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Email: roger@rbpublishing.co.uk

Editor: John Barber - 01403 266022
Email: john@rbpublishing.co.uk

Accounts: Jackie Barber - 01403 563791

Production manager: Anna Rodrigues - 01472 210712
Email: studio@rbpublishing.co.uk

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New turn-mill centre with two Y-axis turrets

Complex components up to 65 mm in diameter may be turned and milled from bar on a new Miyano fixed-head lathe launched by Citizen Machinery UK. The 8-tonne BNE65-MYY is equipped with two turrets having Y-axis travel in addition to X- and Z-axis movements. One turret is positioned above and the other below the centreline of the twin-opposed spindles and both tool carriers have 12 live stations. The C-axis on each spindle and movement of the sub spindle in X and Z bring the bar auto's CNC axis tally to 10.

The 2-axis movement of the sub spindle facilitates superimposed machining, whereby tooling on both faces of the top turret can simultaneously cut front-end features on the bar stock and reverse-end features on a parted-off component. With the lower turret also working at the main spindle performing pinch turning, milling or drilling, for example, or perhaps OD turning while axial drilling is in progress above, three tools are in cut at the same time.



Together with the double Y-axis movements, the configuration provides great flexibility to balance front and back working cycles with considerable precision, maximising production output by not having one spindle waiting around for the other to finish.

Contributing further to high productivity are fast rapid traverses up to 20 m/min, plus main and sub spindles with generous power ratings of 18.5/15 kW, 30min/cont and 11/7.5 kW, 15min/cont respectively. As both spindles rotate at up to 5,000 rpm, productive turning is maintained even when machining smaller diameter sections of a workpiece. Rotary tool specification is also impressive at 4 kW / 6,000 rpm.

The slant-bed design encourages efficient chip flow so that production can continue uninterrupted. Lapped slideways have been adopted for all but the cross motion of the sub spindle to ensure a high level of rigidity as well as effective vibration damping for delivering maximum cutting performance and precision together with long tool life.

Control is by the Mitsubishi M830W, which has a new HMI with a 15-inch touch-screen control for convenient operation, including on-screen selection of the turret tooling. Intelligence built into the control simplifies programming, especially of superimposed cycles by automatically synchronising those sections of the program. A new colour scheme has been adopted that is said to convey information more efficiently to the operator.

Citizen Machinery UK Ltd
Tel: 01923 691500
Email: sales@citizenmachinery.co.uk
www.citizenmachinery.co.uk

KW Special Projects to locate world class Digital Manufacturing Centre at Silverstone Park

MEPC has confirmed that a state-of-the-art digital manufacturing facility, believed to be one of the most technically advanced of its kind in Europe and serving sectors such as aerospace, automotive, defence and marine, will be created inside one of 13 sizeable new industrial properties nearing completion at Silverstone Park.

The Digital Manufacturing Centre (DMC) is the brainchild of high-performance engineering specialist KW Special Projects (KWSP) and will total over 20,000 sq ft of manufacturing and office space. Its HQ-style building is one of seven impressive stand-alone properties currently being constructed as part of a 258,000 sq ft development by MEPC in the Enterprise Zone at Silverstone Park which also includes a further six terraced industrial units.

The DMC project has received significant funding from the South East Midlands Local Enterprise Partnership (SEMLEP). KWSP and DMC founder and CEO Kieron Salter has also highlighted Enterprise Zone status among the key reasons for choosing Silverstone Park as a location.

"It's very attractive in terms of de-risking the project in the current climate and



KW Special Projects' Digital Manufacturing Centre at Silverstone Park



James Dipple, CEO of MEPC on site at Silverstone Park, where all new buildings are due to complete over the coming weeks

enables us to manage cash flow better in these early stages and ramp up more effectively," he comments. "We also like how MEPC is developing Silverstone Park as a hot spot for advanced technologies and attracting tech companies as a result.

"As members of the Silverstone Technology Cluster (STC), we want to promote that by engaging with a future workforce, particularly young people in local schools, colleges and universities. This is an opportunity to show a younger audience that this is a cool technology that's being applied in cool sectors like aerospace, motorsport and space.

"There is also the connectivity at Silverstone Park with the M1, M40, rail networks, Milton Keynes and the Oxford-Cambridge Arc. It makes it a great place."

The DMC will become the third specialist high tech facility at Silverstone Park since MEPC took over development of the business estate in 2013.

Others include the UK's only dedicated subcontract inspection metrology facility (a

collaboration between MEPC and Hexagon Manufacturing's Intelligence division) and the Silverstone Sports Engineering Hub (SSEH) which opened in autumn 2019.

MEPC's Roz Bird, commercial director at Silverstone Park and STC Chair, says: "We are delighted to announce KWSP and the Digital Manufacturing Centre as a new occupier in one of our latest HQ-style buildings on site which form part of 'Phase 2' development plans at Silverstone Park.

"The scale and magnitude of the Digital Manufacturing Centre is to be applauded, as is its clear desire to showcase engineering to local schoolchildren and students. This aligns perfectly with our own Inspiration for Innovation programme with local schools, in response to concerns from local employers about the skills gap."

Meanwhile, Kieron Salter explains some of the futuristic thinking that has gone into the DMC's lay-out and processes:

"Polymer additive manufacturing is KWSP's forte, but at Silverstone Park we will also have metal additive manufacturing to satisfy the requirements of high-end aerospace, motorsport and space applications. Automotive, aerospace and space are all targets for us, with places like Harwell and Wescott nearby.

"Our ambition is very much to be operating on an industrial scale and ensure the Digital Manufacturing Centre at Silverstone Park is right up there with the very best in Europe, if not the world."

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Tel: 07786 138905

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MACH 2021 falls victim to COVID-19



Despite the sterling efforts of organiser the Manufacturing Technologies Association (MTA) for the MACH 2021 exhibition to go ahead in January as planned, the UK's largest

manufacturing trade event has had to be rescheduled to April 2022.

With the continued uncertainty around the COVID-19 pandemic and local lockdowns, the MTA decided to consult with its members and exhibitors who had booked a stand at MACH 2021 and gauge their opinion on whether to continue with MACH 2021 in January or carry forward to MACH 2022.

The overwhelming sentiment was that, in order to minimise the risks to visitors and exhibitors and to provide the best possible platform for both, the event should be moved to April 2022. The event will be held in the same Halls at the NEC from 4th to 8th April 2022.

Roger Barber Publishing fully supports this move and will work hard to keep our readers fully informed about the advantages of the 2022 show.

MTA CEO James Selka says: "We believe that this decision, which has not been taken lightly, is in the best interests of the industry and those who work in it. Our first priority is, of course, the health and safety of the 30,000+ people who will visit and work at MACH.

"In addition, we believe that by moving MACH to April 2022, we will be able to offer a better experience for our visitors, and better value for our exhibitors, rather than holding it in January 2021 with the uncertainty that could still be with us. Add to this the Government's recent announcement of a pause to the restart of live events and it was felt that a dateline in April 2022 was a much better option.

"In the meantime, visitors who planned to attend MACH 2021 to find out about new technology, look for new suppliers and research new trends will be able to utilise the existing MTA digital platforms. In addition, later this year, we will launch a new, virtual platform which we believe will perfectly complement the live show in 2022.

"We're grateful to the NEC for working with us to facilitate this move

and we look forward to welcoming visitors to MACH 2022 where they will be able to experience the best of modern manufacturing technology under one roof."

All exhibitors booked for MACH in January 2021 have been offered the same space at the event being held on the new dates and the MTA is already in contact with exhibitors to discuss their participation. However, should you have any questions please do not hesitate to contact the organisers:

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Keltech's hat trick of equipment for front-line COVID-19 battle

RADAN's role for medical waste bins, hand sanitisers and acoustic enclosures

A Waterford sheet metal specialist used RADAN software to prototype and manufacture emergency medical waste bins for the Irish health service in the fight against COVID-19. The company has now developed a unique hand sanitisation station capable of dispensing 6,000 shots of gel before needing to refill the unit's four-litre tank.

Keltech has traditionally been an expert in three main industrial sectors: reservoir; hydraulic; fuel tanks and overhead guards and cabins for equipment such as forklift trucks and acoustic enclosures for the power generation industry.

