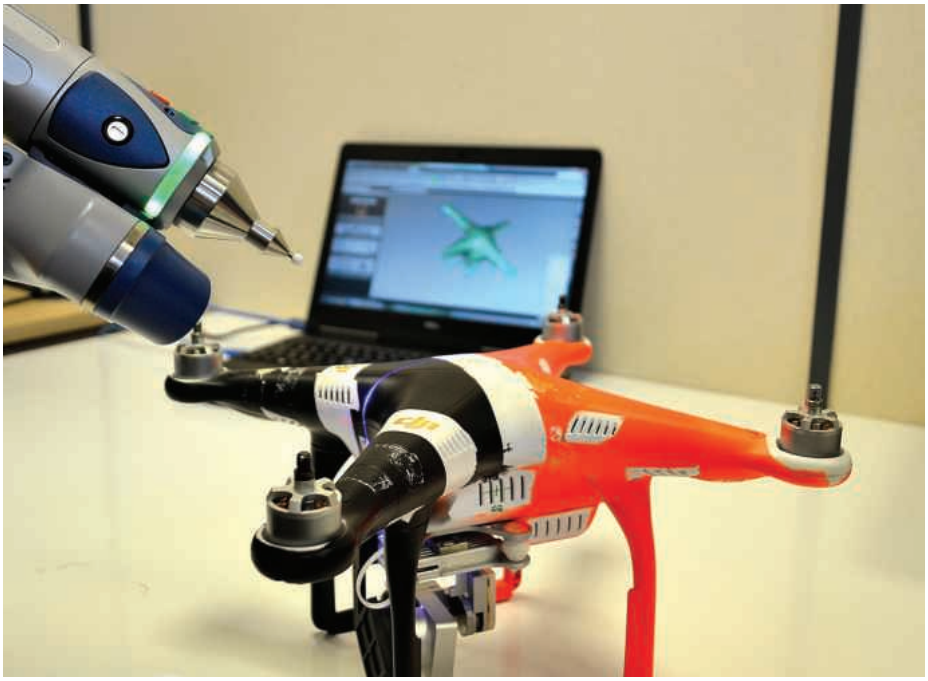
"Having considered several options from major manufacturers, an in-house demonstration of the FARO Edge ScanArm HD proved that the instrument was ideal for our needs. Now fully operational and in regular use by our design staff, for undertaking both tactile and non-contact measuring procedures, the FARO Edge ScanArm HD has given us a wide range of advantages.

"In addition to offering high-quality, cost-effective products, we pride ourselves in providing the quickest order turn-around in our industry, since its installation and operator training, our use of the Edge ScanArm HD has helped us in all of these areas. For many applications we are now able to scan customers' products more accurately and produce designs for suitable foam inserts much faster than before.

"By scanning customers' products we are able to achieve the best foam insert design for providing maximum product protection and for aesthetic purposes. Further efficiencies have been gained by using the scan data to quickly program our CNC foam cutting machines. The FARO product has reduced both our design and pre-manufacturing times and has helped us to

slash our order-to-delivery periods. These time savings also help us to quote very competitive prices.

The FARO Edge ScanArm HD as used by MSA Foams, features enhanced scanning technology, enabling materials with challenging optical qualities to be scanned with less effort and in a shorter time. In addition, improved software algorithms allow the scanning of materials with high contrasting colours at the same time. The ScanArm HD is the ideal tool for product development, inspection and quality control and offers capabilities such as point cloud comparison with CAD, rapid prototyping, reverse engineering, and 3D modelling of free-from surfaces. In combination with the all-in-one metrology software CAM2 Measure 10, FARO ScanArm's provides companies with a complete metrology package for both contact and non-contact measurement.



The Edge ScanArm HD scans customers' products more accurately and helps to produce suitable foam insert designs much faster than before. 3D scanning enables optimum foam insert designs that provide maximum product protection and when required, are aesthetically pleasing. Speed of operation reduces design and pre-manufacturing times, and also order to delivery periods.The data captured by the FARO Edge ScanArm HD enables efficient programing of CNC Foam cutting machines.

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Renishaw debuts all-in-one optical incremental encoder

VIONiCplus™ is Renishaw's new highest performance optical incremental encoder system that has been launched as part of the VIONiC™ digital all-in-one encoder series. The VIONiC design combines all necessary interpolation and signal processing inside the readhead and eliminates the requirement for additional external interfaces. To this end, Renishaw has developed a new Versatile Interpolation ASIC (VIA) chip to perform all of the functions originally executed by the interface. Other features, working in conjunction with the Advanced Diagnostic Tool (ADT), bring the end-user wide-ranging monitoring and diagnostic feedback.

The VIONiCplus incremental encoder is the culmination of research into the latest fine compensation architectures and advances in modern optimisation algorithms leading to unparalleled heights of performance. By leveraging advances in digital interpolation and signal processing techniques, Renishaw has built an encoder with Sub-Divisional Error (SDE) below ±10 Nm – unprecedented from a 20 µm-pitch scale. VIONiCplus is the first conventional optical encoder to deliver the performance advantages of ultra-fine pitch (<4 µm) systems with the additional benefits of better yaw and ride-height tolerance, easier installation, smaller system size, higher speeds, more flexible scale options including longer lengths, better dirt immunity and lower cost.

One application is scanning, for instance 3D LiDAR, which relies on precise constant-velocity control of a rotary motor in order to limit measurement errors at long range. The VIONiCplus incremental encoder is the ideal solution as it provides exceptionally low SDE that minimises velocity ripple. Furthermore in motion control, the encoder's high 2.5 Nm resolution and low 1.6 Nm RMS jitter reduce position settling time and increase stage repeatability.

The VIONiC series of incremental encoders has CE approval, is manufactured by Renishaw, using strict quality controlled processes that are certified to ISO 9001:2008, and, like all Renishaw

encoders, is backed by a truly responsive global sales and support network. The VIONiC encoder series is available to order now.

Renishaw is one of the world's leading engineering and scientific technology companies, with expertise in precision measurement and healthcare.

For further information on VIONiC, visit **www.renishaw.com/vio**

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Quality 'in the round' with Mitutoyo

Established in 1968, the precision machinery division of Kawasaki has been at the forefront of hydraulic technology and development for nearly 50 years. The Kawasaki brand is synonymous with quality and innovation in hydraulic pumps, motors, valves and complete systems across the whole spectrum of applications.

Located in Plymouth, Kawasaki Precision Machinery UK Ltd (KPM UK) is the centre for sales, engineering and manufacturing for Kawasaki hydraulic components and systems, including the world famous Staffa radial piston motor, for Europe, the Middle East and Africa.

For more than six decades the Staffa name has been synonymous with radial piston hydraulic motors, the motors' hydraulically balanced construction combined with Kawasaki's no-compromise approach to quality result in excellent levels of reliability and performance.

As the pistons and cylinders and other 'round' parts of Staffa products have extremely challenging dimensional tolerances, KPM UK recently searched for a roundform system that could enable attributes, including roundness, straightness, flatness, concentricity, coaxiality, perpendicularity and runout to be measured to extremely demanding levels of accuracy. The answer was found in a top of the range Mitutoyo Roundtest Extreme RA-H5200CNC, CNC roundness/cylindricity measuring system.

David Surcombe, KPM UK measurement technician, explains: "Although our existing roundness and form checker remained in good working order, we were aware of the progress made in roundness checking technology in terms of usability, speed and accuracy. Also, as a larger, heavier product was about to be added to our Staffa range, we needed a machine that could not only accommodate these new bulkier parts, but also remain future-proof if further even larger products were introduced.

"Given the demanding geometric, dimensional and surface finish specifications of many of our components, we compiled a comprehensive list of features that we required from our new roundness, form and surface finish checker. We then compared the specifications of the available machines to our technical requirements. Having dismissed many of the available units, as they did not have the levels of accuracy or list of features we needed, we then considered the top of the range offerings from three leading metrology companies.

"Although two of these premium models had some of the features we were looking for, the Roundtest Extreme from Mitutoyo proved to be the ideal machine for our needs. Although our decision was based on specification and not price, the Mitutoyo machine also proved to be the least expensive of the options.

"Following a trouble free installation of the Mitutoyo Roundtest Extreme RA-H5200CNC and on-site training, we were soon able to master the system and to perform complex component checks. It helped that Mitutoyo's Roundpak software is very intuitive and simple, as the vast majority of our inspection routines are carried out on the same families of parts. We have already written many part programs with the help of Roundpak's easy-to-use off-line programming function.

"We are now able to load a component on to the Roundtest Extreme and make use of the machines advanced self-centring ability, this considerably speeds-up the part loading process. We then recall the relevant program and instigate a fully automatic, fast CNC measuring routine. On completion, in addition to presenting all of the relevant accurate dimensional, geometric and surface finish information, Roundpak's clear graphics provide an instant visual indication of the status of all of the features being inspected. We are then able to download and archive this information.

"When compared to our older machine, in addition to enhanced precision and additional functions provided by our new Mitutoyo Roundtest Extreme, its impressive speed has increased the throughput of roundness and surface finish work in our busy inspection department.

"As the new machine has a maximum workpiece diameter of 680 mm and a weight capacity of 80 kg, not only is it capable of inspecting our new, larger parts, it should also be able to accommodate all future anticipated parts."

Mitutoyo offers a wide range of high-quality instruments for measuring roundform geometry on the shop floor, quality control room or laboratory. Mitutoyo's Roundtest is a sophisticated, highly accurate system capable of both form and surface finish measuring. A linear scale incorporated into Roundtest machines' X-axis, enables measurement to be taken while tracking the workpiece surface. This capability is most effective when measuring

a diameter difference involving a displacement that exceeds the detection range of the probe, or a taper that can only be measured with a slider/column movement. Semi-automatic centring and levelling of the workpiece on the air-bearing equipped turntable, via the AAT system, helps ensure easy setups, whilst Mitutoyo's powerful ROUNDPAK analysis software completes the comprehensive package.

The top of the range Mitutoyo Roundtest Extreme RA-H5200CNC, CNC roundness/cylindricity measuring system, as purchased by KPM UK, is an innovative measuring systems capable of automated measurement with independent/simultaneous multi-axis CNC control.

In addition to delivering outstanding measuring accuracy and reliability, Mitutoyo's CNC models also provide excellent inspection throughput. Roundness and surface roughness measurements are both available from a single measuring system therefore workpiece resetting for roughness measurement is not required. In addition, roughness measurement is possible in the axial and circumferential directions.

Mitutoyo's top of the range system boasts a turntable rotational accuracy of radial: (0.02+3.5H/10000) µm and is capable of measuring roundness, cylindricity, concentricity, coaxiality, axis-element, axis-axis, flatness, parallelism, perpendicularity, runout, total runout, straightness, inclination and taper.

Mitutoyo's Roundpak software includes an offline measurement procedure programming function. On-screen, virtual 3D simulation measurements can be performed with an integrated off-line teaching function that allows a part program to be created without an objective workpiece.

The probe and the holder unit of the Roundtest Extreme can be accurately represented in the simulation making the prediction of collision risks and warning alarms possible.

3D simulation screens (work-view windows) can be generated after entering CAD data (in IGES, DXF form) and text data.

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Monitoring pays dividends with OTT Power-Check

In long run batch machining operations, the need for repeatable accuracy puts a great onus on key machine tool components, none more so than the spindle.

Degradation of internal components, such as spindle bearings and the spindle pull back mechanism, will impact over time on sustained precision of the workpiece being machined, in the same way as tool wear. As such, spindle performance monitoring becomes essential in such environments.

Now, a newly introduced spindle pull force measuring gauge, the Power-Check Magazine is available from the German manufacturer OTT-Jakob and available in the UK from Gewefa UK Ltd.

The Power-Check Magazine features an integral ultra slim pencil design suitable for small machine tool spindles, for example HSK32, and a short gauge line which can be used in an automated manufacturing cell where preventative maintenance and continuous monitoring of the spindle pull-back mechanism are essential.

The Power-Check Magazine is located in the tool carousel, as with a conventional toolholder, and when tool changed into the spindle automatically transmits spindle taper retention readings to a remote receiver via a wireless connection.

As well as taking readings from machines involved in high volume, continuous machining operations, the new Power-Check magazine is also suitable for use in automotive and aerospace FMS systems where accessibility could be an issue.

Reduced or diminished clamping forces can have a long-term negative impact on machining precision and the machine tool itself. Consequences can be poor surface quality due to vibrations, increased tool wear, shorter tool life spans and even breakage. Other outcomes can be spindle taper corrosion caused by micro-movements, machine downtime and risk of operator injury.

The receiver for data sent by the Power-Check Magazine is called the Power Monitor. Using the software supplied, measurements from multiple transmitters can be displayed and saved in real time. The Monitor runs on batteries, allowing it to be used anywhere and thanks to its user-friendliness, data can be retrieved easily and with no complicated processes.

Data can also be transferred to a USB radio stick used in conjunction with a laptop to wirelessly transmit data from the Power-Check Magazine. It is able to receive data from numerous units, enabling the user to record and tabulate the readings relative to each individual machine tool.

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GB Precision selects Starrett HD400 Shadowgraph

Birmingham-based precision engineering firm, GB Precision provides complex components and sub-assemblies to customers in demanding industry sectors such as aerospace, packaging and medical. To achieve the results that these clients are looking for, the company is committed to a strategy of investment in state-of-the-art equipment, including CNC grinding, turning, milling and EDM, and, of course, CNC inspection facilities in a dedicated quality laboratory.

As an ISO9001 accredited company, GB Precision is constantly looking for ways to improve quality across the range of its activities, which is why, after thoroughly researching the options available on the market, the company recently invested in a Starrett HD400 profile projector with internal edge-detection.

Director, Paul Turner explains: "Our customers come to us because they know we offer a truly quality-focussed approach to everything we do. In many cases that means it's "all about the detail" and, in fact, it's often "all about the edge".

"To take just a couple of recent examples of "difficult to measure" features, one component was recently specified with a very large blend radius between adjacent surfaces. Even though the blend radius was very large the surfaces were only slightly angled resulting in a very small area of radius (less than 0.010 mm"). Another included a partial ellipse cut out, where the radii of the ellipse were 2.5 m in one direction and 11 mm in the other. The Shadowgraph technology proved the ideal solution for checking such difficult dimensions."

One of the key benefits of the Starrett HD400 is its simultaneous accuracy and simplicity of operation, making it particularly useful when production staff need to carry out in-process checks on components. This is why GB Precision has located the equipment on the shop floor to allow easy and rapid access by everyone on the team, reducing time taken for measuring and eliminating the possibility of operator subjectivity and manual errors.

Another major advantage of the HD400 is its ability to capture and store images, with added text if required, of the component measurement data, as well data point sets. These can then be filed with digital copies of drawings and other information, to build a complete digital record of the job, satisfying the increasing demand for complete component documentation in a variety of industry sectors.

Technical features of the HD400 include a dual mirror design to allow a vertically erect image and dual lens slide for instant magnification changes, together with fine adjustment for X and Y axes with fast traverse and zero backlash mechanism for the X-axis. In addition, the all metal construction ensures optimum stability and robustness for shop floor use, while the 50 kg load capacity allows for the measurement of larger components.