The idea for the bins came after one of its power generation customers needed to supply both the NHS and the Irish Health Service Executive (HSE) with emergency diesel generators at temporary patient care and COVID-19 testing sites. "We stayed open to manufacture the acoustic enclosures to reduce the noise of the generators, but that was only taking around 30 percent of our machining capacity," says business development manager Seamus Lawlor. "So we approached the HSE to offer support by manufacturing medical waste bins, as we had the in-house CNC cutting tools, RADAN software to drive them and the necessary expertise to rapidly prototype a product in keeping with the spec they required. HSE's reply was almost instantaneous, saying bins were in huge demand globally, and they were having difficulty sourcing them."

The initial prototype was built in seven days and the first production batch, based on the fourth version, came off the CNC



machines three days later. The company has now gone on to manufacture around 500 a week from two different material specifications, depending on the particular application; one is a stainless steel version, while the most popular is a mild steel, powder coated, unit.

Each bin comprises around a dozen

individual components, with RADAN creating optimum nests to maximise the yield from each sheet and avoid wastage. Senior projects engineer Sean McNamara says the company buys a considerable amount of sheet metal and need to utilise every piece. "RADAN is excellent at optimising each sheet. We can see exactly where we are with the nests and how they can be improved if we need to use a larger blank to add more components, or a smaller blank if there are fewer parts."

One of the biggest challenges was the opening and closing mechanism for the lid, but RADAN's ability to quickly edit the toolpaths and amend the programs was crucial in speeding up the process. Sean McNamara adds: "For instance, where we needed to change the position of holes we could do that quickly and accurately."

Seamus Lawlor says the foot-operated opening system means staff don't need to touch the bin lid: "The lid itself, when closed, is perfectly sealed, ensuring the potentially contaminated waste is secure. It's also designed with a silent close feature so as not to disturb patients. The front opening door allows staff to easily change



bags and we use state-of-the-art glossy powder paint which will give a good, easy to clean finish, so we expect the bins to last for between 10 and 15 years.

“This was more of a mission to support the urgent COVID-19 requirements of the HSE rather than looking at the product as a long-term business model, but private companies are now coming to us wanting these bins for places such as nursing homes and other care centres. We’re getting interest from the UK, mainland Europe and the United States.”

With RADAN able to program both its Trumpf laser cutter and punch press, the decision as to which parts are cut on which



machine rests largely on profiling criteria, based on the component’s curves. It’s difficult to produce curves on the punch, so those parts would be lasered.

Keltech has also been developing a third product to continue the long-term battle against Coronavirus. Seamus Lawlor adds: “We’ve rapidly prototyped a hand sanitising unit, which we believe is unique because of its large tank. It’s predominantly for high footfall retail areas and we’ve already had a number of orders for it from major brands.”

Sean McNamara and his team have developed an internal tank, nested and cut using RADAN, which can hold four litres of sanitising gel, giving the unit one of the largest capacities on the market, able to dispense around 6,000 shots before it needs to be refilled.

Seamus Lawlor concludes: “This means low maintenance for retailers, even in a high-usage, high footfall area and is a complete game-changer from traditional



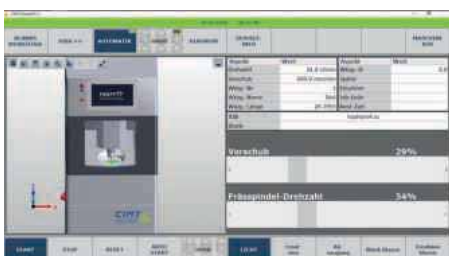
units on the market. Early customer feedback is extremely strong and positive, they say they can now buy sanitiser gel in bulk and the units are so easy to refill. Busy supermarkets with high footfall have only had one refill after a fortnight and they say the units ‘look great and are a real addition to their brand.’”

Hexagon Manufacturing Intelligence
Tel: 01242 542040
Email: enquiry.uk@hexagonmetrology.com
www.hexagonmi.com

Real-time machining simulation for digital dentistry

ModuleWorks, Bosch Rexroth and CIMT have combined their technologies to bring real-time machining simulation to digital dentistry.

ModuleWorks real-time simulation runs directly on high-end CNCs and provides accurate 3D visualisation of the machining process including material and machine simulation. Bosch Rexroth has integrated this functionality into its MTX CNC that enables operators to view the simulation either directly on the CNC’s touchscreen HMI or on a remote device such as a laptop. CIMT, a Germany-based specialist for integrated milling technology, saw the potential of this technology for digital dentistry and is now using the Bosch Rexroth MTX with integrated ModuleWorks



simulation for its high-performance Tizian 5.4 dental milling machine.

Christian Heine, CEO of CIMT explains: “Real-time simulation is already the standard in many machining applications, but until now it was not being used in digital dentistry. We saw a great chance to change this. The ModuleWorks simulation software is directly integrated in the Bosch Rexroth HMI which enabled us to quickly and efficiently build it into our dental milling solution.”

Soroosh Eghbali, head of CAM automation & digital dentistry at ModuleWorks says: “It’s great to see how CIMT is using the simulation technology from our industrial portfolio to add value to digital dentistry. This brings us closer to our vision of providing the most advanced manufacturing technology to the digital dentistry market and creating more efficient workflows that optimise the profitability of dental labs and practices.”

Tightly integrated in the MTX, the ModuleWorks simulation technology has direct access to the real axis positions, machine geometries and workpiece position

and uses the same motion data as the real servos to deliver a highly accurate real-time simulation of the entire machine kinematics. CIMT operators benefit from a detailed and unobscured visualisation of the whole dental machining process from every angle in real-time. The simulation also offers visual aids such as a deviation analysis to highlight the rest material after machining.

Used in combination with the Bosch Rexroth digital twin, the ModuleWorks technology also enables CIMT operators to simulate the dental machining process offline on a virtual machine to quickly identify and fix any problems before starting the real machining job. This reduces machine downtime, keeps production moving and ensures cost-effective use of material in dental labs and practices.

ModuleWorks GmbH
Tel: 0049 241 9900040
Email: info@moduleworks.com
www.moduleworks.com

Renishaw announces completion of clinical trial extension study

Global engineering technologies company, Renishaw, is pleased to announce that its award-winning neuroinfuse™ drug delivery device, the only platform currently to allow for repeated, intermittent infusions into the parenchyma, has continued to safely and effectively deliver infusions as part of an extension to a first-in-human clinical trial of cerebral dopamine neurotrophic factor (CDNF). The phase 1-2 clinical study, carried out jointly with Herantis Pharma plc, investigated the safety and performance/ tolerability of CDFN and neuroinfuse, as a treatment for Parkinson's disease.

The extension study followed on from the main, double-blinded study in which a repeated delivery regime allowed for a prolonged therapeutic window, crucial to achieving the potential neuroprotective and neurorestorative actions of CDFN. The extension component meant that all participants were offered the opportunity to receive CDFN infusions, allowing for further assessment of safety, performance and tolerability of both the drug delivery system and CDFN.

Initial results from the main study indicated predictable and accurate placement of the device as well as its positive performance and safety. With the 15 patients who progressed into the extension study, device safety was further demonstrated, with no serious adverse events (SAEs) considered to have device or

drug causality. Additionally, the unique ability to deliver repeated infusions continued to facilitate the assessment of CDFN's safety and early efficacy.

Rupert Jones, managing director of Renishaw Neuro Solutions Ltd, says: "Now the extension study has reached its completion, I would once again like to extend a huge thankyou to the trial participants for making this study possible, making personal sacrifices that will ultimately benefit fellow and future Parkinson's Disease patients."

He continues: "I'm delighted to see Renishaw's drug delivery system continuing to facilitate repeated infusions over an extended period of time for such a complex condition as Parkinson's Disease. The device's performance demonstrates what a powerful delivery platform it is for the treatment of many, currently incurable, neurological conditions, opening new possibilities in the field of neurosurgery and neuroscience. I see this as a hugely positive step forward and believe all involved in the study should be proud of their achievements."

About the device

Renishaw's neuroinfuse intermittent drug delivery system comprises of up to four catheters, which can be implanted into target areas within the brain. The catheters are accessed via a 3D printed titanium

transcutaneous port, manufactured on Renishaw's own metal 3D printing systems, which is implanted behind the patient's ear. Drug-filled infusion lines are connected using an MRI compatible application set, which repeatably locates onto the port. Retractable needles extend through a septum in the port to enable therapeutics in the external infusion lines to be infused through the implanted catheters.

Thanks to this innovative, patented, design patients are able to receive infusions in an out-patient setting, rather than requiring the implantation of new catheters for each infusion, which has been the only option for many patients to date.

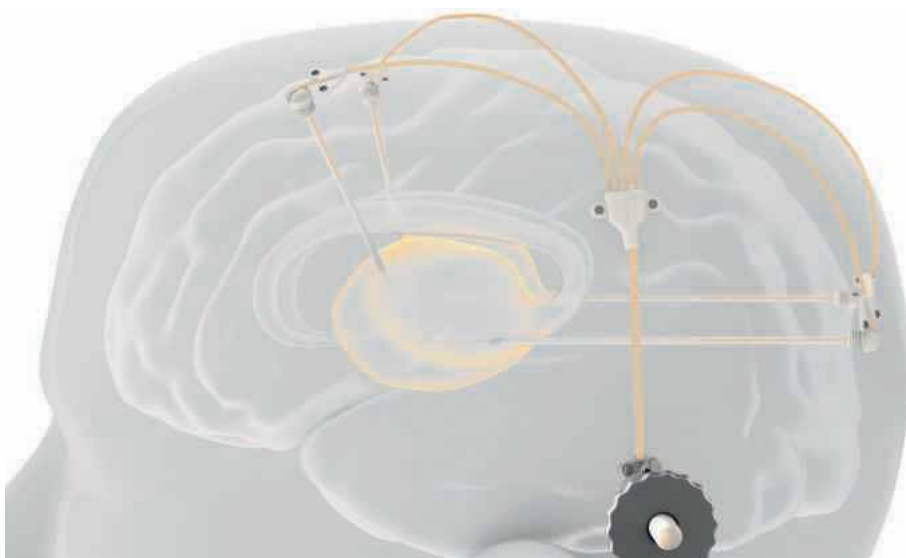
About the study

The main study was a first-in-human study whereby 17 patients were randomised to receive either one dose per month for six months, of a placebo, or six doses of Herantis Pharma plc's novel drug candidate, CDFN, over the same period in a blinded manner. After this six-month period, 15 patients entered an additional six-month study where all participants received CDFN. In total, patients who completed both studies received 12 infusions, all delivered in an out-patient setting.

The primary endpoints evaluated the safety and performance/tolerability of both the drug delivery system and CDFN as well as surgical accuracy. Secondary to this, the potential efficacy of the drug, rated against metrics such as the Unified Parkinson's Disease Rating Scale (UPDRS) motor score, was also monitored.

The clinical study has received funding from the European Union's research and innovation program Horizon 2020 under the grant agreement number 732386.

Renishaw plc
Tel: 01453 524524
Email: uk@renishaw.com
www.renishaw.com



Medical housings machined 40 percent faster

Established in 1989, Mildenhall subcontractor CTPE focuses on medium to large volume production of high precision components for the scientific, medical, electronics and defence sectors using 3- to 5-axis Vertical Machining Centres (VMCs) as well as fixed- and sliding-head CNC lathes.

To expand its prismatic machining capacity, in July 2020 the company invested in its first ever Horizontal Machining Centre (HMC), a 4-axis Averex HS-450i with nominal half-metre cube working volume from Whitehouse Machine Tools, Kenilworth, sole sales agent for the Taiwanese HMC manufacturer in the UK and Ireland.

What prompted the purchase of the twin-pallet, 40-taper machine was an uplift from 150 to 350 per week of a particular 6061 aluminium, two-part enclosure needed by CTPE's largest customer, a medical sector OEM, for the production of critical care diagnostic equipment.

There is no problem completely machining the required quantity of covers three at a time in two hits on a

Japanese-built Brother Speedio S1000X1 30-taper VMC installed in Mildenhall last April by Whitehouse Machine Tools. Neither is there an issue completing Op2 on the matching housing using the same machine, which has now been fitted with an angle head to make the cycle even faster.

However, Op1 on the housing was proving too time-consuming on a 3-axis VMC to meet the increased order level and was causing a permanent bottleneck, despite the running hours having been extended from 10 to 14 per day.

Alex Taylor, a director of CTPE and son of the founder, Chris, decided that an HMC would best suit the higher production volume.

An HMC is more robustly built than a VMC so vibration is lower, meaning that cutters last longer. The most significant benefit, however, is that four aluminium billets can be fixtured on a cube for Op1, so 24 housings are machined in a cycle time of 160 minutes. Formerly on the VMC, only two billets could be fixtured for machining a



total of 12 components and the program ran for 135 minutes. The figures equate to a production time saving of 40 per cent, considerably reducing manufacturing cost per part for this operation, particularly as there is now minimal operator intervention.

Whitehouse Machine Tools Ltd
Tel: 01926 852725
Email: timw@wmtcnc.com
www.wmtcnc.com

Tornos multi-spindle ramps up productivity for medical manufacturer

As changing demographics, an ageing global population, technology and innovation transform the medical sector, Wheeling, Illinois based Swiss Precision Machining (SPM) Inc. counts on Tornos in its pursuit of excellence. As a key supplier to the Medtech industry, SPM's recent acquisition of two new MultiSwiss machines advances its legacy of precision and boosts its productivity.

Much has changed since Mike Haupers founded SPM in 1979 with just two machines and two employees. Mike Haupers, the son of an instrument maker specialising in dental instrument making, grew up with the business and his daughters. Today, Cassandra Haupers is SPM's vice president of operations and Jennifer Adair is the company's quality assurance/continuous improvements manager.

Cassandra Haupers says: "Back when SPM started 40 years ago, Tornos had a reputation of quality and precision; two values that SPM lives by. Still to this day, Tornos builds quality machines that hold precision tolerances and has the support needed." That alignment of values is the

foundation of SPM's relationship with Tornos.

"SPM recently purchased two MultiSwiss multispindle machines from Tornos," she adds. "When core values align in companies, there's no doubt that a partnership will flourish and that's what's happening here with Tornos."

The MultiSwiss range, launched in 2011 when multispindle technology was still considered extremely complex, is renowned for its superb ergonomics and machining performance. SPM counts on its MultiSwiss machines to machine parts for robotic surgical operations.

"We knew that the quantities in demand for medical parts were increasing considerably," Cassandra Haupers says. "To stay competitive, we needed a machine that could keep up with our customer's demand, could produce a quality part and allow us to charge a price to compete globally. The Tornos MultiSwiss was our answer."

The MultiSwiss answers that concern and more. Featuring independent mobile spindles with Z axes, barrel indexing using torque motor technology and a container



housing for all of the peripherals needed for machine operation, these capabilities position SPM for success well into the future. Marking a departure from conventional multispindle machines, the MultiSwiss range bridges the gap between single-spindle sliding headstock lathe and multi-spindle machining. Additionally, its onboard technology means a MultiSwiss can deliver cycle times equal to those of cam-operated multi-spindle turning machines.

Tornos UK Ltd
Tel: 01530 513100
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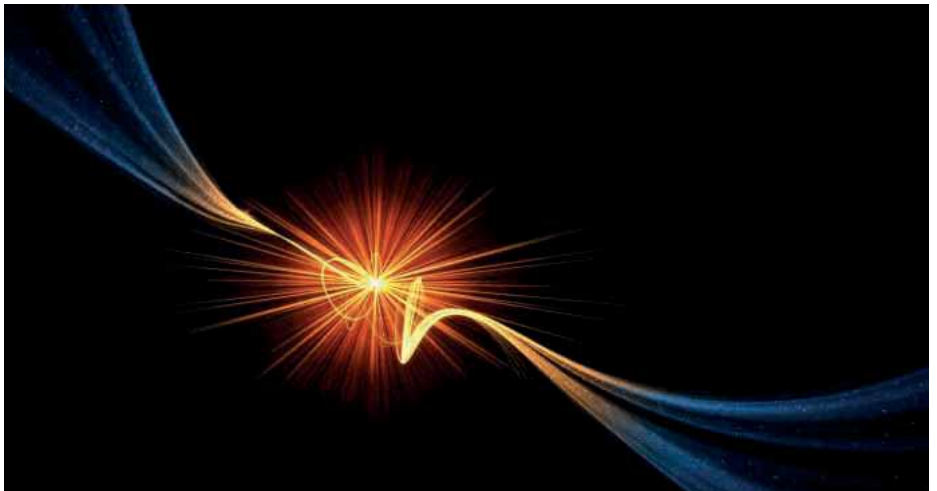
Wire erosion machines

CHMER and AMS Tech

For almost 60 years, Electrical Discharge Machining (EDM) has remained at the frontline of metalworking innovation with advancements and revolutionised techniques across numerous industry sectors. EDM Machining, or Spark Erosion Machining (SEM), remains one of the go-to processes for precision and complex machining with electrically conductive materials where more traditional methods are less effective or incompatible. EDM has become the most popular, non-traditional, material removal process in today's manufacturing practice although it is still classed as non-conventional. In 1998, EDM sales made up six percent of the tool market up from 0.5 percent in 1960 and this has grown exponentially since.