Paul Turner concludes: "The great thing about this technology is that it is easy to learn and easy to use and it does exactly what is required in the most effective way. The precision optics, versatile lighting and large screen give us the ability to measure a wide range of components with challenging features including very small and very large radii, complex runouts, difficult corner breaks, threads and varying shaft lengths and also the ability to spot any imperfections such as burrs and indentations.

"Our customers are seeking ever more extreme geometry and stringent tolerances, and are looking for perfect parts, every time. So not only does our machining technology have to be second-to-none, but our inspection system also needs to be first class, with the ability to check critical dimensions rapidly and reliably, whether it's a batch of two or 200-off. The HD400 provides us with far more than simple dimension and form checking, it is an essential production tool on our shop floor."

GB Precision is a precision engineering company specialising in the supply of components and sub-assemblies to customers ranging from large corporations to small and specialised companies. It supplies to numerous industrial sectors including aerospace, packaging, electronics, motorsport, medical, pharmaceutical, and plastic moulding, both in the UK and overseas.

GB Precision
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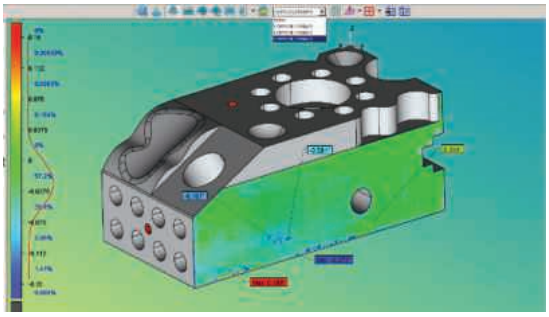
Setting the standard for measurement software in every application



Hexagon Manufacturing Intelligence has launched PC-DMIS 2016, the latest edition of the popular measurement software. This release introduces new tools and technologies to help metrology equipment users collect, evaluate, manage and present actionable manufacturing information in more effective ways, delivering maximum value for any manufacturer.

PC-DMIS 2016 offers overall performance improvements and major enhancements for measurement strategies and complex inspection tasks. CAD and graphics improvements help users take full advantage of embedded GD&T, offering one-click inspection routine generation and added validation functionality to notify the inspector of possible problems in the model before they become actual problems in the measurement process. A new section cut tool is ideal for sheet metal, aerospace and medical applications, or anywhere that surfaces require fast and reliable measurements based on fixed cross-sectional relationships to a coordinate system. PC-DMIS 2016 also makes it easier for users to get cross-section data quickly by moving the pointer along a section cut to see deviations in real time and clicking on any spot that needs reporting.

Ken Woodbine, president of the Hexagon Manufacturing Intelligence software division says: "PC-DMIS 2016 delivers workflow improvements for faster measurement routine generation and enhanced measurement strategy algorithms to maximise confidence in the results. Each enhancement offers maximum speed through your day-to-day tasks with compressed workflows, while intelligent automation increases confidence in your final result. The results are increased productivity in your metrology operation and maximum confidence for your data-driven manufacturing processes."

Application performance has been optimised for speeding up everyday tasks like opening and executing measurement routines, copy and paste, and report printing. Feature-based measurement and mini-routines options have been simplified, making them faster and easier to use. Also, new path line options allow the user to assign different colours to path lines to differentiate between moves, probe rotations, and hit points providing quick reference and easier adjustments. A new measurement strategy editor offers customisable parameter values for each feature type to use when importing inspection plans or create quick features.

PC-DMIS 2016 is available to download immediately.

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New quality control lineup wins prestigious award

Creaform, a leading company in portable 3D measurement solutions and engineering services, has announced that it has won the prestigious Red Dot Award for product design 2016. For over 60 years, Red Dot has been one of the largest and most influential independent product competitions in the world.

The judging panel were clearly impressed: "Thanks to this portable 3D measurement system, highly complex data can be collected with absolute accuracy. It fascinates with a lightweight structure, easy-to-use functionality, perfect ergonomics and an economical material usage. The system's components blend into a highly symbolic and emotionalising appearance. The device embodies an overall solution of high design quality with an exemplary character."

The 41-member jury awarded the Red Dot: Best of the Best for top design quality and ground-breaking design to Creaform's optical CMM solutions, which all deliver unmatched accurate and reliable 3D measurements, even in the harshest and most unstable production environments. The portable optical CMM HandyPROBE Next was created with a carbon structure, optimised with FEA and featuring excellent weight distribution. The device can be operated with two ergonomic positions; a more stable "stylus pen" style, and a versatile "joystick" style. Both the MetraSCAN 3D portable optical CMM 3D scanner and C-Track optical tracker feature a new, more aggressive design and a reinforced structure for improved stability. Software interoperability, as well as easier session control with gesture recognition, was also integrated into each during the initial design.

Marco St-Pierre, division vice-president, Technology & Innovation says: "From the very beginning, Creaform has relentlessly focused on the look and character of its products. Design plays an integral and impactful part in our R&D process. This vision has proven to be instrumental in helping us gain market share within a historically conservative field. We are extremely proud of Red Dot's recognition of our products' designs as well as how lightweight, easy to use and ergonomic they are, all of which are crucial features for our clients."

Last year, Creaform also won the Red Dot Award for product design for the HandySCAN 3D handheld scanner, the fastest and most reliable auto-positioning metrology-grade scanner for industrial applications.

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Autodesk introduces 2017 CAM products for industrial manufacturing

Autodesk is ushering in its new 2017 Computer Aided Manufacturing (CAM) products for a multitude of advanced manufacturing applications ranging from CNC mill- and lathe-programming to complex mould and die manufacturing. These new products combine the heritage of industry leadership in CAM software from Delcam with Autodesk's 3D design and manufacturing prowess, presenting Autodesk CAM customers with a powerful and unique user experience.

Autodesk's 2017 CAM solutions include: enhanced versions of FeatureCAM for automating CNC programming; PartMaker for precision part manufacturing with Swiss-type lathes; PowerMill for designing the most complex moulds, dies and other components; PowerShape for the design of 3D complex parts; and PowerInspect hardware-independent inspection software.

Mark Forth, manager of manufacturing industry strategy at Autodesk, says: "Manufacturers need to iterate and innovate faster than ever before to stay competitive as the marketplace is redefined by a new future of making things. Autodesk's new 2017 CAM products are designed to help our customers learn, improve and master advanced manufacturing techniques that ultimately lead to better designed and functional products being brought to market more quickly and efficiently."

During the IMTS 2016 conference in Chicago, IL, Autodesk outlined its broader vision and software portfolio to support manufacturers in this new competitive environment. In addition to the technologies unveiled, the company also showcased solutions for additive manufacturing, CAM, composites and more.

FeatureCAM 2017 and PartMaker 2017

Autodesk FeatureCAM is an easy-to-use solution for milling machines, turning and turn/mill centres, and wire electrical discharge machines (EDMs). The automation tools within FeatureCAM help manufacturers reduce programming time, allowing parts to be made faster. They also increase programming consistency for maintaining part quality.

Autodesk FeatureCAM 2017

The 2017 version of the product includes the following improvements: new programming capabilities for dual-path Swiss-type lathes, further improving its range of CNC machine support; ability to import and view product and manufacturing information directly from a model in order to help visualise design specifications; access to functionality that allows pre-drilling when using Vortex toolpaths, ruling out the need for helical ramp moves.

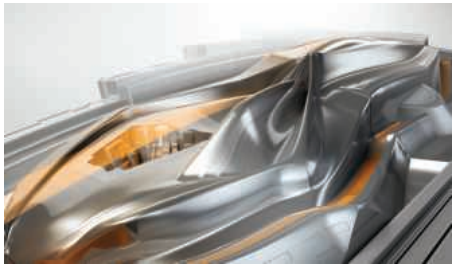
In addition to the features above, PartMaker 2017, which enables complex, high-precision part manufacturing with Swiss-type lathes, is now available within the FeatureCAM 2017 Ultimate product tier. The two products in combination form a complementary bundle that effectively addresses the programming requirements of today's manufacturing shops.

Autodesk PARTMAKER 2017

Bill Karas of Karas Kustoms says: "We have a great history working with FeatureCAM, and when we were asked to evaluate the new Swiss lathe functionality, it was a no-brainer for us. In the past, I had been programming the Swiss machine by hand. Using FeatureCAM for the Swiss machines saves our company a ton of time with excellent results."

PowerMill 2017

Autodesk PowerMill 2017 takes the ability to easily and effectively manufacture the most complex moulds, dies and other components to new heights. This latest version includes the following new features: more efficient 3D offset finishing toolpaths, greater simulation controls and constraint-based logic to optimise non-cutting link moves for safer, more efficient machining. For the first time, PowerMill also provides strategies to create turning routines for use on 5-axis mill-turn machines.

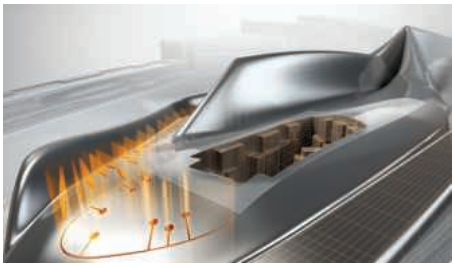


Autodesk PowerMill 2017

These improvements continue to make PowerMill the ideal choice for manufacturers looking to solve the most demanding of 3-axis, high-speed and complex multi-axis applications.

Randy Lee Meissner, CNC department supervisor at Dynamic Tool and Design says: "PowerMill helps us to maintain a high level of consistency in our programming, which directly and positively affects time in process and customer satisfaction. We develop processes where each engineer is using the same techniques and the same tools, so there is no variation among the work everyone is doing. In the old days, there may have been some hand-fitting, but today we can count on uniformity in the moulds we create from order to order."

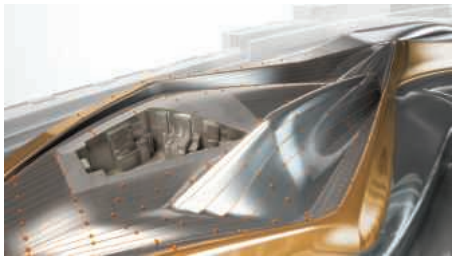
PowerShape 2017
The design of 3D complex parts just became more effective with the following improvements to PowerShape 2017: accessibility shading to identify areas of a part that cannot be machined with 3-axis machining alone; a new rib capping tool allows users of EDM technology to automatically create surfaces in order to stop cutting tools from machining slots that will be produced by EDM; hundreds of surfaces are created in a single command, saving hours of manual modelling, the PowerShape electrode wizard offers improved EDM hardware integration for shop-floor burning. Finally, regular users of reverse engineering tools can benefit from improved fitting of surfaces to imported triangle meshes.



Autodesk PowerShape 2017

PowerInspect 2017
Autodesk PowerInspect simplifies the inspection of complex shapes by providing a single solution for a wide range of measuring equipment. PowerInspect 2017 includes the following new features: support for portable measuring equipment, coordinate measuring machines (CMMs) and On Machine Verification (OMV) which are offered in a single package for PowerInspect Ultimate users. This improves productivity and flexibility by making it easier for operators to select the most appropriate measuring equipment for each job; the ViewCube feature offers specific benefits for visualising inspection results and creating inspection reports; a single click mechanism to recall the principal CAD viewpoints, making the creation of consistent inspection report images faster and easier than ever before

PowerInspect 2017 also offers improvements to point-cloud performance that now allows users to take advantage of the improved capabilities in the latest scanning equipment. A dedicated point-cloud single point item provides an easy way to evaluate target points from laser scan data.



Autodesk PowerInspect 2017

Price and availability
The 2017 products PowerMill, PowerShape, PowerInspect and FeatureCAM are now available to new and current customers in three levels: Standard, Premium and Ultimate. PartMaker 2017 will be included as part of FeatureCAM Ultimate.

All products will be available as perpetual and maintenance licenses and, through Autodesk Subscription, a purchasing option that provides access to Autodesk desktop software with lower upfront costs on a term-based license to meet a variety of business needs and budget considerations.

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New smart drawing importer module

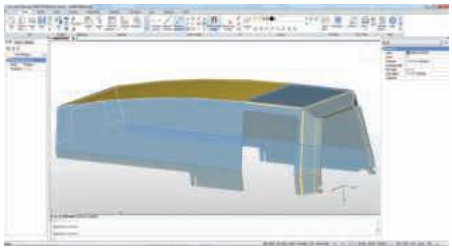
LVD Company nv has added a new module to its CADMAN® suite of programming and shop management software. CADMAN-SDI (Smart Drawing Importer) simplifies 2D and 3D CAD file import and calculation of cost drivers so users can more quickly and accurately create job estimates. It features an integrated 3D CAD package used to check or correct imported files. CADMAN-SDI adds yet more functionality to the integrated suite of database-driven CADMAN products designed to help users optimise programming and maximise throughput in the workshop.

Smart Import
A CAD drawing file is imported into the module with simple drag and drop action. A file can be imported part by part or in a batch of parts using STEP, SAT, IGIS, DXF, DWG, SLDPRT, IPT, STL, WMF or a number of other file formats. Once imported, the file is converted to OSM (Open Sheet Metal) format and stored in the central CADMAN database.

CADMAN-SDI displays key cost driver

information obtained from the 2D/3D file import and automatically saves the converted OSM file directly into the CADMAN database. The stored OSM files are also immediately accessible for all other modules of the CADMAN suite for fast and efficient generation of laser, punching, bending programs and jobs scheduling.

All the cost details needed
CADMAN-SDI provides all the details needed to create an accurate cost estimate, including all relevant part information, such as part name, 3D and unfolded 2D drawing, material type and thickness, as well as all cost drivers such as contour length, netto and bruto part area, bounding box 2D, 3D outside dimension, the mass of the part,



cutting length, number of contours, number of bends, and more. All of the data is visible at just a glance of the control screen. Data can also be exported to an Excel, PDF, XML or CSV file.

Integrated sheet metal CAD package
CADMAN-SDI includes BrisCAD®, a robust 3D direct modelling CAD package. BrisCAD allows the 3D drawing to be reviewed in detail, modified or corrected as required. BrisCAD provides recognition of features, allows the user to modify a junction into a bend, change overlaps, create notches and lofted bends, program parametric parts and even to import entire assemblies.

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CGTech unveils VERICUT Version 8

CGTech unveiled the new VERICUT Version 8 at last month's IMTS show in Chicago. VERICUT Version 8 will also be featured in the UK at 2016 events including the Advanced Engineering shows at the NEC from 2nd to 3rd of November.

VERICUT Machine simulation detects collisions and near-misses between all machine tool components such as axis slides, heads, turrets, rotary tables, spindles, tool changers, fixtures, workpieces, cutting tools, and other user-defined objects. Users can also setup 'near-miss zones' around components to check for close calls and detect over-travel errors. Machine movements and material replacement can even be simulated while stepping or playing backwards.

VERICUT CNC machine simulation, verification and optimisation software simulates all types of CNC machining, including drilling and trimming of composite parts, waterjet, riveting, robots, mill/turn and parallel kinematics. The software operates independently, but can also be integrated with leading CAM systems including Dassault Systemes CATIA, Siemens PLM NX, Autodesk PowerMill and Vero EdgeCAM.