Wire EDM is an electro-thermal production process which can cut through hardened materials without sacrificing tolerance, unlike traditional machining techniques which are often limited to softer materials. In wire EDM, either the workpiece or the wire itself is generally moved relative to each other along the X, Y, Z, U, & V, directional planes to perform the required actions. The inherent properties of the process means that wire erosion machines will produce precision components and highly complex parts from conductive materials including titanium, inconel and carbide achieving high levels of surface finish with high form and positional accuracy.

Although there are several forms of EDM, Wire erosion machining is a discharge machining process which uses CNC



movement to produce the shape, contour and dimensions required from the workpiece. Instead of a custom shaped electrode, it uses a continuous travelling vertical wire which is placed under tension and whose path is controlled by the embedded microcomputer.

While the rudimentary principle of wire erosion has not significantly changed in the past decades, the process has advanced dramatically in the scope, speed, accuracy and complexity of the metal-cutting it can perform, even as the equipment has become more affordable, more reliable, and easier to operate.

Growth of EDM

According to a recent report published by Technavio on the global EDM machining market, 2017-2021, the global Wire EDM market is expected to reach around \$3.7 billion by 2021, growing at a compound annual growth rate of 8.19 percent. The

market is dominated by the machine shop industry with a 29.21 percent market share in 2016. The report shows a \$2.2 billion incremental growth over five years from 2017 with three key factors contributing to this growth:

A rise in automation; as a way to satisfy expected quality standards, companies are increasingly employing automation in machining. Furthermore, there is an added benefit of unmanned machining and an increase in levels of output which can be considered.

Increased demand for superior quality machines and CNC machines; the domination of industries which require complex products and shapes with extraordinarily high levels of finish have compelled the further growth of the popularity of EDM and specifically wire erosion machining.

Increased demand for mechanical engineering products; a trend toward



lightweight and higher flexibility in machine tools and robotics will increase the need for precision and complex parts. Although there has been a poor economic period in Europe recently, Technavio report that the mechanical engineering sector is set to recover somewhat within the next two years. These factors plus many other complex aspects are expected to drive the EDM market during the forecasted period leading to 2021 and beyond.

Wire EDM machines

Numerous local and international manufacturers are focusing on developing low-cost EDMs, thereby making the market substantially competitive. Globally renowned major players involved in EDM manufacturing are GF Machining Solutions, Fanuc, Makino, Mitsubishi, Sodick, CHMER and AMS Tech amongst others.

With many manufacturers of wire erosion machines on the market, there is a multitude of options available in terms of the type, range and brand of wire erosion machines to choose from. Here we introduce CHMER and AMS Tech, developed by CHMER, as two of the lesser known top global manufacturers of EDM machines competing with the established Japanese and Swiss manufacturers.

CHMER wire erosion machines

Approaching its 45th year in the industry, CHMER is making a significant impact in the world of EDM machining. Developed and manufactured in Taiwan, CHMER produces highly reliable and user-friendly EDM products. With in-house research and development teams as well as an internal software department, CHMER takes ownership of every aspect of every machine produced. One of the benefits of having a software development team as part of CHMER's in-house team is that EDM specific software is developed to optimise the cutting performance between the operator and machine while providing user specific software for precise application, safe in the



knowledge that the software is designed with the characteristics and attributes of the machine in mind.

As Germany is to the automobile industry, Taiwan is to the electronics industry and so it is unsurprising that CHMER and its subsidiary company AMS Tech, have produced some of the best EDM machines globally, not necessarily in direct response to the growth of the electronics industry but rather in acknowledgement of the application and advancements of EDM machining across a number of industries which include electronics/microelectronics, semiconductors and biotechnology, all of which require highly accurate precision pieces which traditional methods are unable to provide.

This localised need for intricate and immensely precise cutting machines to service the manufacturing needs of the leading industries of Taiwan means that a machine of exceptional quality and longevity can be expected when purchasing a CHMER or AMS Tech Wire erosion machine.

For information about specific machines from CHMER please visit www.chmer.com or contact EDM Plus the UK and Ireland agents.

AMS Tech wire erosion machines

In 2006, the research and development team at CHMER created a range of EDM machines which would become the foundational line of AMS Tech, a subsidiary company of CHMER. With much the same ethos as CHMER, AMS Tech provides a range of wire erosion machines built with longevity and efficiency in mind but with AMS Tech, the technological advances and software behind the machines increases the initial price point.

Boasting 100 percent in-house development, AMS Tech is at the forefront of technical advancements in Wire Erosion Machining with a prominent focus on software progression and intelligent systems. AMS Tech prominently features its hopes to become the leading provider of aerospace EDM equipment and does so through continuous operations and design improvements, product development and the introduction of new technologies. This is not to say that AMS Tech wire erosion machines are only suited to aerospace applications but rather, as part of the CHMER group, AMS Tech is leading the way for technological advancement suited to more complex machining needs.



As a relatively new name in the industry, AMS Tech is much more than its 13 years trading as its parent company is intrinsically linked with its development. For many it was unclear why CHMER created AMS Tech as a separate entity to develop, manufacture, and sell its luxury, upscale models but what is clear is that across both companies there is an environment of effective customer support with training and troubleshooting provisions available as well as a commitment to creating long lasting, hardwearing, intelligently designed machinery with everything you would expect from a wire erosion machine plus more, in some cases.

Both CHMER and AMS Tech are adept at offering multiple machine types for multiple applications. C-frame - fixed bed - moving bed - bridge type - linear drive: AMS Tech and CHMER offer a full solution of machines built in different ways to meet the application requirements of the client/customer.

Both CHMER and AMS Tech are leading suppliers of wire erosion machines with both companies providing a variety of machines to suit the needs of businesses and operators worldwide. Although AMS Tech supplies more expensive machines than CHMER, on the whole, both companies are competitively priced within the industry. When considering accuracy, speed, automation, reliability, running costs, and quality output in your wire erosion machining, both CHMER and AMS Tech compete with the biggest names in EDM.

Having worked with CHMER and AMS Tech machines both as operators and through the installation and training for others, EDM Plus is well positioned to advise on the best machines to meet the needs of any given business/application.

For information about specific machines from AMS Tech please visit www.chmer.com or contact:

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Email: info@edmplus.co.uk
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Numatic toolroom gets capability boost with new Sodick die-sink EDM

The toolroom at one of the world's leading manufacturers of domestic, commercial and industrial cleaning equipment has received a boost in capability with the arrival of a Sodick AD55L CNC spark-erosion machine from Sodi-Tech EDM. Chard-based Numatic International Ltd, manufacturer of the world-famous Henry vacuum cleaner, says its new Sodick AD55L CNC die-sink EDM has enhanced the site's mould-tool repair, maintenance and modification services.

Formed in 1969, Numatic employs approximately 1,000 people at its Chard facility. The factory produces the instantly recognisable Henry vacuum cleaner, some 11 million of which have been sold since its introduction in 1981. Around 21,000 Henry-type machines are still manufactured at Chard every week. Numatic also produces a wide range of other domestic vacuum cleaners, as well as professional vacuums for commercial, industrial and hazardous areas. Further products include floor-care machines for processes such as polishing, scrubbing, stripping and abrading, along with a range of janitorial cleaning systems.

With so many of its products comprising plastic components, Numatic operates its own mould shop. Supporting the mould shop is a toolroom facility, which has the task of repairing, modifying and maintaining

around 2,000 different mould tools, ranging in weight from 100 kg to 15 tonnes.

"Obviously some tools become obsolete over the course of time, but these are usually countered by new arrivals. We're expecting 96 new mould tools this year, for example," explains toolroom supervisor Scott Connett.

"Addressing issues such as tooling modifications and general wear and tear, are the most common tasks for our toolroom team."

The mould shop has around 40 injection moulding machines, varying from 40 to 1,400 tonnes in capacity, which use tools made from materials that include 2311 mould steel, P20 high-tensile tool steel and copper beryllium. To keep pace with requirements, Numatic makes regular investments in its toolroom capabilities, with EDM the latest process to receive attention.

Numatic's existing manual spark-erosion capacity was coming up to 20 years old and the gap in capabilities, compared with a new CNC machine, was plain to see.

"We looked at various spark eroders, but for us it was more about service and support," says Scott Connett. "So, even though the AD55L was our first Sodick, we chose it because Sodi-Tech EDM came top of our assessments in terms of aftersales service."

Installed in December 2019, the Sodick AD55L offers X-, Y- and Z-axis travels of 600 by 400 by 400 mm respectively. The machine comes with all the latest technologies, such as linear motors, ceramics, a motion controller and a discharge unit. Sodi-Tech EDM supplied Numatic with a five-day training package.

"Even our most recently appointed apprentice, who had no previous EDM experience, quickly learnt how to use the Sodick," says Scott Connett. "This is more



impressive when considering that all of our work in the toolroom is one off parts. Importantly, our team and the AD55L seem to handle everything that comes up. We've certainly noticed the difference since it was installed. With our previous manual machine we would need three or four electrodes to achieve our desired end result, whereas on the Sodick we just use a roughing and finishing electrode. As you would expect, the machine is also much quicker."

Numatic, which is accredited to both ISO9001 and ISO14001, is independently rated as the UK's most reliable vacuum brand, with longevity, efficiency and serviceability at the core of its product design. These factors also apply to the company's investments, including the Sodick AD55L.

Scott Connett concludes: "We're really pleased with the machine and the capabilities it brings. "We've only had one minor issue since it was installed, but that was resolved the next day by Sodi-Tech EDM. This level of response is exactly why we opted for a Sodick."

Sodi-Tech EDM Ltd
Tel: 01926 695777
Email: sales@sodi-techedm.co.uk
www.sodi-techedm.co.uk

Small but perfectly formed

The AgieCharmilles FORM E350 is a compact, high-performance die-sink machine ideal for mould tool and die and precision component manufacturers. Even with the smallest footprint on the market, the machine still boasts several design and performance features that will enhance a customer's competitive advantage.

A sturdy C-axis construction, cross table and cast-iron frame offer high stability and force reduction, which helps maintain a precise spark gap between the part and the electrode. Regardless of part weight or dielectric volume, the machine delivers consistent accuracy. Integrated glass scales preserve long-term accuracy and repeatability's and eliminate the need for recalibration and errors associated with traditional ball screw systems due to backlash and wear.

The latest-generation Intelligent Speed Power Generator (ISPG) on the FORM E 350 delivers superior surface finishes and high accuracies and helps overcome common EDM issues and challenges such as excessive and costly electrode wear by up to

25 percent. The ISPG generator also improves machining speeds by up to 40 percent and reduces corner wear by 50 percent.

Designed for high efficiency, the machine features a programmable dielectric management system with a 270-L capacity integrated inside the machine's cabinet. This system fills and empties the work tank without human intervention to keep the machine in production and is easy to access for routine maintenance.

The machine is equipped with the user-friendly AC FORM HMI that is based on a standard Windows® platform and offers interactive graphical assistance so that all operations, such as measurement and machining cycles, are illustrated by graphics/icons for fast operator understanding and ease-of-use.

It provides simple descriptions of machining targets, automatic selection of optimal technologies and dynamic parameters adaption.

With X/Y/Z travels of 350 x 250 x 250 mm, the FORM E 350 handles workpieces up to



800 x 500 x 265 mm. It also has a four-position linear tool changer for increased productivity and versatility. The FORM E 350 is automation ready and can easily be integrated with the System 3R WorkPartner 1+ robot, for example, to facilitate unattended night and weekend operation.

As with all advanced AgieCharmilles EDM machines, the FORM E350 can be linked to GF Machining Solutions' rConnect modular digital services that includes Live Remote Assistance (LRA) and predictive monitoring and maintenance, all designed to increase machine uptime.

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Makino is the world leader in EDM technology, providing faster processing times and superior surface finishes for even the most complex and involved part geometries.

WIRE EDM machines combine a diverse mix of high performance capabilities, low operating costs, and advanced user-friendly operation that provide optimum efficiency on the production floor. By combining innovative Makino machine tools and software with NCMT's world-class specialist applications knowledge and expertise, shops of every size are competing and winning the kind of work that matters on the global EDM stage. All Makino EDM products utilize the modern Hyper i control system that delivers new levels of user-friendliness, with its high definition large 24" touch screen interface that makes use of Pinch, Swipe, and Spread touch functions similar to smartphones and tablets.



Dugard turbocharges productivity with Kitamura installation

ELE Advanced Technologies Ltd is a company with an aerospace pedigree that dates back to 1955 when Earby Light Engineers (ELE) was founded to manufacture compressor blades for Rolls-Royce. In the 65 years since, the Colne based company has expanded its scope by targeting the aerospace, power generation and automotive industry sectors.

In fact, the diversification into the automotive market and in particular the commercial diesel market has seen the company open a manufacturing facility in Slovakia to supply global commercial diesel engine manufacturers. In the last decade, the company has invested heavily in production equipment for the manufacture of IGT, aerospace and automotive power generation components and assemblies such as blades, vanes and a complete range of turbine components. Part of this investment has included the installation of three Kitamura machining centres, with the latest machine arriving from Dugard at the start of April during the pandemic lockdown period.

The most recent purchase from Dugard Machine Tools is the Kitamura Mycenter HX500iG/630, which is an identical model and specification to an HX500iG/630 that was installed in 2017. Commenting on the purchase of the third Kitamura machine, David Dudley from ELE Advanced Technologies says: "The reason that we bought the third machine is that the process from the other two machines is such a repeatable process, we wanted a machine that we could plug in and play and just start making components that will conform to specification perfectly."

Alluding to the Mycenter HX500iG/630 machine and the qualities it possesses to machine components at ELE Advanced Technologies, David Dudley continues: "The parts we are making on the Kitamura machines are being installed on an industrial gas turbine engine and they are manufactured from exotic materials like nimonic. The parts have very tight tolerances and the materials are very difficult to machine. With the Kitamura machines, you can load a part, machine it and then be confident that when you put it on the CMM, everything will be 100 percent correct."



"The beauty of the Mycenter HX500iG/630 machine is that we can now use ceramic endmills from NTK and these allow us to remove material a lot faster than we have been able to in the past. This gives us the ability to rough machine a lot faster and then come in with finishing tools for the final passes."

Taking this productivity a step further, the Kitamura Mycenter HX500iG/630 machines have a 50 tool ATC as standard, along with a high-torque 12,000 rpm dual contact BT50 spindle configuration and a twin pallet configuration. David Dudley adds: "The reason for the twin pallet setup is twofold. Firstly, there is the obvious benefit that we can load one pallet whilst the other is 'in-cycle' which reduces our setup times and keeps the spindles turning. Additionally, we are introducing a lot of new products all the time. With the twin pallet, we can use one pallet for production parts whilst simultaneously using the next pallet for development parts. This ensures we can get new projects up and running without disrupting production. This allows us to mix-and-match our production."

Furthermore, the Kitamura HX500iG/630 machines incorporate a 500 by 500 mm pallet with the facility for a 630 mm pallet, if needed. Machining all faces with sufficient clearance is not an issue as the machines have an X, Y and Z-axis travel of 870 by 800 by 930 mm.

Both Dugard and Kitamura actively promote the geometric precision of the machines and the hand-crafted manual scraping that makes the Mycenter range so precise.