New ribbon bar

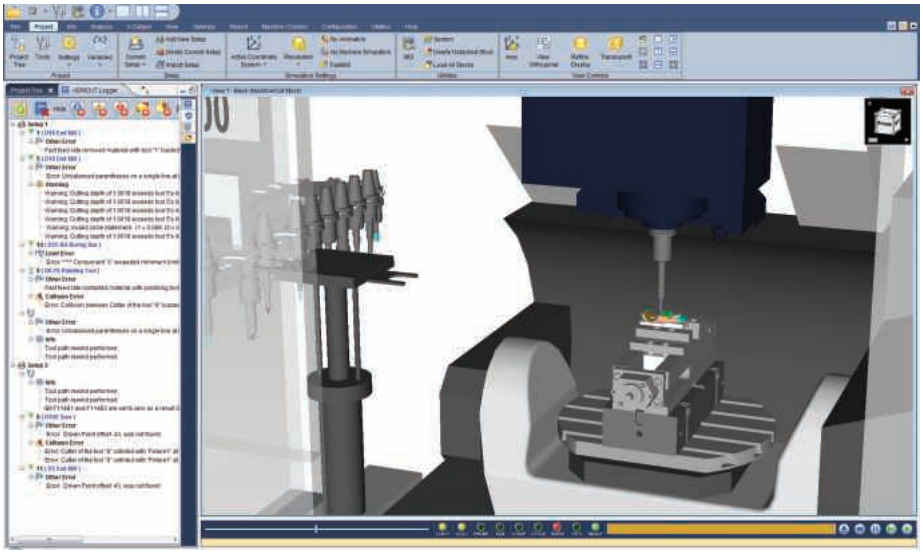
VERICUT V8 features a new ribbon bar allowing the user to quickly select the required function. As you move from tab to tab, the ribbon bar dynamically updates to show the options available and options are grouped by the function they perform within VERICUT.

VERICUT product manager, Gene Cranata says: "VERICUT 8 is all about optimising our customers' workflow to quickly access only the menu choices needed at the time. The ribbon bar helps users find the functionality they need quickly and with minimal mouse clicks."

The Ribbon Bar is highly customisable, but to ease the transition for existing users, a VERICUT classic setting organises all of the menus and options where users previously found them. Several other layout options are included and can be selected depending on the task at hand. Users can also create and save their own layouts as needed for different jobs.

Integration with cutting tool suppliers and tool management systems

The accuracy of the data input will directly affect the output. So an accurate model of the cutting tool and holder is required for the effective and accurate simulation of the machining process. Leading cutting tool manufacturers, such as Sandvik, Kennametal and Iscar, now make 3D solid model data available and VERICUT can read in this model data for use in the simulation process. Many of the 3D models are available via the Machining Cloud App, and Version 8 has been enhanced to take advantage of more Machining Cloud metadata. This can significantly simplify the configuration of tools for use in VERICUT. VERICUT also interfaces with tool management systems such as TDM Systems, Zoller, and WinTool for access to databases storing cutting tool information. Pre-setting suppliers including Zoller and Speroni can also interface to the software, so tool offsets and exact dimensions can be applied to the simulation process.



Consolidated reporting features

The VERICUT logger now displays messages and reports from many sources. In addition to errors, warnings, and other messages from the VERICUT session, it also displays information from AUTO-DIFF and X-Caliper. The messages can be grouped, sorted, and displayed in a variety of ways depending on user preference.

Graphical tool path analysis

A new "Toolpath Trace" feature creates a wireframe of the motion path that can then be measured. No stock model is required to generate a path. Picking on a path in the wireframe automatically sets the simulation to the current line in the NC program.

Simulation of all types of machine tool brands

CGTech has worked with end-users and machine tool manufacturers to create accurate and effective virtual machine tool configurations. These range from simple 3-axis milling machines to multi-axis machining centres, simple 2-axis lathes to complex mill-turn centres with sub-spindles and robot loading, waterjet and laser cutting, and machining/polishing robots.

VERICUT simulates every machine tool brand, including DMG MORI, MAZAK, Makino, Matsuura, Hermle, Chiron, Starrag, WFL, Okuma and many more.

Headquartered in Irvine, California, CGTech specialises in numerical control (NC/CNC) simulation, verification, optimisation and analysis software technology for manufacturing. CGTech was founded in 1988. Since that time, our main software product, VERICUT®, has become the industry standard. With offices worldwide, VERICUT software is used by companies of all sizes, universities/trade schools, and government agencies.

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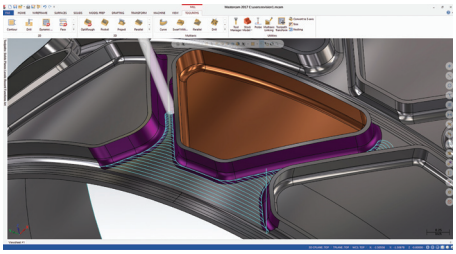
Mastercam 2017 released

CNC Software has announced the release of Mastercam 2017. The new version offers a new suite of programming tools focused on delivering speed, automation and efficiency for all machining jobs. It introduces a more efficient workflow, improved usability, dynamic motion improvements and so much more.

Mastercam 2017 features a new ribbon interface and makes it easier for users to find the functions they need to complete tasks. CNC Software president Meghan West says: ''Many of our more powerful tools were underused because customers did not know where to find them. We spent a lot of time with users determining the best way to simplify this and the response has been overwhelmingly positive.'' The ribbon tabs group similar functions and displays them in order from simple to more complex. Each tab relates to a type of activity, from creating wireframe geometry to generating toolpaths. Editing functions are on the same tab as creation functions so you have all the tools you need, when you need them.



Mastercam's dynamic motion technology can slash machine time by as much as 75 percent or more. Dynamic motion can also help users to get the most out of any machine in their shop, new or old. Mastercam's dynamic motion technology maximises material removal rates, extends tool life, reduces cycle times, saves wear and tear on machines, and cuts hard materials more easily. New to 2017, micro lifts now use a line-of-sight approach to move the tool where it needs to go through unobstructed areas. This results in reposition moves that are more efficient, less complex, and travel a shorter distance resulting in shorter cycle times.

Mastercam 2017 introduces maximum stock engagement for select 3D high speed finishing toolpaths, limiting how deeply the cutter engages uncut material and protect smaller tools from taking too heavy of a cut. Optimised raster motion improves toolpath efficiency by filling in steeper geometry with perpendicular raster motion to create a cleaner result. Mastercam mill-turn now supports multi-station tool locaters for turrets as well as half index positions and improvements to tool and job setup to improve overall workflow.

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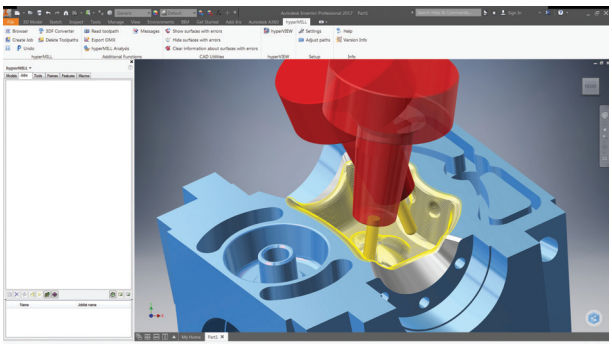
hyperMILL 2016.2 certified for Autodesk 2017 software

The hyperMILL® CADCAM solution from OPEN MIND Technologies has now been certified by Autodesk Inc. This means that an integrated and fully autonomous workflow is ensured when converting files from Inventor 2017 software to hyperMILL. This makes transition from Inventor through the hyperMILL CAM system and on to the CNC machine tool completely seamless.

The necessary data association was confirmed following a rigorous test procedure for the latest edition of hyperMILL Version 2016.2. This rigorous process was fully affirmed on the same database to increase the common access, speed and efficiency. This new authentication ensures that errors are avoided and the workload for the end users is reduced to a minimum. The big advantage for customers is the changes in the CAD data that leads to an automatic update of the CAM operation. This is particularly convenient for Inventor users, as it allows these customers to invoke the entire CAM functionality of hyperMILL within this familiar CAD interface.



OPEN MIND develops optimised CAM solutions that include a high number of innovative features not available elsewhere to deliver significantly higher performance in both programming and machining. Strategies such as 2D, 3D as well as 5-axis milling/mill turning, and machining operations like HSC and HPC are efficiently built into the hyperMILL CAM system. hyperMILL provides the maximum possible benefits to customers thanks to its full compatibility with all current CAD solutions and extensive programming automation.

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

The company strives to be the best and most innovative CADCAM manufacturer in the world, helping it become one of the top five in the CADCAM industry according to the NC Market Analysis Report 2016 compiled by CIMdata. The CADCAM solutions of OPEN MIND fulfil the highest demands in the automotive, tool and mould manufacturing, production machining, medical, job shops, energy and aerospace industries. OPEN MIND is represented in all key markets in Asia, Europe and America, and is a Mensch und Maschine company.

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Reaping the benefits of a 123Insight system

CT Production Ltd, based in Poole, Dorset, provides electronic manufacturing services. Originally founded in 1982, current MD Mario Morilla took over the company in 2015 after the previous owner retired. The company relied on an MRP package that had limited capabilities, as he explains: "Although we had reasonable control of our stock there was no serial number tracking capability and we couldn't take data out of the system and manipulate it. Complex structures were also an issue, such as creating sub-assemblies within a structure that could then be scheduled to be manufactured themselves. We were also looking to enter the aerospace and military markets, so CRM was an important factor to assist with managing ISO9001, SC21 and AS9100 accreditations."

The company decided to research the market and looked at several systems that offered a combined MRP/CRM solution, costing between £50 k-£100 k. The short term aim was to improve traceability of products and communications, with the long term target of integrating third party data such as test results and spectrum analysis into the system so that QA documentation can be quickly compiled at the point of shipping.

Several staff attended two of 123 Insight's Evaluation Workshops in March and May of 2011. Mario Morilla says: "We came away incredibly positive. In fact, we liked the open approach so much we are hosting similarly styled events for our own prospects, customers and suppliers. However, others, including the then MD, that attended the second workshop did not share that view. In the end it was a 3/2 vote for another system."

It had taken two years to reach a decision on a solution and they started implementing the other system in June 2013. However, after purchase it quickly became apparent that it would not meet their needs. Jason Raby, engineering manager explains: "It was cumbersome, long-winded and completely fixed in its way of doing things, everything was a further tweak. All the extra costs that came into play started to turn us off and the implementation team didn't seem to know what they were doing."

Four months after selection, the company decided to halt the implementation, managing to reclaim much of its spend and limiting its exposure to around £14k. Staff immediately attended 123insight's six days of no-obligation training on the understanding that if the system didn't work for them they could walk away with nothing to pay.

After the training was completed, the decision was made to immediately select 123insight and move ahead with a staged implementation. Mario Morilla says: "We decided to start off with sales orders, works orders, delivery notes and invoices. There were a couple of additional minor functions that we needed for purchasing, so we spoke to 123insight and agreed a timeframe for development."

CT Production used 123insight's Data Import Toolkit to transfer the data from its old system. During the implementation process, Jason Raby created a dummy system while the additional functionality was being written. This allowed him to get accustomed to the software. After going live, the company immediately saw several benefits. There was a drastic reduction in the use of paper, as documents such as invoices were now emailed as PDFs or viewed on screen when needed. Jason Raby adds: "Paper used to go missing all the time, but that just doesn't happen anymore." A 'tracker' document used to follow jobs around production, but the information that this provided is now viewed on screen.

CT Production selected 123insight based

on the combination of its MRP capabilities and the integrated CRM+ option. Together they provide traceability not only for manufactured products but also for processes and communications within the business. This has allowed staff instant visibility to information thus spending less time chasing data around the facility. Email alerts can also be done to send reminders if an action have not been performed within a predetermined time period.

123insight's Advanced Serial Tracking provided a complete breakdown of a finished product with a couple of mouse clicks, quickly identifying the included components, who supplied them and in which batch, along with full details of the product's route through the manufacturing process. Sage 50 is also in use within the company's accounts department, so they implemented the AAI (Advanced Accounts Interface) to connect 123insight to it.

Another significant benefit is the ability to view and manipulate live data. Jason Raby says: "With 123insight we have the ability to create live data feeds into Excel. We can then run custom macros or pivot tables to look at it whichever way we want to. As a result our end of month Work in Progress report that used to take around 6 hours now takes staff about 25 seconds to produce. It was custom reporting on steroids. As the system is so intuitive we were able to set all of this up without any assistance from 123insight's HelpDesk."

123insight has become the backbone of the company, so much so that it is now a part of CT Production's staff recruitment process. Candidates are given a short tutorial on how to use basic functionality on 123insight using a test system with dummy data and then asked to repeat a similar task. Those that are able to complete it move onto the next stage of recruitment.

Over recent years, the company has seen year on year growth of over 20 percent, and has ambitious expansion plans for the future. Mario Morilla concludes: "We're continuing to expand into aerospace and defence and will rely further on CRM+ for that. We're also planning to add more 123insight seats into other areas such as testing to further enhance and extend the traceability. Although we initially selected the wrong system it was a no-brainer to re-select 123insight. The investment we made was paid back pretty quickly and it leads to ongoing savings. We're always getting more out of the system which is constant payback. In fact, we've won customers because of some of the functions that 123insight has, such as traceability and the linking of test information to orders."

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Tech Data appointed as leading distributor for Polaroid 3D printer

Tech Data has been appointed as the leading distributor for the new Polaroid ModelSmart 250S 3D printer and consumables range in the UK. It will be working with retailers and resellers to maximise the product's potential in the consumer, education and commercial markets.

One of the most famous names in imaging, Polaroid is making 3D printing available, affordable and desirable for everyone with this ground-breaking product. It has been designed specifically for the consumer market, with clean looks and designs that will fit in with the décor in any household, classroom or office.

The Polaroid ModelSmart 250S 3D printer comes with the unique Polaroid Prep software, which means you don't have to be a 3D expert to print good-looking 3D models. It makes printing 3D objects almost as easy as printing traditional text documents, opening up the world of 3D printing to the consumer for the first time. Users can import their own creations or any model from the many web sites with free 3D objects, scale and easily print, with full visibility of estimated time and filament usage.

It is being brought to market through a three-year partnership between Polaroid and UK-based manufacturer, Environmental Business Products (EBP), which is Europe's largest and longest established collector and re-manufacturer of inkjet cartridges. During this time, EBP will be the sole manufacturer of the Polaroid 3D printer and consumables range. Polaroid 3D printers are manufactured exclusively in the UK.

Peter Lunn, senior category manager for Print at Tech Data, says: ''Polaroid is an iconic brand-name and as well as being easy to setup and use, the new Polaroid ModelSmart 250S is what the market has been waiting for. It will be perfect for schools looking to acquire a usable and affordable 3D device and the growing number of home imaging enthusiasts. This is a fast-growing sector with huge potential.''