David Dudley concludes: "The service from Dugard has been quite fantastic. We bought the machine at the back end of 2019 and the delivery was scheduled during the height of the pandemic. We are in the north of England and Dugard are in Brighton, but they delivered the machine and got it up and running for us in a matter of weeks which, considering the circumstances of the pandemic, was an excellent effort by Dugard."



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monoBLOCK Excellence Factory

DMG MORI has revolutionised the production of monoBLOCK 5-axis machining centres with the opening of its new 4,000 m² Excellence Factory at DECKEL MAHO Pfronten, southern Germany. The flow line assembly based on an Automated Guided Vehicle (AGV) transport system results in a productivity increase of 30 percent, which is also to the benefit of customers.

"Investments in innovations are the only way out of the current crisis, so we are automating and digitalising our internal value chain," says Christian Thönes, chairman of the executive board of DMG MORI AG.

The heart of production in the new factory is an AGV transport system. By optical navigation using the latest laser scanning technology, it moves the machines continuously and autonomously through the assembly stations at a speed of 45 mm/minute. As of now, the complete model mix of the monoBLOCK series including all models with a pallet changer (DMC) and with a turn-mill table (FD) is built in a flow line in 34 cycles, starting with basic assembly and finishing with final inspection.

Michael Horn, executive board member of DMG MORI AG explains: "Today, our new monoBLOCK Excellence Factory in Pfronten already demonstrates what tomorrow's production will look like. Using modern automation and digitalisation solutions, we are consistently realigning our factories to the production of the future.

"The driverless AGV transport system is perfectly integrated into the digital value chain of our production site. Compared to rail systems, AGVs are a much more flexible solution, hence optimising the production infrastructure."

The AGVs can also be freely navigated via remote control. The flexible timing of the machines ensures an uninterrupted and trouble-free flow during the assembly process.

Complete model mix

With cycle times of just two and a half hours, every monoBLOCK machine can now be assembled in just seven days, corresponding to a reduction of 30 percent. It is a significant leap in productivity that increases the capacity at the site from 600 to 1,000 monoBLOCK machines per year.

"Our goal was to increase efficiency in a smaller footprint and to be able to produce the complete model mix of the monoBLOCK series in a highly flexible, waste-free and even more productive way," says Reinhard Musch, managing director of DECKEL MAHO Pfronten.

Working practices in the factory have also undergone future-oriented changes: "We got our specialists involved in the design process of the factory from the very beginning, thus significantly improving all processes with regard to ergonomics and creating an optimal working environment to support our highly qualified specialists," explains Reinhard Musch.

Digital assembly supported by TULIP

The new factory also sets new standards in terms of digitalisation. TULIP is an important component in the flow line assembly. The US start-up's software enables users without programming skills to create their own

applications quickly and intuitively. With the help of the no-code platform, DMG MORI has developed an app solution that shows employees the necessary assembly information for each cycle with machine-specific work plans. Assembly processes of newly implemented equipment or special options are aided by detailed drawings, pictures and video instructions.

TULIP also helps with upholding quality standards consistently: "Interactive checklists and inspection plans document the entire assembly process in real time and ensure continuous quality control during assembly," explains Reinhard Musch. Information is available within the TULIP app in real time along the entire value chain. There is a connection to the existing ERP system in place as well as a network right through to suppliers.

DMG MORI passes the benefits of increased productivity on to its customers. All prices for monoBLOCK models have been reduced by €10,000 and the accuracy package is also integrated as standard. It results in a price advantage of €30,000 for customers.

With the monoBLOCK Excellence Factory, DMG MORI has created a basis for further advancing production processes and offering short delivery times with a full product mix. The automated and digitalised processes make the assembly line the most modern in machine tool manufacturing. Its realisation was a logical step for DMG MORI.



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XYZ Machine Tools extends turning centre range with two new models

XYZ Machine Tools Compact Turn series of turning centres has proven highly popular over the years. However, not resting on its laurels, the company has responded to customer feedback and extended the range to offer greater capacity introducing the CT 65 HD and a highly cost-competitive solution with the CT 52 LR.

The CT 52 LR extends the move to the use of linear rail technology to turning centres by XYZ Machine Tools for the first time. Having proved successful on its machining centre range, where sales have been beyond expectation, the same level of interest in linear rail technology is being shown for the CT 52 LR. The advantage of using linear rails is primarily the cost, but without any compromise in capability. The CT 52 LR is available from under £36,000 making it highly advantageous to small and medium-sized businesses looking to step up to turning centre use. Despite of the relatively low cost, the CT 52 LR boasts an impressive specification as standard. This includes 15HP/11.2 kW, 4,500 revs/min, spindle, 52 mm spindle bore, 10 station turret and Siemens 828D control with the PLC written by Siemens UK. As standard, the CT 52 LR is equipped with a 150 mm three-jaw chuck, but there is an optional Hainbuch collet system and Hydrafeed, or LNS, bar feed units. All of this is built upon a 2,000 kg solid meehanite cast base that provides the rigidity required for exceptional machining performance.

As part of the Compact Turn family, the



CT 52 LR lives up to its description, with a footprint of just 1,930 x 1,420 mm. This makes it ideal for the smallest of machine shops, it can literally be located anywhere in the factory. This small footprint disguises a large turning capacity which sees a maximum turning length of 300 mm, swing over the carriage of 300 mm and a maximum turned diameter of 180 mm.

The larger XYZ CT 65 HD complements the existing Compact Turn CT 65 and comes with enhanced turning capacity with a 510 mm maximum turned length, almost double its predecessor, increasing by 250 mm and a total z-axis travel of 525 mm. Another upgraded addition is the increased coolant delivery pressure, which now runs at 30 L/min at 2.5 bar. The HD designation relates to the CT 65 HD's construction, which remains as a solid Meehanite ribbed casting, with x and y axes positioned along hardened and ground box slideways. Positioning is by ball screws that have been increased in size to 28 mm, X-axis and



40 mm, Z-axis, respectively, with 20 m/min feed rates. Metal cutting performance is enhanced using a Siemens 23 hp/17 kW, 4,500 revs/min unit and the upgraded Siemens 828D ShopTurn touchscreen control. This is backed by a Sauter 12-position 30 VDI turret with through tool coolant, along with the MT4 tailstock with 105 mm of quill travel. Other standard equipment includes a swarf conveyor, parts catcher, 200 mm diameter hydraulic chuck and a Renishaw Automatic Tool Setting Arm. The machine footprint is just 2,950 mm x 2,030 mm.

"The arrival of these two additions to our turning centre range will provide us with a powerful turning centre portfolio, which we hope will see a better balance between turning centre and machining centre sales for XYZ Machine Tools. At present, machining centres outsell turning centres by around three to one, with these additions, we can see that becoming more in balance. We are already witnessing significant interest in the CT 52 LR with machines already delivered to customers," says Nigel Atherton, managing director of XYZ Machine Tools.

XYZ has been developing, testing and refining its range of machine tools for over 35 years. Its winning principles of combining outstanding build quality with some of the world's best control systems, has seen the product range become the nation's first choice for prototype and low volume production.

XYZ Machine Tools
Tel: 01823 674200
Email: nigel.atherton@xyzmachinetools.com
www.xyzmachinetools.com



A good time to buy

The decision to buy a new CNC lathe is always an important one. It can be a big investment and, as a result, it is essential to get the best value for money. In the current climate, it is very important to have very clear recovery plans and assistance available to buy machinery.

Buying new machines in times of crisis is not an act of madness. It is a great opportunity for those who wish to have the capacity to react to ever changing markets. CMZ can offer support and assistance to customers wanting to purchase at this difficult time. Its prices are even more competitive and the quality of its machines continues to reign supreme. The company takes extra care over each step of the manufacturing process.

The economic rebound has already started and it will be led by the organisations that are best able to adapt to the new situation. Having a new powerful, accurate, reliable CNC lathe among your machinery arsenal will set you apart from the crowd and will give you added value that will allow you to plan for your customers' orders or your internal needs in the medium term.

Not all regions have been able to access subsidies or recovery plans to acquire machinery. For that reason, CMZ started its campaign "Part Exchange Your Lathe". With the aim of supporting organisations to update their machines at a very special price, it will provide a valuation of the old lathe, whether it's a CMZ or from other manufacturers, buy it from you, and discount the sum from the final price of the new CMZ lathe.

The good take-up of the scheme meant it was extended throughout the month of September.



CMZ customers span a varied range of different types of companies. It would like to invite everyone who is looking for a used lathe to visit the used lathes section on its website. All used lathes have been fully disassembled and reconstructed by CMZ.

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Automation solutions for deep drilling machines

Tibo deep hole drilling machines are used across a wide range of manufacturing sectors including oil and gas, medical technology, automotive, aerospace, hydraulic and pneumatic, steel / aluminium processing, marine engineering, railway, renewable energies and die and mould making.

In all of these areas there is an increasing number of customers who don't just need a machine to machine deep bores in their components. Rather, these customers are increasingly demanding automated component loading and unloading, automated tool change, or they expect the integration of process steps following deep drilling such as deburring or washing and cleaning of the components.

The reasons given by customers for this are almost always the same and include: Reduction of the setup times and thus a reduction in setup costs; increase in the productivity of the machine; increase in product quality; reduced personnel requirements for operating the machine.

Tibo has optimised solutions for individual customer requirements, across all industry sectors. It has integrated a wide variety of automation into the respective machine or processes, such as conveyors for loading and unloading of parts, customised magazines and cassettes or robots that can be used very flexibly for the component handling. The suitability of components for the respective application depends on many different framework conditions and is determined in close cooperation with the customer.



A combination of several of the above-mentioned automation is also possible. For example, a robot that places the components on a conveyor or removes them from it and a magazine for automatic tool changes in BTA-deep drilling machines, or a component magazine for small components on the machine with an integrated gripper for inserting the components on the workpiece pre-centring device in a multi-spindle gun-drilling machine.

Tibo machines are currently provided to meet customer specific needs and increasingly more and more machines are provided with automation demonstrating company expertise in providing totally automated "lights out" deep hole boring solutions.

The application below demonstrates a robotic solution for a customer who needs to machine a large number of different components in batches of different sizes. In this project, only a robot was able to ensure that the system could be operated 24/7 as planned, without any disruption, with minimal manual intervention.

The use of components to automate certain processes requires them to be integrated into the control architecture of the deep drilling machine.

Even with these sometimes very complex systems, Tibo aims to make the operation of the machine "operator friendly", with ease-of-use and low maintenance always a



priority. Almost all machines are based on the latest touch screen technology which has proven robust and very popular with operators and managers alike. The current version is equipped with a high-resolution 15" colour display.

The necessary control and regulation technology is always tailored and adapted to the current application by the Tibo specialists. In most cases, however, the customer does not even notice the complex structure in the background, as only the clear operator friendly interface is visible in day to day operation.

This ensures smooth operation of the entire system and prevents operator errors. Only the areas necessary for the drilling process are visible to the machine operator. All other areas can be made accessible to the respective employees via different, predefined user groups if required. Of course, the machine can also be integrated into the company network so that certain employees, e.g. from production planning, can access the machine control from their workplace.

Tibo Tiefbohrtechnik GmbH from the Swabian town of Pfullingen in the southwest of Germany, approx. 40 km south of



Stuttgart, is one of the world's leading manufacturers of gun-drilling and BTA-deep drilling machines.

The Tibo standard range of gun-drilling machines includes machines with a solid drilling diameter range of Ø2 mm to Ø40 mm at a max drilling depth of 4,500 mm. These machines can also be built with multiple spindles. Depending on the spindle size they can be supplied with up to six spindles.

So-called TWIN units are also available as special machines. With these machines a large number of components can be machined, simultaneously from both ends of the part with max. six spindles each.

The BTA-deep drilling machines cover a solid drilling diameter range from Ø18 mm to Ø250 mm, with a max. drilling depth of 12,000 mm.

All Tibo machines consist of a modular sub-assemblies, which makes it possible to design the respective machine precisely for individual customer requirements. Without the need to design and re-design machine elements, all components of the various sub-assemblies are readily available and can be easily tailored to suit broad range of applications on short lead times.

The resulting time savings also benefit the customer's project management. Normally, at Tibo, there are no more than four to six



months between receipt of the order and commissioning of the deep hole drilling machine.

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- Short delivery time

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Allied Machine to launch a new drilling system this Autumn

Allied Machine and Engineering has proudly announced its revolutionary high-penetration drilling system, the T-A Pro™. After 35 years of spade drilling success with its iconic T-A (Throw Away) insert, the best just got better. Allied Machine's team of engineers developed technology that takes the "go-to" solution for general purpose holemaking to a performance level previously unachievable by a spade insert.

The T-A Pro drill combines material-specific insert geometries, a redesigned drill body and a proprietary through-coolant system to allow penetration rates which run at speeds up to 30 percent faster than other high-performance drills on the market. Coolant outlets are designed to direct maximum flow to the cutting edge providing quick heat extraction where most critical, even at significantly higher speeds. Material-specific insert geometries produce impeccable chip formation and the drill body incorporates straight flutes redesigned for maximum coolant flow and excellent rigidity. These design elements combine to extend tool life, create consistent quality holes and provide superior chip evacuation. As a result, the T-A Pro drill offers machine shops and high production manufacturers a spade drill with incredible speed and a cost per hole averaging 25 percent less than existing drills.

The T-A Pro drilling system will be available in diameters ranging from



11.10 mm to 47.80 mm and is ideal for holes ranging in stub, 3xD, 5xD, 7xD, 10xD, 12xD, and 15xD depths. The drill will be available in both metric and imperial shanks, with flat and cylindrical variants. The carbide insert geometries offered initially will cater to the following ISO material classes: Steel (P) with AM300 coating; Cast iron (K), with TiAlN coating; Non-ferrous (N) with TiCN coating

Product manager, Sal Deluca, states: "The T-A Pro drill is designed for use in applications ranging well beyond general purpose drilling. It truly will target all industries, offering phenomenal tool life at high penetration rates, especially in situations where the balance of chip formation at high penetration is critical."

The T-A Pro drilling system is available to order now from Allied Machine's preferred distributors.

Allied Machine & Engineering is a leading manufacturer of holemaking and finishing tooling systems. The company devotes its advanced engineering and manufacturing capabilities to creating the widest selection of value-added tooling available to metal-cutting industries around the world. Its tooling solutions deliver the lowest cost-per-hole in a wide range of drilling, reaming, threading, boring, and burnishing applications.