The Polaroid ModelSmart 250S has a large print area of 250(w) x 150(h) x 150(d) mm and features accurate auto-calibration and a vertical resolution (layer height) that can be set to between 50 and 350 microns. It also has a WIFI-enabled camera built-in to enable remote monitoring of prints and is very easy to setup and use, including only 12 advanced settings.

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Jota gets off to a fast start with PSL Datatrack

Jota Advanced Engineering Ltd, the recently formed subcontract precision engineering division of the Jota Group, has invested in a PSL Datatrack production control system to manage its subcontract engineering business. Having already invested in a skilled workforce to support the requirements of Jota Sport motor racing, the company was in the perfect position to expand its business by lending its engineering skills, quick turnaround and technical capabilities to the highly competitive general subcontract market. Having made this move the company recognised the need to invest in dedicated production control software, with PSL Datatrack ticking all the boxes.

Ryan Goodger, director at Jota, explains: "Our experience looking after the Jota race programme meant that we were used to fast turnaround, high precision engineering and as we are very good at this type of work we were confident we could offer a similar service to all kinds of engineering markets. That has proved to be the case and now some 75 percent of our work is in the general subcontract area of a wide range of industries and covering everything from prototyping to production."

Jota Advanced Engineering has a comprehensive plant list that includes a Haas UMC-750 5-axis vertical machining centre, Haas Mini Mill, Haas ST-10Y and 30Y CNC lathes, Bridgeport Mills, Colchester Student and Elliot lathes. To manage production, originally the company had started out using a combination of Word and Excel documents, along with an in-house database. It was soon realised that a slicker, more capable and less time consuming method of production planning and control was required in order to match its aspirations for growth in the general subcontracting sector.

Ryan Goodger says: "We needed a system to bring it all together and were introduced to PSL Datatrack by a fellow subcontractor at the MACH 2016 exhibition. Following a full demonstration by PSL Datatrack, rather than just an online demo that was given by another company, we decided it was the system for us over and above other systems."

Not only was Ryan Goodger impressed with the approach, time and help provided by PSL Datatrack during their evaluation of the system, he also recognised the advantageous features of PSL Datatrack software. Ryan Goodger adds: "The focus of PSL Datatrack is on the precision engineering sector and the attention to detail is clear to see. The system is well designed, fast to navigate, logical and intuitive to use. We also liked its flexibility and the fact that it could be tailored specifically for us."

The onsite installation and training provided by PSL was focused on fast implementation and enabled Jota to go live the following week. The system provides manufacturing process control of quotations, sales and purchase order processing, through to workshop scheduling, shop floor data collection, deliveries and invoicing.

Ryan Goodger concludes: "We are very pleased with the investment we have made. Our business now has a system in place to complement our technical abilities. We now have far more accurate information available about our business, our commitments and capacity. We can now quote with the confidence that we can keep the quality, precision and punctual delivery promises that we offer our customers".

PSL Datatrack is a flexible, modular production management system designed for both small and medium size manufacturing businesses. The system helps to manufacture quality parts, right first time, sold at the right price and delivered on time. PSL Datatrack can give businesses the means to do this as well as provide vital information to management and the shop floor in the most efficient way possible. The system is scalable, to fit customer requirements, starting with a quotation/ estimate through sales orders, purchasing, quality, scheduling, administration and technical functions to invoicing. The latest PSL Datatrack release is notable for its extra functionality and its many new user-friendly features including faster navigation and easier data input.

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Optimise thermal management during plastic injection

One year ago, GF Machining Solutions signed a strategic partnership with global additive manufacturing leader EOS, headquartered in Krailling, Germany. The partnership demonstrates the companies' commitment to advancing additive manufacturing as a leading technology and working together to ensure its seamless integration into the conventional manufacturing chain.

The AM S 290 tooling, based on the established and proven EOS technology, is a system dedicated to the mould and die industry and is now available worldwide. A System 3R MacroMagnum chuck is fully integrated into the building system. In combination with the reference point calibration software, it permits the absolute location of parts relative to the X/Y plane of the building platform, which in particular supports manufacturing of hybrid workpieces. It further integrates building platform handling with other machining processes to separate workpieces or accurately refurbish building platforms for re-use.

The integrated chuck is intended to be used in combination with standard pallets or building platforms equipped with a standard reference element. This significantly improves the ability for upstream and downstream integration of the additive manufacturing process in the whole production process.

The hybrid mould insert is the most economical solution for parts characterised by geometrically simple and complex sections. Depending on material and size, such hybrid parts can be created by directly generating the additively manufactured part on top of the conventionally manufactured base or by separately finishing and assembling both parts.

With this system, GF Machining Solutions focuses on mould inserts with conformal cooling and heating channels. These inserts can be used for any kind of plastic products in all segments. Thanks to additive manufacturing enabled conformal cooling, customers can reduce their cycle time, increase their productivity and improve the overall quality of, for example, a critical plastic part with thin walls. Advantages of additive manufacturing are now well understood and its industrialisation is a major step towards the future.

GF Machining Solutions is actively collaborating with EOS to speed up development of this solution which will be a major step in fulfilling Industry 4.0 requirements.

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Meeting the reliability needs for modern automotive applications

Henkel's complete Loctite Impregnation Solutions (LIS) product portfolio not only offers impregnation resins and systems but also a customised service through both external, as well as tailored, on-site impregnation service centres. Through LIS, Henkel, a leading supplier of porosity sealing products and services, offers the automotive industry a one-of-a-kind, fully automated impregnation system, and its high-tech resins deliver consistent quality and unmatched sealing performance.

Once Henkel professionally seals components, customers can expect very high sealing rates as well as clean and dry parts ready for assembly. The highly efficient design of the LIS centres enables customers to achieve greater levels of sustainability by minimising resin usage, energy costs and shortening the processing time.

When casting aluminium automotive components, those castings may suffer from porosity defects that can lead to problems in parts such as engine blocks, cylinder heads, and compressors. Porosities are small holes or cracks that can be permeated by fluids or gases. They appear in castings as they change from a liquid to a solid state. If not properly treated, they can lead to corrosion, pressure loss, fluid loss or costly failures in the field.

Similarly, troubling microscopic leak paths may occur in electronic assemblies when joining dissimilar materials. Aggressive substances can penetrate into the components, potentially causing short circuits, corrosion, and loss of power or other issues.

Such castings and electrical components need to be sealed to ensure they do not leak and that they provide appropriate resistance to chemicals, aggressive fluids and high operating temperatures in the field.

Henkel has been offering its globally recognised impregnation service for over a decade, developing unparalleled expertise in the process. It has created a presence close to customers in key countries and continues to aggressively expand its global position.

Markus Alterauge, global business director of LIS, noted that automakers continue to reduce weight, cut costs, and improve fuel efficiency, safety and comfort. All of which point to the need for a high-quality sealing solution such as the one that Henkel offers. For more information, visit: **www.loctiteimpregnation.com**

Henkel Adhesive Technologies
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www.henkel.com

Innovative solutions for flexibility and process stability

EuroBLECH 2016 reflects the trend towards smart manufacturing in sheet metal working From 25–29 October, EuroBLECH 2016 will open its doors in Hanover, Germany. The exhibition will, once again, be the meeting place for sheet metal working professionals from all over the world looking to find enhanced machinery and innovative production solutions. Visitors will be able to discover an extensive variety of products, from conventional systems to high-tech solutions, and gain an insight into the latest technological advancements in sheet metal working. With this year's theme "The New Generation of Sheet Metal Working", EuroBLECH 2016 reflects the trend towards digitalisation and smart manufacturing in modern sheet metal processing. Well ahead of the show, the organisers, Mack Brooks Exhibitions announced a further increase in exhibition space of the world's leading trade show for this industry sector.

A total of 1,550 exhibitors from 40 countries have already secured their stand space at this year's EuroBLECH, the 24th International Sheet Metal Working Technology Exhibition, covering a net exhibition space of 89,000 square metres across eight halls at the Hanover Exhibition Grounds. This represents an increase in net floor space of three percent compared with the previous exhibition. This reflects the fact that exhibiting companies have booked bigger stands to demonstrate an even larger choice of enhanced machinery and cutting-edge solutions.

Major exhibitor countries are Germany, Italy, China, Turkey, the Netherlands, Switzerland, Spain and Austria. EuroBLECH is traditionally renowned as a highly international event and the previous exhibition was more international than ever, with 52 percent of exhibitors and 37 percent of visitors coming from outside Germany. A total of 59,618 trade visitors from 105 countries attended the event in 2014.

The New Generation of Sheet Metal Working

Today's production is undergoing major changes. With automated production, machine-to-machine communication and intelligent process chains, smart manufacturing has now become an integral part of sheet metal working. Data exchange along the entire production value chain paves the way for optimised manufacturing processes, improved planning reliability, more flexibility and higher product quality. With product variety increasing and batch sizes decreasing, manufacturing processes in sheet metal working are becoming ever more complex and require highly efficient and flexible solutions. Companies in the industry sector are, therefore, currently facing an environment of change that requires vital decisions for the long-term adaptation of their production processes.

This year's theme "The New Generation of Sheet Metal Working" EuroBLECH reflects the prevailing somewhat revolutionary development in production technology. As the global business barometer and leading industry platform for the sheet metal working industry, EuroBLECH will present a large variety of tailor-made solutions for optimising and modernising production processes. Exhibiting companies will put a comprehensive range of machinery, tools and systems for the entire value chain of sheet metal processing on display. The exhibition profile includes sheet metal, semi-finished and finished products, welding and surface treatment, processing of hybrid structures, tools, quality control, CAD/CAM/CIM systems and R&D.

Visitors will be able to see live demonstrations of a large variety of machinery and systems and discuss practical applications with top industry experts. The show targets all sheet metal working specialists at every management level in small and medium-sized companies as well as large enterprises. Visitors include design engineers, production managers, quality managers, buyers, manufacturers, technical directors and experts in associations and R&D.

Information for visitors

A visitor brochure in twelve languages is now available from the organisers and can be ordered via the multi-lingual show website www.euroblech.com. The leaflet includes the show profile, a plan of the exhibition halls, practical information about the exhibition as well as useful information on travel and accommodation.

The online exhibitor list, available at **www.euroblech.com**, is regularly updated and provides plenty of information on exhibiting companies. The online newsletter "EuroBLECH Bulletin" offers latest news about the show, its exhibitors and the industry sector. EuroBLECH can also be followed on Facebook, Twitter, LinkedIn and YouTube. The official hashtag is #euroblech.

EuroBLECH 2016 will be open from Tuesday, 25th October 2016, to Friday, 28th October 2016, from 9.00 – 18.00 and on Saturday, 29th October 2016, from 9.00 – 15.00. The show will take place in halls 11, 12, 13, 14, 15, 16, 17 and 27 at the Hanover Exhibition Grounds in Germany.

Mack Brooks Exhibitions Ltd
Tel: 01727 814400
Email: press@mackbrooks.co.uk
www.euroblech.com

Mazak

Your Partner for Innovation

At Yamazaki Mazak we believe in leading the market not following.

That's why, at EuroBLECH 2016, we will be unveiling new machines and automation systems which will revolutionise laser cutting..

Visit www.mazakeu.com/euroblech for more information

Yamazaki Mazak U.K. Ltd.
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Worcester WR4 9NF

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It's all about you

Production efficiency from AMADA

The entire production process on show with the latest machines and processing technologies

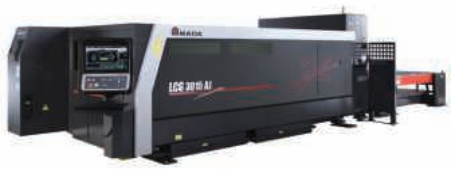
Productivity is the key to the competitiveness for every company. Production technologies are the source for innovation, differentiation, ensuring the final clients' loyalty and facilitating the capacity to acquire new clients for our customers. AMADA not only creates machines but also answers specific needs by delivering "tailor-made" solutions. The company says that, at EuroBLECH 2016 and worldwide, it will strive to help customers face their economic challenges.

The main concept at EuroBLECH 2016 will be "Creating the customers value using AMADA's latest machines and processing technologies." The company will introduce fibre laser cutting and welding machines, a combination machine, press brakes, and the new VPSS 3i software, the sheet-metal engineering system, which can simulate all the processing operations at once. In addition, AMADA will show some sample workpieces with accumulated know-how of processing technology.

The company will be showcasing more innovations than ever before at the industry's flagship trade fair. Also on display will be an overview of AMADA's IoT, "V-factory" which is being shown as a 'Smart Factory' concept. Eight latest technology AMADA machines and AMADA MIYACHI products will be on show in live operation over an area of some 2,000 square metres. All the machines on view will, of course, be production-ready, every one of them representing a further development to an existing solution or a completely new innovation.

AMADA ACIES AJ punching and fibre laser cutting combination machine: long-term eco-friendly continuous operation system
As an addition to the ACIES combination series (originally with a CO_2 laser source), the ACIES-AJ, with a servo-electric drive and fibre laser technology, is characterised by cut quality, speed and energy efficiency. This machine is equipped with several functions to realise long-term, continuous operation.

AMADA LCG-AJ series fibre laser cutting machine: expanding the fibre laser machine line-up
The new line-up of LCG-3015 AJ flatbed laser cutting machines is equipped with an AMADA developed fibre laser oscillator with 6 and 9 kW of power. These machines add the value of low running cost and high-speed cutting in the middle thickness range. The LCG-3015 AJ sets a new benchmark for performance and price at this level of investment, ensuring optimum productivity and value.



AMADA ENSIS AJ 3kW fibre laser cutting machine: fibre laser cutting with expanded capabilities
To improve and enhance the groundbreaking ENSIS technology, AMADA will show a 3 kW version at EuroBLECH 2016. This machine builds on the success of the 2 kW version with improved cutting speeds and quality. To boost the existing high specification level of the ENSIS, the new machine will also be fitted with an eight station nozzle changer and the new 'WACS II' cooling cut for thick mild steel processing.

AMADA FLW – ENSIS solution fibre laser welding machine: expansion of the welding area with AMADA ENSIS technology
The FLW takes laser welding to a higher level of quality with a reduction of the total lead time. In addition, the new solution is equipped with an ENSIS oscillator, which is being applied in the welding field for the first time, along with the filler wire function, which is used to ensure high quality, long welding applications. All these features increase the possibilities for your production.

AMADA MIYACHI welding solutions:
During EuroBLECH 2016, experts will be present on the stand to discuss the benefits of fibre laser welding, laser ablation and resistance welding for applications in the automotive, electronics and solar cells, IT and multimedia, medical, aerospace and defence industries.

In addition, the MIYACHI EAPRO Jupiter fibre laser welding system, the MIYACHI EAPRO Laser Ablation System and the MIYACHI PECO AWS3 Active welding system 3, an integrated resistance welding solution, will be on display on the stand.

AMADA bending solutions: bending operations, optimised in all their dimensions

AMADA has continued to develop optimised bending solutions to provide the best productivity in this important area of sheet metal manufacturing.

With a safety focused outlook and in relation to EU machine safety legislation, the FAST back gauge device ensures both the operator safety and the maximum speed of operation.

Robotics and automation systems provide safe and efficient handling of parts and tooling.

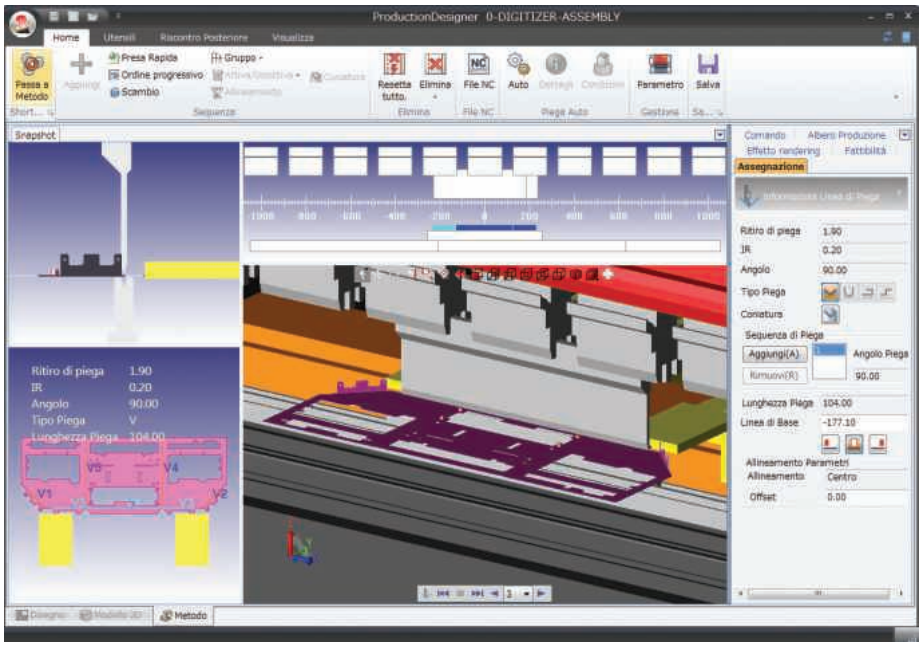
Intelligence, interaction and integration will be evident as part of AMADA's Smart Factory digital management network, allowing the bending machines to be part of a complete and productive sheet metal working place, together with operators.

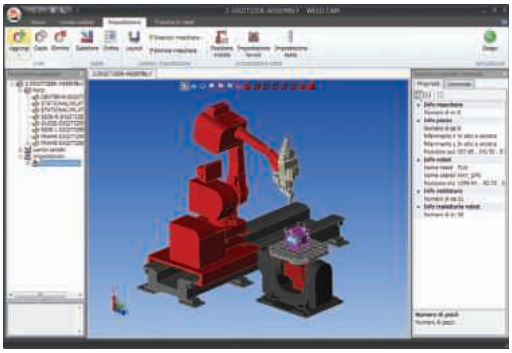
Last but not least, precision will be provided by both the machines' technology and all the surrounding measurement systems.

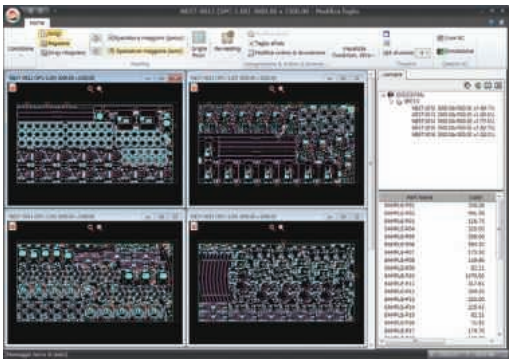
All the latest evolutions of the AMADA bending solutions that may support sheet metalworking business will await you at EuroBLECH 2016.

AMADA digital solution: a complete and flexible approach to smart manufacturing

The theme for EuroBLECH 2016 is "the new generation of sheet metal working" and highlights how the metalworking industry has to adapt its production processes to the market trends. With batch sizes decreasing steadily, the demand for assembly work increases and extreme flexibility and speed are needed in the processing of materials and thicknesses which are constantly changing. All this must be done at the most competitive price possible, along with maximum quality and profitability. With 70 years of experience, AMADA will showcase a complete and flexible approach to smart manufacturing, in order to meet these challenges.







The AMADA Group is one of the world's leading manufacturers of sheet metalworking machines. AMADA offers a comprehensive range of cutting, bending, punching and laser technologies. The portfolio is complemented by modular automation components, software applications and a wide range of tools. In addition, AMADA offers its customers a wide variety of additional services.

Founded in 1946 in Japan, AMADA has been present in Europe for more than 40 years. AMADA Europe facilitates the corporate strategy and coordination of the European corporate units as well as ensuring that the main brand core values are highly respected at all times: close partnership with customers, innovation, human- and environmental-concerns. With four production plants operating in more than 30 countries, AMADA's long-lasting commitment into the leading-edge industrial technologies within Europe is guaranteed.

AMADA MIYACHI Europe is a leading manufacturer of equipment and systems for laser welding, laser marking, laser cutting, resistance welding, hermetic sealing, hot bar reflow soldering and bonding. The company customises its products around specific micro-joining applications for its customers around the globe.

Markets include medical devices, battery, automotive, solar industry, electronic components and aerospace. AMADA MIYACHI is an ISO9001 certified company.

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Hall 12 Stands D06/F06

The power of abrasive

OMAX Corporation to demonstrate the flexibility of waterjet machining

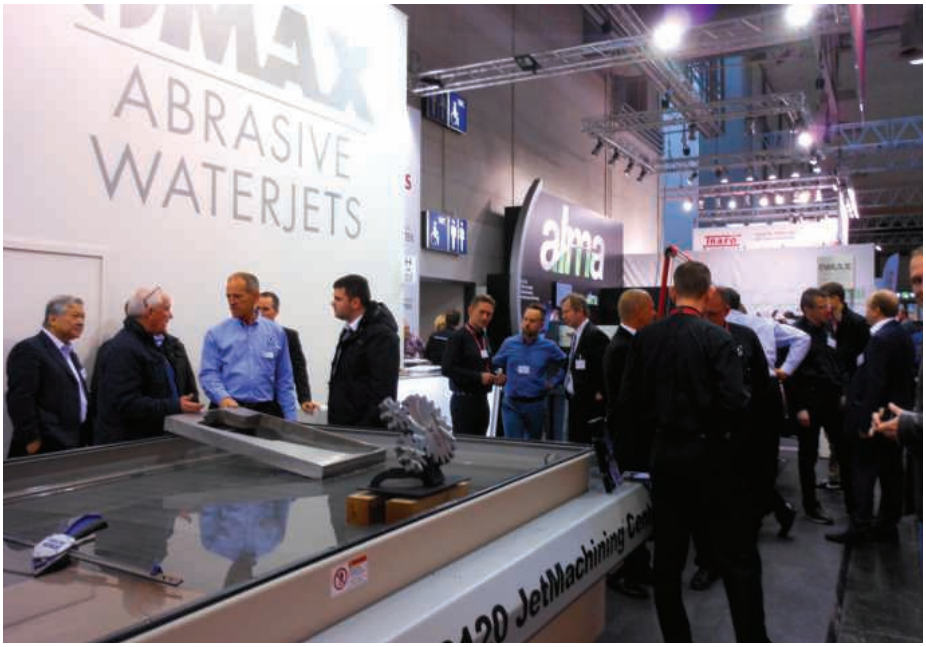
OMAX Corporation will showcase the flexibility and efficiency of its abrasive waterjets at the upcoming EuroBLECH exhibition. The company will be running live cutting demonstrations on its OMAX 60120 and MAXIEM® 1515 JetMachining® Centers. Visitors to the OMAX stand will have the opportunity to speak with abrasive waterjet experts to discuss table size offerings, accessories and how waterjet machining can enhance metal working productivity.

On the 60120 machine, a Tilt-A-Jet cutting head will demonstrate how taper-free cutting can be achieved without slowing down cutting speed, which is ideal for work requiring tight tolerances and quick turn-around times. The MAXIEM 1515 will be fitted with an A-Jet cutting head, proficient at cutting beveled edges, angled sides and creating complex 3D shapes. The waterjets in both the OMAX and MAXIEM lines are capable of machining virtually any material, including stainless steel, carbon steel, aluminum, titanium, alloys, precious metals, copper, even carbon fibre and glass, with no heat affected zone and no need for tool changes.

Show attendees can experience first hand how abrasive waterjets cut quickly and cleanly with no thermal distortion, producing parts with clean edges, eliminating the need for secondary operations. They will also see that both the OMAX and MAXIEM machines are easy to program and operate. The OMAX Intelli-MAX® controller software allows an operator to easily enter job characteristics, such as material type, thickness and edge quality, without any special programming knowledge. The software can automatically optimise cutting speed, piercing pressure and lead-in lengths for each job.

Energy-efficient direct drive pumps will power both machines at the show, a 50 HP EnduroMAX pump on the 60120 and a 40 HP pump on the 1515. The direct drive pump design delivers greater power to the nozzle than intensifier-type pumps of the same input motor size, resulting in faster cutting speeds.

Along with OMAX staff, representatives from INNOMAX, OMAX's exclusive distribution partner in Germany, will be on hand in the OMAX stand to answer questions. INNOMAX is one of OMAX Corporation's 30 international distribution partners serving the machining industry around the globe. These distributors provide manufacturers with increased access to the company's waterjet technology as well as applications support, training and expert service technicians.



To learn more about OMAX's distribution partners, visit: **www.omax.com/sales/international**

Based in Kent, Washington, OMAX Corporation is the global leader in advanced abrasive waterjet systems that cut virtually any material and thickness with unmatched speed and accuracy. Owner of the OMAX and MAXIEM brands, the company provides a comprehensive selection of JetMachining Centers that feature intuitive software controls and incorporate the most efficient pump technology available. In developing its machines, the company designs, manufactures, assembles and tests components as a completesystem to ensure optimum performance. The company also has the most comprehensive service and support network in the waterjet industry to keep its customers ahead of the manufacturing curve. For more information, visit OMAX.com or connect with the company on Facebook, Twitter, LinkedIn and YouTube.

UK Distributor:
Aquajet Machining Systems Ltd
Tel: 01244 409199
Email: peter.lucas@omax.com
www.omax.com

Hall 12 Stand H80

Mazak plans a laser revolution at EuroBLECH

Yamazaki Mazak is planning a revolution at EuroBLECH 2016 with new laser machines and automation systems making their world debuts.

Taking pride of place is the new Super Turbo-X 3015 Fiber series, the latest generation of the highly popular Super Turbo-X series of CO_2 laser machines, with more than 4,000 units sold across Europe since 1990.

The new fibre machine, which is available in both 2 kW and 3 kW versions, has been specifically developed for laser users that require optimum productivity allied to reduced running costs, lower maintenance costs and the ability to cut highly reflective materials, such as copper, brass and galvanised sheet.

The Super Turbo-X 3015 Fiber series also boasts a best-in-class reduced floorspace of 2,900 mm x 7,400 mm, which is unmatched by competitor fibre machines, and crucially can be fitted with Mazak's existing FMS laser automation systems, which enables an easy upgrade to fibre cutting for existing ST-X CO_2 laser machine users.

Mazak is also introducing two new automation systems at EuroBLECH 2016. An OPTIPLEX NEXUS 3015 4 kW laser machine will be equipped with the latest version of Mazak's flexible automation technology. QUICK Cell, which has been designed by famed Japanese industrial designer Ken Okuyama, is available in three different specifications, 6-stocker, 10-stocker and 14-stocker versions.

The new QUICK Cell technology, which is capable of significantly faster processing speeds compared to the original design, enables unmanned laser cutting operations, with the next operating pallet being prepared during processing. The new pallet is loaded as soon as the cutting process is complete with the used pallet moved to the stocker. The version being exhibited at EuroBLECH 2016 is a 6-stocker version.

Mazak will also be exhibiting the new LaserFlex 2.0 materials handling solution which is fitted to an OPTIPLEX 3015 Fiber 6 kW laser cutting machine. LaserFlex is a compact, easy-to-use laser automation solution that enables the fast handling of raw plates, with a process time for the exchange of raw and cut plates of less than

75 seconds when teamed with the OPTIPLEX machine. The LaserFlex system is easily expandable depending on the storage capacity or the number of laser machines it is required to feed.

Mazak will also be introducing its new laser CNC, MAZATROL PreviewG, the world's fastest CNC. PreviewG combines intuitive touchscreen operations, similar to smartphones and tablets, with new machine hardware and servo systems, which together can dramatically reduce programming and processing time.

If this is not enough, Mazak will also exhibit innovative laser technology, which will be making its world debut at EuroBLECH 2016.

Yamazaki Mazak UK Ltd Tel: 01905 755755
Email: sales@mazak.co.uk www.mazakeu.co.uk

Expanding the technical boundaries

Dynobend B.V. and the Nivora Group announce a strategic cooperation in metalworking machinery

Dynobend B.V., a company specialising in providing solutions for precision cold forming of tube, wire and profiles. has been acquired by the Nivora Group. Nivora Holding B.V. holds shares in innovative industrial companies and regards this recent acquisition as an important step in leveraging the value of the entire group of companies.

Dennis Scholten, who will remain managing director of Dynobend B.V., says: ''Nivora is able to offer us both the knowledge and the financial backing to make a quantum leap in the development of our products and solutions. We are proud to be a member of the Nivora Group.''

Dynobend has operated since 1988 in nearly every key market and specialises in providing solutions for the precision cold forming of tube, wire and profiles. Smart software in bending and forming technology, as well as its own design and manufacturing of equipment, completes the product range. Ease-of-operation, maximum freedom and an attractive design are the unique features for the standard machines as well as the turn-key solutions. The disciplines, engineering, mechanics, software and interaction between human and machine are Dynobend's strengths. In search of innovative solutions, Dynobend is always expanding the boundaries of technical possibilities and knowledge.

The Nivora Group consists of four leading Dutch brands of metal working machines with a rich history: Darley, established in 1934 and Safan in 1960, manufacturers of innovative machines for sheet metalworking under the new brand SafanDarley; Bewo Cutting Systems, founded in 1935, manufacturer of industrial sawing machines; STYLE CNC Machines, established in 1991, manufacturer of unique lathes and milling machines.

The Nivora Group has factories in

Lochem, Eijsden, Waalwijk and Bunschoten and branches in Germany, the UK, the Czech Republic, Taiwan, USA and Sweden. With the acquisition of Dynobend B.V. the group has more than 350 employees in the Netherlands, which together generate a turnover of more than 65 million Euros.

The Nivora Group
Tel: 0031 6225 23103
www.nivora.nl

Dynobend B.V.
Tel: 0031 53 8507730
www.dynobend.com

A machine that grows to meet new challenges

Ultimate flexibility: the TRUMPF TruPunch 1000 is a punching machine for the entry-level segment that can gradually be expanded into a fully-fledged combination machine. The result of this evolution is the TruMatic 1000 fiber, a laser machine equipped with a whole host of innovative features that punches holes, bends flanges and forms threads

Many TRUMPF customers want an economical, compact and automation-friendly punching machine that is specifically designed to grow with their business. To address this need, TRUMPF will be presenting a new compact entry-level machine at this year's EuroBLECH. The TruPunch 1000 can be expanded into an equally space-saving TruMatic 1000 fiber punch laser machine, allowing sheet metal processors to upgrade their machine to keep pace with their growing business.

Metamorphosis based on a 3 kW TruDisk solid-state laser

With its expandable functionality, the TruPunch 1000 provides the perfect entry point into the world of professional punching. It can handle sheets up to 6.4 mm thick at rates of up to 600 strokes a minute, yet is remarkably compact. With a footprint of just 6.5 x 4.9 metres, the TruPunch 1000 stand-alone machine is around 15 percent smaller than its predecessor. Thomas Herberger, managing director of Herberger Metallwaren GmbH+Co. KG, a company that participates in the product testing program of TRUMPF, explains the benefits:

"The space we have here is limited, but the compact TruPunch 1000 slotted into the same space previously occupied by a Trumatic 200. Now we can process medium-format sheets without having to reposition them, and that really speeds up our production process."

As their business evolves, sheet metal processors sometimes yearn for the greater variety of parts that can be manufactured by a combination system and with the TruPunch 1000 there's no need to buy a second machine. Thanks to its novel modular design, the TruPunch1000 can be retrofitted with a laser cutting system, a laser evacuation unit and a beam guard system.

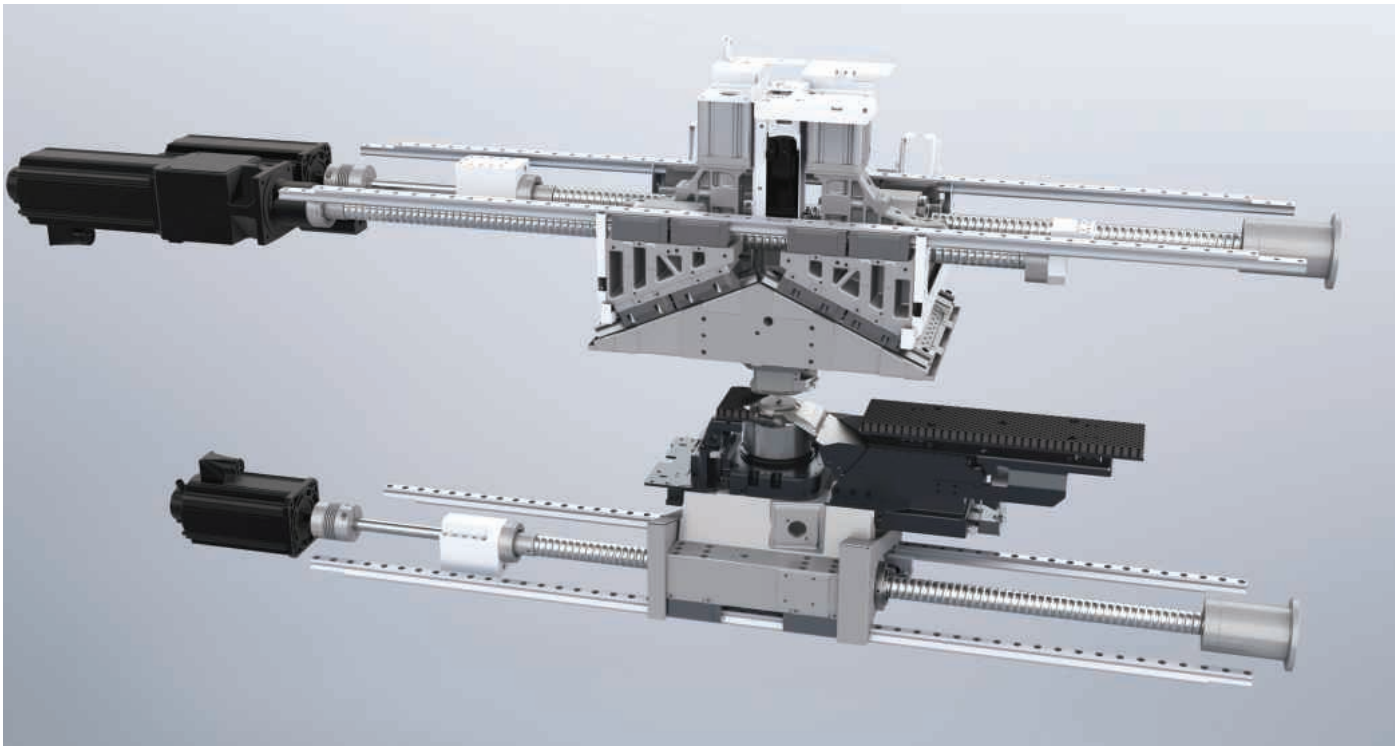
A 3 kW TruDisk solid-state laser can be connected up to convert the TruPunch 1000 punching machine into a punch laser machine. This configuration precisely matches the other recent addition to the product range of TRUMPF: the TruMatic 1000 fiber. This is the first time that TRUMPF has offered a combination machine in the entry-level segment, a move that makes it easier for customers to make the switch from purely 2D laser processing to punch laser technology. Customers who already have a TruDisk solid-state laser can also use this to operate the TruMatic 1000 fiber via the TRUMPF laser network. The price of the new machine is undoubtedly appealing, and, with the TruMatic 1000 fiber's specifications matching those of the previous TruMatic 3000 fiber model, customers don't need to sacrifice anything in the way of performance.

Revolutionary punching head

Both the new models in the 1000 range offer completely redesigned drive technology, which is crucial to the success of the modular concept. The patented "Delta Drive" literally marks a new movement in the world of industrial punching technology. The advanced engineering team of TRUMPF came up with the new drive to facilitate the construction of smaller machines and open up new methods of material handling. The secret of the Delta Drive is that it eliminates the need to move the sheet and work table in the Y-axis, normally an integral requirement of sheet metal processing. It achieves this by making the punching head quickly manoeuvre in that direction, a revolution in punching head technology.

This new approach involves a drive system that is powered by two servomotors. When these move in the same direction, they allow the punching head to move back and forth in the Y-axis. When the ball screws rotate in opposite directions, this activates the punching stroke. The Y-axis can be accelerated far faster in this arrangement, because the punch drive is also used for travel motion, eliminating the need to move

A laser cutting head, laser evacuation unit and beam guard turn the TruPunch 1000 into a TruMatic 1000 fiber



The patented Delta Drive eliminates the need to move the metal sheet and machine table in the y-axis by moving the punching head in this axis instead

the sheet or work table. As a result, the punching process is more dynamic and the machine is more productive. Furthermore, the lower relative movement between the machine table and the metal sheet reduces the risk of jamming and collisions, making the process more reliable overall. Finally, the stationary machine table significantly reduces the size of the machine's footprint.

Automatic sorting

Both the TruPunch 1000 and the TruMatic 1000 fiber can automatically sort finished parts measuring up to 180 mm × 180 mm. All processed parts are sent down a chute into a sorting unit which moves in a linear direction. From there they can be sorted into a series of boxes (up to four different 400 mm × 300 mm boxes). The boxes are positioned below the machine, which provides for easy removal by the operator.

Due to the innovative movement of the punching head, the machine also offers an alternative way to remove the parts. This second method comprises an additional big flexible parts flap, which is available as an optional extra for the TruPunch 1000 and fitted as standard in the TruMatic 1000 fiber. The flap can be equipped with a sensor that detects whether all the parts have been properly ejected from the machine's working area. Designed with relatively generous proportions, this parts flap can also be used to eject long and wide parts into containers or onto conveyors or pallets during both punching and laser operations.

Thomas Herberger, managing director of TRUMPF product testing partner Herberger Metallwaren GmbH+Co. KG, explains how it works: "Often we fill sheets with just four to six parts, and in the past we had to remove and sort them manually. With the TruPunch 1000, however, nobody has to keep watch over the process because the machine simply ejects the parts through the generously sized flap and places them straight in the crate for us."

Compact yet safe

TRUMPF was also determined to make the TruMatic 1000 fiber as compact as possible. One way the company achieved this was by developing a special space-saving beam guard system that is compatible with the machine's modular concept. This protective housing is gathered closely around the machine table in a skirting manner. In punching mode it moves downwards, giving the operator a direct and unobstructed view of the process. But as soon as the program switches to laser processing, the protective skirt rises and a hood is lowered over the Delta Drive, to which the laser processing unit is attached.

This protective screen effectively intercepts the small amount of scattered that could potentially escape at a shallow angle below the work table brushes during production. There are also two laser safety screens that allow visual monitoring of the ongoing process.

Intelligent automation and control

Even in their automated versions, these two machines from the 1000 product series are more compact than any other comparable machines on the market. Both of them can also be connected to the new SheetMaster Compact. This automation system loads small and medium-format sheets and blanks and unloads microjoint sheets and scrap skeletons. Thanks to its optimised loading cycles, it can reliably complete most of these tasks while the machine is in operation. Both machines are equipped with an intuitive touchscreen to make life easier for operators. The MobileControl app can also be used to operate the machines from a tablet. The TruTops Boost Punch software is required for programming, but fortunately both the license and maintenance agreement already come with the machines as standard.

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A precise sawing solution for Parker Precision

Parker Precision, a highly respected West Midlands-based precision engineering company, has invested in a new automatic shuttle vice bandsaw from Addison Saws. The saw, an Everising S-250 HB-NC model, is bringing efficiencies of 60 percent to Parker's sawing line and is being used to feed no fewer than 20 CNC milling machines

Originally renowned for manufacturing parts for Concorde in the late 1960s and early 1970s, long-established Parker is today best known for the development and manufacture of ultra-precise components for industries spanning the aerospace, oil, defence, electronics and medical sectors.

The need to enhance sawing capability

"With a growing order book, we identified the need to further enhance our ability to precision-cut heat-treated lengths of aircraft-grade stainless steels as well as aerospace alloys," comments Parker Precision's marketing director, Marc Corns.

Speed, efficiency and exceptionally clean cuts

"A senior member of our team then suggested we contacted Addison Saws. Before joining Parker he had been responsible for the purchase of two Everising machines from Addison's and was impressed with the speed, efficiency and extremely clean cuts, all key requirements for our business, that the saws were able to provide."

A trip to see an Everising S-250 HB-NC bandsaw at the site of a local Addison Saws' customer was enough to convince Parker Precision that the saw would more than fulfil their cutting requirements. "Having seen the S-250 saw in action, we were happy to forgo cutting trials, as we were more than convinced it would meet our needs," adds Marc Corns.

"In view of the fact that we work with a wide range of exotic materials however, Addison Saws suggested that we specified variable clamping pressure as an optional feature, in order to protect the integrity of even the most delicate tube that we cut."

Bringing considerable benefits to production

Installed earlier this year, the Everising S-250 HB-NC automatic shuttle vice bandsaw is already bringing considerable benefits to production strategies at Parker Precision's Bilston site. Significantly quicker than the saw it replaces, the Everising machine has more than halved the time it takes the precision engineering company to cut steel and aluminium into typical bar sizes of 50 mm in diameter and 180 mm in length.

The Everising S-250 HB-NC automatic shuttle vice bandsaw from Addison Saws

More components per billet length

Accuracy, of course, is just as important as speed and here too, the Everising bandsaw is delivering advantages. "The amount of scrap material we generate has been minimised and the saw's precise cutting action has reduced the need for deburring," says Marc Corns. "Overall," he concludes, "the accuracy of the Everising saw means we are achieving more components per billet and tube length, and that's significant as it helps us to remain competitive, delivering both value and quality to our customers."

The Everising S-250 HB-NC automatic shuttle vice bandsaw with NC control comprises:

- Two-year parts warranty (12 month's on site labour)
- NC control of the cutting length with colour touch screen
- Nine programs for different cut lengths
- Multiple indexing with auto kerf compensation for long lengths
- Detachable hydraulic bundle vices
- Hydraulic centreless swarf remover
- Full stroke hydraulic vices for quick setting up
- Material height sensor with rapid approach
- 34 mm wide sawblade for precise rapid cutting
- 2,000 mm roller in-feed table with vertical containment rollers

- Variable blade speed with inverter and digital display

Leading the way in sawing technology since 1956

This year Addison Saws celebrates 60 years at the forefront of sawing technology. Established in 1956, Addison Saws brought a new breed of metal cutting solutions to the UK and, in doing so, created a whole new market for bandsaws and circular saws. Today, 60 years on, Addison Saws continues to lead the way in metal cutting technologies and offers an extensive range of full CNC machine tools, from the world's premier industrial machine manufacturers – all supported by uncompromising levels of customer care.

The Addison Saws product range includes everything from simple, manually operated machines to highly sophisticated, fully automated sawing lines and has recently been increased with the addition of heavy duty 3, 3+1, 4 & 5-axis long-bed multi-piece machining centres. Addison Saws is part of the Addison Group, an organisation that also includes sawblade re-manufacturing specialist Dynashape, and tube-bending technology specialist, Tubefab.

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A cut above the rest

Sellers Containers uses Starrett's unique bandsaw machine for extreme mitre cutting

When things don't go to plan, it is a poor workman who blames his tools. However, what if the tools on hand actually aren't up to the job? If a company is relying on machines that don't have the scope to deliver accurate representations of a design, businesses can be restricted when it comes to capitalising on industry demand. That was exactly the case for skip and waste container manufacturer Sellers Containers before it met bandsaw specialist Starrett at the MACH 2016 exhibition.

Part of the Egbert Taylor Group, Sellers was established in 1975 has gone on to become one of the leading skip and waste container manufacturers within the UK's waste management industry. With an in-house design team, the company has a range of customisable products that go beyond the ordinary. While this is great for the company's clients, it is not without its challenges. A prime example of this is the design requirements for one of the manufacturer's Rear End Load (REL) skips which calls for its lugs to be mitre cut at a 74 degree angle. Most conventional band saw machines cut up to just 45 degrees, with a handful of machines being able to offer 60 degrees.

"We attended the MACH 2016 exhibition at the NEC in Birmingham with the goal of finding a bandsaw that was capable of cutting beyond 60 degrees," explains Phil Hadfield, manufacturing manager at Sellers. "We had been reliant on plasma cutting to manufacture this particular model of REL skip, a technique that is simply not accurate enough or fast enough to keep up with product demand compared to using a bandsaw."

Enter Starrett

Starrett had two stands at MACH 2016, one of which was entirely dedicated to its bandsaw range. It was here that Sellers first encountered Starrett's S4240 semi-automatic band saw machine.

The biggest bandsaw the company stocks, the S4240 has been designed with a cutting arm that can rotate to mitre cut up to 75 degrees.

"There is clearly demand across several sectors for a bandsaw that can cut beyond 60 degrees," says John Cove, marketing manager for Starrett. "Whether you are cutting steel beams for construction, fitting pipe work or even manufacturing skips, why should your designs be limited for no reason other than the fact your tools can't keep up? That's why we designed the S4240, to offer design engineers the freedom to be as creative as they like, with the knowledge that their specifications can be fulfilled."

Demonstrably better

After discovering the versatile bandsaw at the MACH show, Sellers shared its design specifications with Starrett's engineers. To demonstrate the machine's capabilities, Starrett filmed it cutting a steel lug to Sellers requirements.

"The Starrett team was very supportive during the whole process," says Phil Hadfield. "Purchasing such a large machine is a big investment, so we needed to be sure that we could accomplish the desired cut. Starrett shared videos of the saw in action and sent samples to show that we were getting everything we required with the S4240.

"It was clear immediately that this was exactly what we needed to get the job done. Once we'd made the decision to purchase the bandsaw, we didn't have to wait long before it was delivered to our facility in Oldham. As Starrett kept lead time short, we had it in our factory within just a few days."

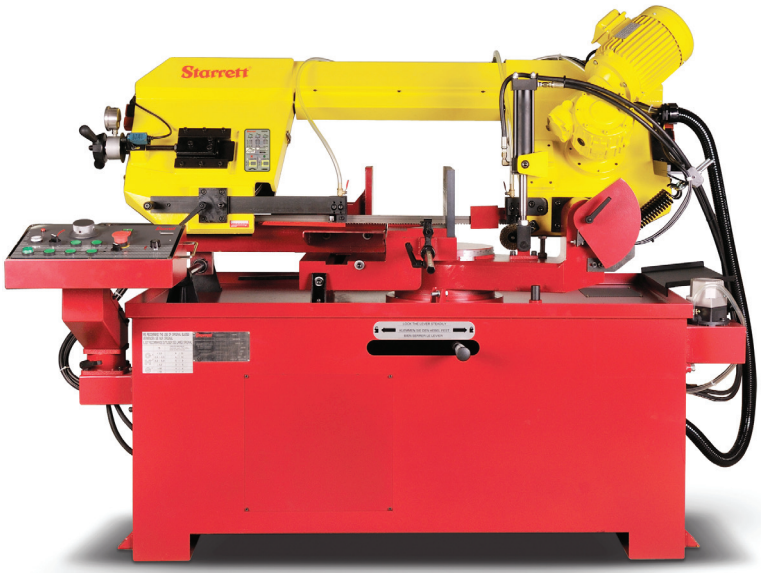
Success is easy

The semi-automatic bandsaw is easy to install in any workspace, so Sellers was able to get to work as soon as the machine was delivered. To support the skip manufacturer, a Starrett engineer travelled from the company's base in Jedburgh, Scotland, to spend the day training the Sellers team on all the different ways the S4240 can be used.

"The Starrett bandsaw is a very versatile machine," continues Phil Hadfield. "The training our operatives received has benefited us greatly. We were able to get to work immediately and get the most out of the saw without delay.

"Thanks to the training and the fact that the saw can perform a range cuts we need for our REL skips and others accurately and quickly, we've seen a drastic increase in output. This is allowing us to capitalise on demand from the waste management industry by reducing our lead times."

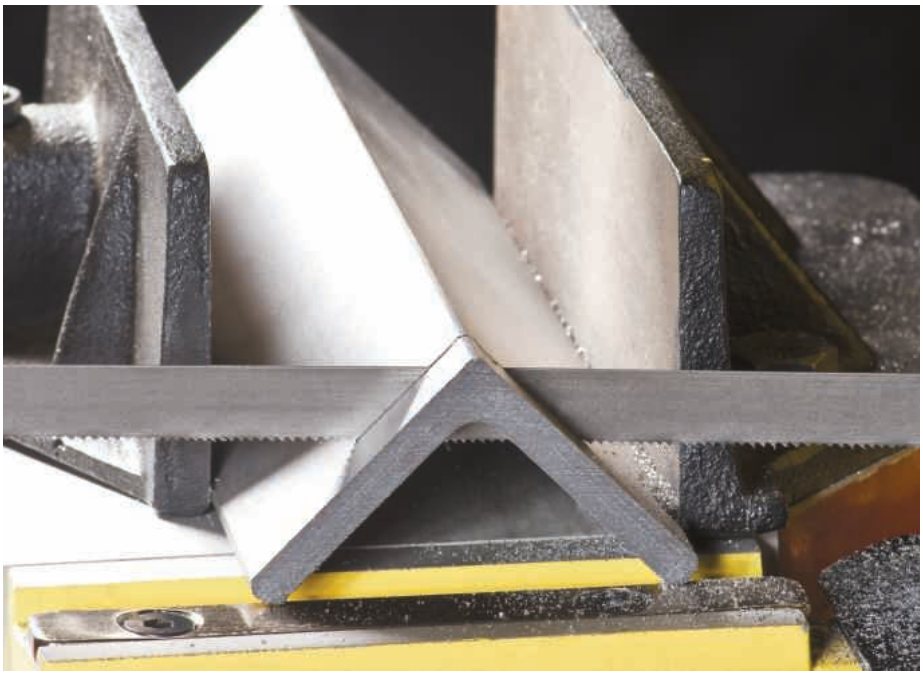
Sellers had seen a rise in the number of skip hire companies requesting the REL skips that required lugs to be mitre cut at a 72 degree angle. Relying on plasma cutting was hampering the manufacturer's ability to



take advantage of this, but now they are working with Starrett's bandsaw, production is quick and easy.

"We've been so impressed with both the machinery and the service from Starrett that we're also exploring other saw and tool accessory products with the company to enhance other areas of our manufacturing operation," adds Phil Hadfield.

It just goes to show that you can be the best worker in the world with the most creative designs, but if you don't have the right tools you're always going to struggle to produce a quality end product. So remember, the next time a project doesn't quite go to plan, it might not be you, it might be your tools.



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In a class of its own

The new compact HBE320-523G mitre-cutting bandsaw from Behringer

Opening up new fields of business, extending the performance spectrum or replacing an old machine are among the most frequent reasons given by users for investing in an up-to-date, more efficient mitre sawing machine. With its newly presented model from the HBE series, Behringer is offering the perfect way of combining the benefits of modern high-performance machines for one-off sawing tasks with the solid, tried and tested characteristics of a classical mitre saw.

"We deliberately integrated various features from our Behringer high-end models into this machine, raising the HBE320-523G into a class of its own, and all at an optimised cost-to-performance ratio", says the company's CEO Christian Behringer. High cutting outputs, simple handling and precise angular cuts are among the key attributes of the new Behringer mitre-cutting bandsaw HBE320-523G.

With its extensive application spectrum, it reliably covers the wide-ranging requirements of metalworking workshops, the profile steel trade and machine builders.

"Even small and medium-sized operations in these fields are reliant on their sawing machines, dividing a wide range of different materials with optimum process reliability, to a high standard of quality and at high speed," summarises Christian Behringer.

With a cutting range in flat materials of 520 x 320 mm, bilateral mitre cuts of 45° and up to 30° on the left, this machine is the perfect all-rounder for all kinds of sawing operations. "For reasons of cost and flexibility, profiles are generally purchased in starting lengths of up to 12 metres and then sawn to size", he adds. The new mitre cutting bandsaw is easily able to cope with both structural steels and stainless steel profiles.

In design terms, the new mitre saw has many features in common with the HBE Dynamic series, which has already proved a resounding success. The guidance system in its torsionally rigid gantry design and the bilateral band wheel bearings ensure quiet running and precise cuts. The band guiding components are made of vibration-damping grey cast iron, which has a highly positive impact on the quality of the cut surface, but also makes for a longer blade life. Electrically powered chip brushes clean the saw blade of adhering chips synchronously with the saw drive system – an added bonus in terms of process reliability.

The tilt of the band wheels helps prolong the life of bandsaw blades by reducing fatigue due to cyclical bending. A fully automatic height adjustment facility for the saw frame depending on the material height and lowering of the saw when in rapid traverse help cut non-productive time to a minimum. The inclined position of the bandsaw blade allows components such as girders, angled steel and U profiles as well as hollow rectangular profiles to be sawn at higher speed but with less burrs.

The sawing unit is mounted for easy turning in generously dimensioned axial roller bearings and can be swivelled with a simple manual action. The closed material table simplifies material handling directly at the cutting point. The machine comes with a microspraying system as standard.

The machine can be supplemented as required with infeed and discharge roller conveyors, measuring devices and cross conveying systems, as well as NC angular adjustment. Behringer GmbH supplies these highly process-reliable customised transport solutions from its own in-house steel production facilities.

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Hall 12, Stand F85

Heavy-duty, high efficiency

The KKS 463 NA fully-automatic universal circular saw

The KKS 463 NA from KALTENBACH is specifically designed for applications involving the sawing of tubes, profiles and solid materials. The machine is able to cut flat sections, angles, solids, rectangular and round tubes, closed and open profiles with the ultimate process efficiency and reliability. Incoming stock is fed and cut at pre-programmed lengths and angles, finished pieces are distributed to and ejected from programmed discharge positions, all fully automatic and achieved without the intervention of an operator.

A key advantage of the KKS 463 NA is the ability to execute multiple cutting operations on both the incoming and outgoing pieces, with the vertical clamping device adjusting automatically for mitre cuts, allowing optimal material clamping and short remnant lengths, typically less than 15 mm.

Materials handling and piece marking
All KALTENBACH Universal Circular Saws are available with an array of options for material input and removal, including automatic sorting devices and magazines for material loading and pre-storage. Especially popular with many customers is the addition of an inkjet printing unit, integrated into the KKS 463 NA. This provides a user-friendly marking system for the identification of finished pieces, whilst still in the machine and without affecting process time, eliminating further operations downstream.

Flexible materials handling solutions
"Modular and flexible" are the primary requirement the materials handling options. At inception, the requirements and constraints of the customer form a key part of the KALTENBACH consultation process. Available space, material flow routes, process direction, upstream and downstream processes are all taken into consideration, ensuring that the customer is delivered the most optimum solution for their production demands.

The KALTENBACH KKS 463 NA is available with four different possibilities for material handling and flow:

Material loading magazines
The KKS 463 NA is available with a choice of flat, inclined or bundle input magazine systems. The magazine forms a part of the machine's material feed system, automatically bringing incoming materials to the cutting area. Cut pieces are automatically distributed to pre-adjustable positions, waste pieces, trim cuts and remnants are ejected automatically without any operator involvement.

The magazine variants comprise: flat magazine – for round and square materials, profiles and special sections; inclined magazine – for round and square materials only, such as tubes and solids; bundle magazine – for round and square materials loaded as a bundle.

Reliable system consulting
"We want to offer our customers not just a saw, but rather a complete solution. Competent and reliable system consultancy is an integral element in all of our machines", explains Rene Eger, head of sales at Universal Sawing Machines. "We prepare detailed floor plans. These are prepared individually for each customer, to offer a tailor-made solution suiting their specific application and requirements.

Together with the costumer, we discuss possible layout variants and thus we match the sawing equipment to the local conditions of each process environment.

"The highest flexibility is obviously provided via a flat material input magazine. With this, almost all profile forms can be loaded. As a special advantage, sawn bars can be automatically sent back to the magazine via a remnant return; also the magazine can be loaded with different profile dimensions at the same time. We would always recommend a bundle magazine to our customers when large quantities of the same bar need to be cut, in this case the material can be loaded to the magazine in full bundles. Finally an inclined magazine provides the advantage of fast and easy loading. This is especially suitable for round and square materials."

Optional removal unit
Alongside the different infeed magazine variants, KALTENBACH also offers a range of solutions for material removal. These include: tipping roll rail – this permits discharge positions to be adjusted flexibly via a "teach-in" mode; section cross distributor provides automatic sorting of sections to positions in front of and behind the outfeed transport rollerway; automatically lowering collection units for the full support of completed sections from saw level to a collection height.

The KKS 463 NA is in successful fully-automatic, operation across many industries including steel service centres, the automotive sector, machine construction and steel fabrication.

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Bandsaw reduces cutting times by up to 50 percent

Metal sawing and storage technology specialist KASTO has brought out a new high-performance band saw, the KASTOwin pro AC 5.6. Users will appreciate its short cutting times, long tool life and intuitive operation. The fully automatic machine is optimised for bimetallic and carbide blades and can be applied in areas such as the steel trade, steel production, forging mills, machine manufacturing and the automotive industry. Besides helping to reduce tool costs, it significantly increases production speed and efficiency. Depending on the type of blade, cutting times can be reduced by 50 percent and more.

The KASTOwin pro AC 5.6 is designed for a wide range of applications and delivers top performance with both carbide and bimetallic saw blades. An important feature is its innovative feed system, which is controlled by means of two ball screw spindles, each with a servo drive for precise, infinitely variable control. The KASTOwin pro also has a retraction unit on each side for lifting the band from the surface when the saw head moves back. This makes for particularly efficient, exact sawing with minimal tool wear.

The KASTOwin pro AC 5.6 is driven by an 11 kW frequency-controlled motor, which provides plenty of capacity for use with carbide blades. The cutting range is 560 mm and the smallest dimension to be cut is 25 x 25 mm. The shortest residual length is 10 mm for individual offcuts and 35 mm for automatic operation, enabling operators to reduce waste to a minimum. Two electrically driven plastic brushes keep the band free of chips. They are easy to replace and are automatically adjusted throughout their service life. The sawing unit has a heavy, torsionally rigid welded structure with vibration-optimised ribbing, ensuring quiet operation with shorter cutting times and a long tool life.

The KASTOwin pro AC 5.6 also has a powerful coolant pump and a large coolant reservoir so that difficult-to-machine materials can be cut with minimal tool wear.

In addition, this fully automatic saw comes with EasyControl, a high-performance control unit. It is easy to use and reduces idle times in automatic operation for maximum cutting performance. All parameters can be optimised to match the type of blade being used.

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Power – reliability – precision

High specification band saw powered completely with electrical drives

The high performance MEBAe-cut bandsaw sets standards in energy efficiency, economic efficiency and power. For the first time, a high spec bandsaw operates without the need of a hydraulic motor, but purely on electrical drives resulting in a clean cut without compromise.

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

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

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

MEBAe-cut machines also score on the concerns below compared to hydraulic based systems: lower maintenance/running costs, with no need to replace hydraulic oils, filters etc.; machine blade performance due to increased hydraulic temperature; hydraulic leaks which can be a major concern in the maintenance of cutting fluids and operator safety.

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

Intelligent technology for highest demands

MEBA was the first industrial manufacturer to integrate electrical systems into its machines with the linear ball screw feeds. The MEBAe-cut high-performance bandsaw has again been a pioneer in the industry dispensing with the use of hydraulic systems entirely.

MEBAe-cut is equipped with a newly electric material clamp. The material is clamped in main and in-feed vice by a servo-controlled spindle drive. The clamping pressure can be adjusted individually for each application and can be preselected via the machine control. For example, thin-walled tubes can be clamped safely. In combination with the proven MEBA saw feed system, the MEBA material in-feed system and the backlash free guide elements, MEBAe-cut is unrivalled in precision and reliability. The saw feed works via servo-controlled lead ball screw spindle with automatically controlled cutting pressure and feed control. The bandsaw control also includes a two handed operating system for rapid vertical movement. On automatic machines a new control system reduces the required remaining material clamping section to 110 mm. The material in-feed system is also controlled by electric servos and lead ball screw spindles.

Further features which ensure highest quality and profitability:

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

MEBAe-cut is available in three models 400, 500, 600 and is available as a semi-automatic or 90° fully automatic machine. All models of the range are made to high productivity and for long-term and continuous use in single- and multiple shift operation. Sawing of solid materials and tubes as well as bundle- and carbide sawing belongs to its classic tasks.

Meba Saw Company
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Value for money

Market leader in superalloy supplies declares Prosaw Danobat bandsaw "real value for money"

When Sheffield based Special Quality Alloys chose to bring the sawing of large diameter nickel-based superalloys in-house, it turned to Prosaw for advice on processing these extremely tough materials.

The decision to discontinue the use of subcontractors for this purpose was made all the easier since Prosaw had already provided three Danobat bandsaws to Special Quality Alloys. The first of these machines was installed 12 years ago and although all three have been used for sawing slightly smaller diameter billets they have performed remarkably reliably.

The fact that these machines have functioned so consistently over such a long period of time has inevitably resulted in the operators becoming comfortable with the Danobat saws. In addition, the operators did not require any further training as they were of course familiar with the Danobat control systems.

This time however, billets of up to 800 mm diameter were required to be cut in an

automated continuous process, so a Danobat CP800A Auto-bandsaw was specified and duly purchased by the company.

Jonathan Gillet, works manager at Special Quality Alloys explains the thinking behind the decision: "Bringing the processing of the larger diameter billets in-house has meant a good deal less handling for us, resulting in faster turnaround times, since we are no longer reliant on transport contractors."

"This has benefited the company in the form of lower costs and has brought the whole process entirely under our own control. Even though these products are notoriously difficult to cut, we have complete confidence that when we put a large diameter billet onto the Danobat machine it's going to be cut.

"From our recent experiences we believe that Danobat machines represent real value for money."

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FICEP plays a big part in steel stockholder's major investment

Over £5 million of FICEP steel processing equipment forms part of a substantial £13 million investment by AJN in new 17 acre steel stockholding depot in Somerset

AJN is a forward thinking, independently-owned steel stockholder that was originally operating from the one 11 acre site in Kentford near Newmarket, but has recently opened an even larger 17 acre depot in Henstridge in Somerset.

This substantial new £13 million investment included the construction of the new site, 22 combi forklifts and16 trucks, with £5 million of the overall total being spent on new FICEP steel processing machinery.

From the very start, AJN was looking to source all the machines from the one supplier to ensure continuity of support. It was only after in-depth research by AJN and numerous trips around world to access the different machine manufacturers and visiting many sites that the decision was made to go with FICEP.

The long-established Kentford site has a daily turnover of around 350 tonnes of steel. The new Henstridge site total is growing rapidly month by month with the goal to achieve 500 tonnes per day within five years by increasing shift patterns from one to five to fully exploit the potential of the FICEP steel processing machinery.

With the first order placed, the FICEP machines were delivered, installed and commissioned on time and were operational within three months. The eight new FICEP machines in operation at AJN include an

Endeavour multi- spindle drilling line, a Gemini gantry drilling, milling and thermal cutting system for plates, several Katana high speed bandsaws, a Rapid high speed drilling line for angles and flats and a shot blasting machine. A second Endeavour machine was also purchased for the Kentford facility.

A detailed time study analysis determined that a 48 minute job on the old machinery now takes under five minutes on the Endeavour and is four times faster when drilling only. Productivity has been further enhanced by the Gemini which is the most versatile machining centre for the processing of plate products. The Rapid now allows AJN to drill and cut angles, which is a new service it can offer their customers.

The Henstridge site now covers the whole of southern England and customers are already benefiting from AJN's increased productivity and lower production costs - it's a win, win scenario for both parties.

Courtney Bell, finance director of AJN says: "When we decided to expand into a new site, we were looking for the very best equipment available. FICEP was the one that offered us the best solutions after a considerable review of existing and new suppliers.

"The Endeavour proved to be the ultimate solution for drilling and sawing. On top of this, the Rapid 25 we purchased allowed us to secure a large amount of new business. In buying several machines from FICEP including the Gemini, Katana Saws and one of the UK's largest roller conveyor shotblasters, the capacity and performance in the new facility has exceeded all expectations. FICEP has lived up to all our requirements in terms of delivery, commissioning, machine capability and customer support."

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Carbide bandsaw blades improve cutting of special alloys

Bahco's latest range of long life carbide bandsaw blades delivers improved performance when cutting special alloys used within industries including aerospace, aviation, defence and power generation. The hand tool and cutting specialist is renowned as a global leader in carbide blade cutting technology, ideally suited to the most challenging applications.

The new 3860TC blades, manufactured in the UK using the most advanced technology, have been designed to cut alloys including titanium, aluminium, stainless steel, Hastalloy, Inconel and Waspalloy.

Based on Bahco's renowned 3860TMC unset carbide blade, the new TC range is now available at highly competitive prices. Its multi-chip design, producing seven chips from a four tooth pattern, maximises cutting performance and blade durability within niche applications.

The new assortment includes:
3860TCA: a blade with a rake angle of 12 degrees, designed for maximum efficiency when cutting big aluminium blocks.

3860TCZ: with zero degree rake angle, this blade is specially made for cutting chromed induction hardened bars or graphite. It is also suitable for cutting non-metallic materials which do not produce chips.

3860TCT: with a ten degree angle, this blade has been designed to open up new markets for unset carbide, at competitive prices; it is suitable for the same applications as TMC blades. There are also finer TPI's available. It is also suitable in those areas where carbide blades with triple set, type 3868, and the multi-set, type 3881, are being used.

Bahco's high technology bandsaw blade manufacturing centre in South Yorkshire produces both Set Tooth and Unset Tooth carbide blades.

The key product differences are:
Set tooth: the carbide tooth tip is the same width as the band; the cutting clearance is created by setting the tooth.

During production the carbide tooth is formed from a carbide ball, ground to create both chamfered and un-chamfered tooth

tips of different heights. The finished ground teeth are set to give cutting clearance.

Unset tooth: the tooth is wider than the bandsaw material; the wider tooth tip creates its own cutting clearance.

During production the carbide tooth tip is formed from a carbide cylinder, ground to form tooth tips with different heights and differing amounts of chamfer.

For technical details or sales information on Bahco's wide range of carbide bandsaw blades, contact:

Bahco UK
Tel: 01709 731731
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www.bahco.com

Quick tube length checks with new measuring table

Precise and accurate measuring of lengths in a cutting process is vitally important. For this reason and following requests from its customers, Bewo Cutting Systems has developed the Solitair, a practical and user-friendly measuring table for the rapid measurement of product lengths, suitable for processed tubes and solids.

Ton Vugts, International sales manager at Bewo, explains why it's so important to check your product lengths during the cutting process: "There is always the possibility of blade wear. If the saw blade wears, product lengths cannot be guaranteed. If you check the length of every 100th product with the Solitair, you will stay in control of the cutting process and you're guaranteed a batch with the desired product length."

Ton Vugts has also noticed changes in the market: "We see that customers of our clients demand increasingly accurate precision when it comes to the tolerance of product lengths. With the Bewo Solitair measuring table you get absolute measurement results with minimal deviation. This makes the Solitair an extremely suitable tool to check whether processed products have the desired length. The Solitair measuring table is equipped with a convenient printer for making measurement reports. You can easily draft measurement reports with self-dictated text. With the printer you will be able to give bundled measurement reports to your customers for example."

The Solitair measures products up to 3,000 mm with a diameter up to 115 mm. Furthermore the Solitair is based on the same concept as the familiar Bewo measuring table, the MT, but with a new design. The main difference between the

MT and Solitair is that the Solitair is modularly built, using the latest production techniques. This results in very competitive pricing.

Bewo presented the practical Solitair measuring table for the first time at the Tube & Wire exhibition in Düsseldorf, Germany in April this year. During the exhibition visitors could try out or watch demos of the Solitair. Now, multiple clients from Europe and the United States are using the Solitair and are delighted with the results.

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Kerf gets subcontractor into top gear

Ten years ago, Hopwood Gear Ltd invested in an Oxy-Propane gas cutting machine from Kerf Developments. Owning a machine that runs like a dream with exemplary service support for over a decade was two of the key reasons why the Oldham-based subcontractor went back to Kerf for its latest machine, a twin-head waterjet machine.

Founded in 1974, Hopwood Gear immediately set its stall out as a subcontract manufacturer with a niche for producing gears, gear sets and all associated components. Now with 40 years of gear manufacturing under its belt, Hopwood Gear is a true specialist, manufacturing gears from 4 mm diameter up to 3 m and everything in between. The 33 employee company serves the defence, aerospace, automotive, white goods and consumer markets with bespoke gears for anything from a tank or submarine through to the everyday watch or washing machine.

To manufacture its gears and meet the demands of its wider subcontract business, Hopwood has a machine shop stacked with CNC EDM, turning and machining centres from Agie, Haas, DMG and Mazak as well as a multitude of specialised gear production machines. However, the issue for Hopwood was the upstream issue of profiling its gears and the consequent subcontract costs and lead-times. Cory Hopwood, managing director of Hopwood Gear, explains: "Ten years ago we were either buying steel plates for £500, or to save time we were paying upward of £1,000 for the plates to be pre-cut into blanks. We invested in a twin-head Kerf Scorpion gas cutting machine to cut the cost and gain control over the process."

The 4 m x 2 m machine immediately cut costs by 50 percent when processing steel plates up to 150 mm thick. Additionally, the Scorpion cutting head allowed the Manchester company to 'semi-finish' large gears with its impressive precision levels. Still in operation after a decade, the Scorpion is still well used today. Nowadays, the company has a need for a more flexible machine for processing a wider range of materials at even greater precision levels, enter the Kerf Optima 420 waterjet machine.

The evolving face of gear manufacture now sees Hopwood Gear producing more gears up to 50 mm thick from materials such as aluminium, titanium, plastic, stainless and mild steels. For profiling these gears, Hopwood was using a subcontract profiling company at a cost of up to £5,000 each month.

Increased productivity

By installing the Kerf Optima 420, Hopwood Gear immediately improved the precision of its profiles, attaining a precision level of +/-0.05 mm as opposed to +/-0.3 mm on subcontract supplied profiles. This precision is credit to the highly acclaimed BFT high pressure pump on the Optima 420. The enhanced precision reduced returns and it also cut the internal re-working of gears. These factors reduced lead-times, improved precision and edge finishes and also prevented labour and machine time from being unnecessarily absorbed in the machine shop.

From an economic standpoint, Hopwood Gear estimates that £2,000 of the £5,000 monthly cost of profile cutting was actually material cost. So, by purchasing the Kerf Optima and acquiring the material direct from the stockholder, Hopwood Gear has reduced its subcontract costs by £3,000 each month. The flexibility of the waterjet means that Hopwood has also eliminated an additional £500 per month in subcontract costs for laser cutting of thin plates and discs. With the easy-to-use IGEMS CADCAM system on the Optima machine, Hopwood's staff was comprehensively trained on the machine in one-day.

Far reaching benefits of Kerf Waterjet

Whilst the Kerf Optima 420 waterjet machine has cut costs, improved quality and precision for the subcontractor, the benefits reach much further. Cory Hopwood concludes: "The lead-time for external waterjet profiles was 4-6 weeks, now we can get the material next day and often turn work around in less than a week. By eliminating the 4-6 week supply chain, we can get gears into the machine shop for secondary machining a lot faster. This gives us more production capacity, better scheduling and it means our machine shop is always busy, as nobody is waiting on a third-party to deliver profiles to the machine shop."

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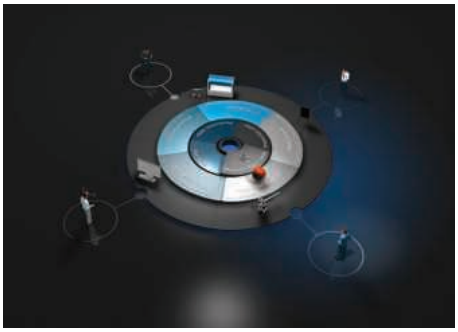
www.kerfdevelopments.com

Optimised bending production



AICON 3D Systems has launched version 3.1 of the software platform BendingStudio. With this new software, interconnected work at different workstations becomes even more efficient. The module data service is more transparent and connections to other workstations are visibly displayed. The user can view network problems immediately and can directly restore the network connection. Furthermore, currently used components are marked in the selection lists. They are displayed in a separate info box and a lock symbol shows all connected operators who are actually working with the component.

Applying the BendingStudio network service, users can store their data on a central server and still use them for measurements. Measurement results for the respective components are directly transmitted to the server.

The software module assembly is designed to be more user-friendly. It is applied to check holders and extensions with the help of AICON adapters. A wizard tool guides the operator through the configuration of the measuring adapters, which is clearly explained by means of pictograms. Based on a drawing, the target data of extensions can be gradually transmitted into the BendingStudio software. If all test criteria are already available in the component's coordinate system, the implementation is reduced to just a few clicks.

In the BendingStudio basic version, the advanced backup service was revised. It allows a complete data backup via timing or manual trigger. Older backups are not overwritten. In case of data recovery, the required version can be chosen via time information.

For customers with a valid software maintenance contract, the new BendingStudio software version 3.1 is available free of charge from mid-September.

AICON 3D Systems is a leading provider of optical camera-based 3D measuring systems. The company, founded in 1990, develops and distributes portable coordinate measuring machines for the business areas of inspection and testing including car safety and tube and wire inspection, as well as optical 3D scanners for the measurement of complex surface structures.

As of 1st April 2016, AICON is now part of Hexagon.

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Solutions for wire bending

Metal wire is being used in an increasing number of industries. BLM Group has responded to this need with a range of machines dedicated to wire bending covering the whole field of processing including the double-headed DH range and the single-headed E-FLEX systems.
BLM Group's wire bending product offering includes the DH-range double-headed machines, especially effective in medium-long, symmetrical and/or closed in parts, with multiple bends and a requirement for flatness of the finished product.

E-FLEX is a single-head member of the wire bending family, with all electric axes, able to bend wire up to 10 mm diameter. The double-turret bending head with clockwise/counter-clockwise rotation ensures great flexibility of movement and allows for a variety of bending techniques (draw-bending, kick-bending or variable radius). This provides production speed and capability to produce parts with bend sequences not always achievable with traditional methods.

A coil feeder ensures continuous operation. The straightening of the wire takes place in a single-feed, at a constant speed, without intermediate stops, ensuring accurate straightening and bending repeatability.

The 3D-visual graphical programming (VGP3D) with simulation and continuous visual support of the working zone makes it easy and safe to use the machine. The system is able to automatically correct the program searching in its database for previous bending experiences that can achieve the desired result immediately from the first part.

BLM Group is a global partner for the entire tube fabrication industry with a worldwide presence and thousands of successful installations in a wide variety of industries. BLM SPA, based in Cantù (CO), specialises in the production of CNC tube-bending machines, end forming, wire bending equipment and related automation devices. ADIGE SPA, based in Levico Terme (TN), manufactures systems for laser-cutting tubes and machines for saw cutting tubes, bars and sections. The range is augmented with wire brushing machines, measuring systems, washing systems and collectors. ADIGE-SYS SPA based in Levico Terme (TN) specialises in the production of "hybrid" laser-cutting systems for cutting tubes and sheet metal, plus a line of large capacity laser tube cutting machines and related part handling.

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