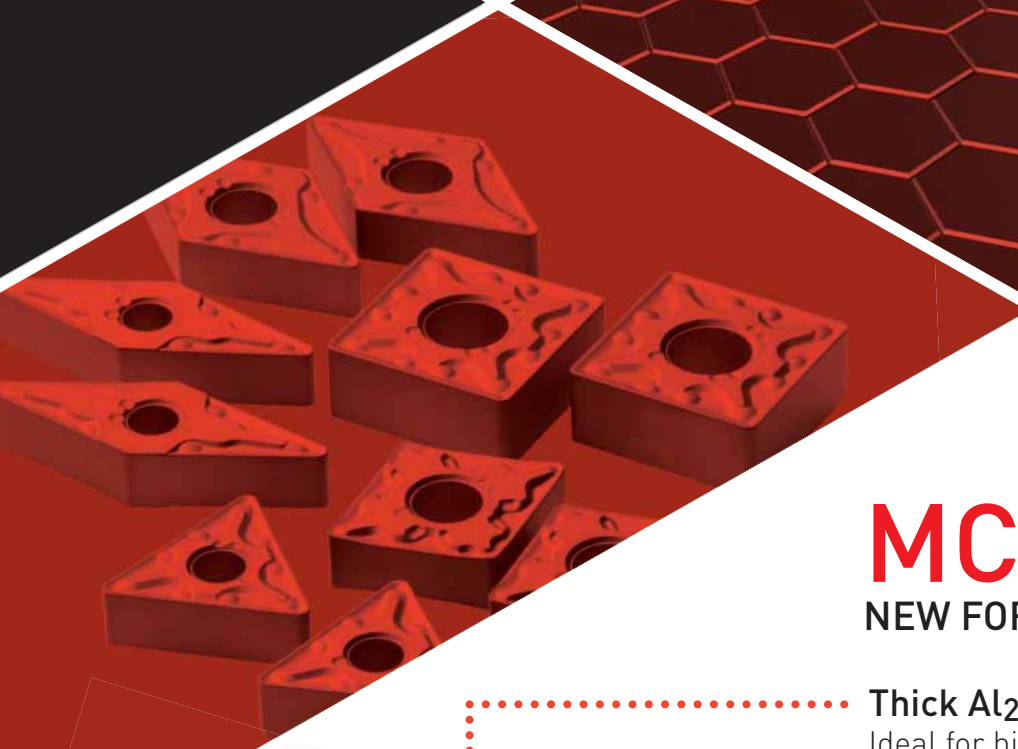
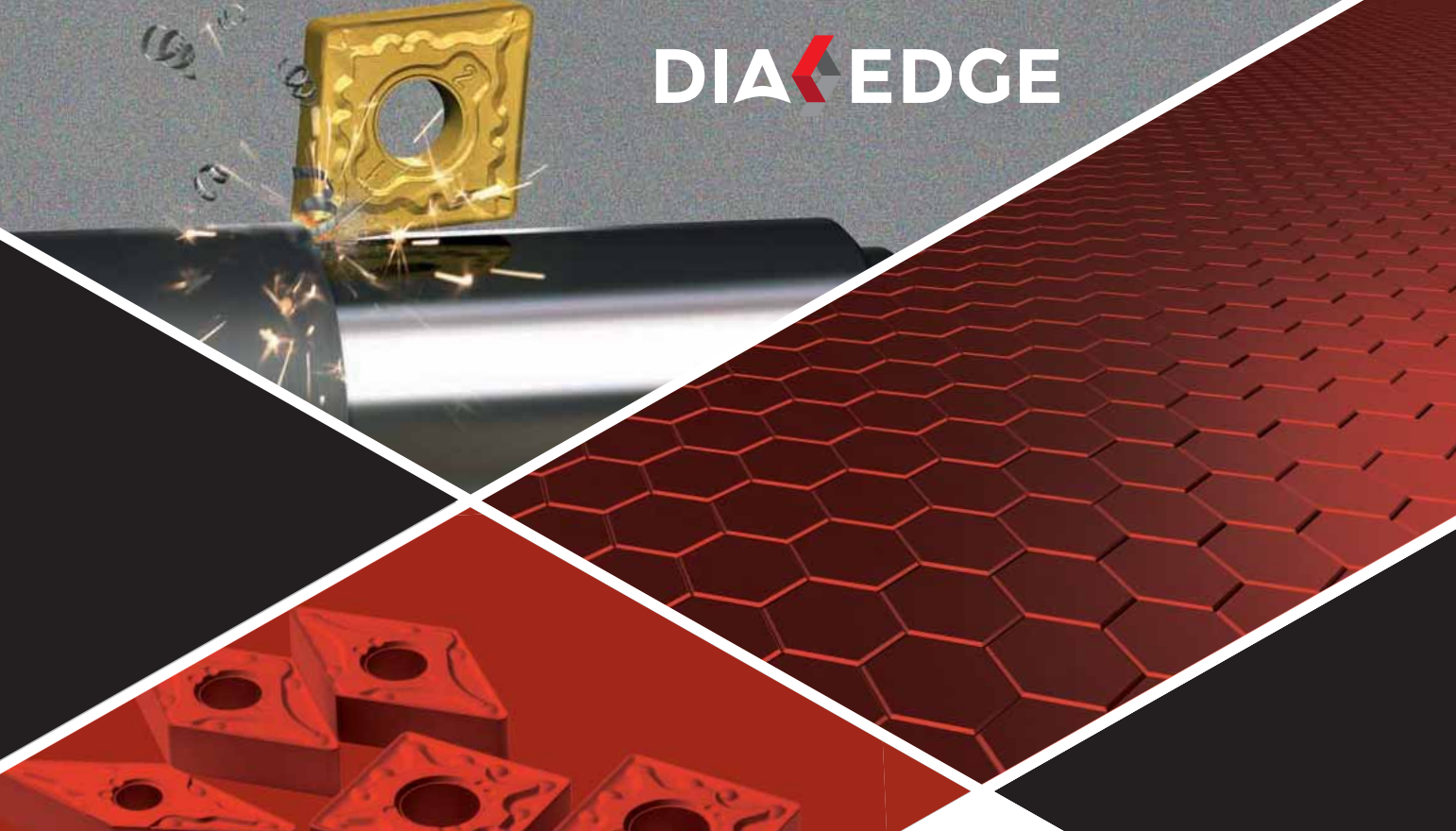
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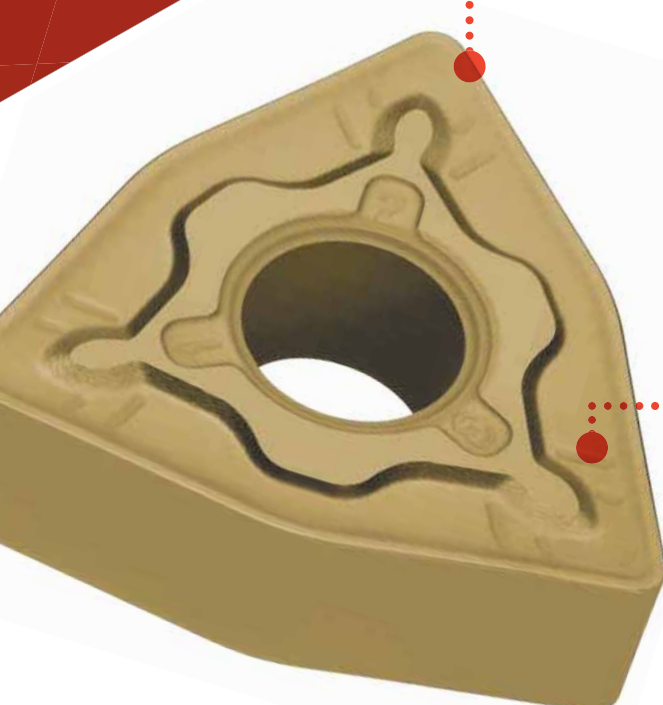


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Walter boosts drilling and turning with new X-treme EVO deep-hole drills and CBN inserts

Tooling expert Walter GB has announced additions to two product ranges that will generate benefits in both deep-hole drilling and turning. Its solid carbide X-treme Evo drills now extend to capacities of 16 to 30 times diameter and offer deep-hole drilling without the need for pecking while new CBN insert grades, for the cost-effective machining of ISO K and H materials, complete the company's extensive CBN turning range.

Part of the DC160 Advance range of drills, the successor to Walter's Alpha 4XD drills, the new drills have optimised coating and geometry. They also feature an innovative new thinner web with a 140° point angle, and the fourth land is in an advanced position. The former ensures increased positioning accuracy and reduced centralised cutting forces and the latter optimises drill guidance. Also, polished flutes optimise chip evacuation.

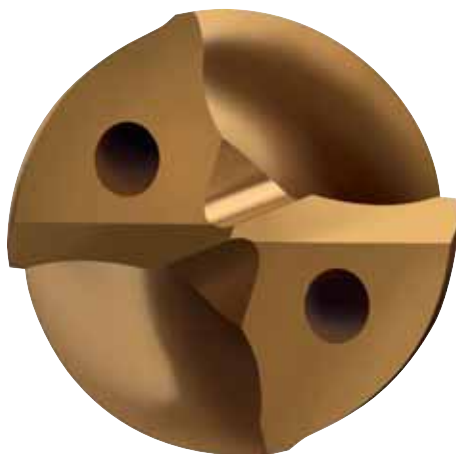
The grades of the drills, WJ30ET and WJ30EU, are also new. These comprise the K30F fine-grained substrate and a TiSiAlCrN/AlTiN multi-layer coating, as a point or as a complete coating. The layer

structure makes the drills both tough and wear-resistant, as well as playing a crucial role in process reliability and performance.

Walter offers the drills in intermediate sizes and in special dimensions, on request, via its fast-delivery Xpress service.

For turning, the new CBN indexable insert grades for ISO H and ISO K materials are WBK20 for finishing cast iron and WBK30 for high metal removal rates in ISO H and for finishing with a heavily interrupted cut. Both grades are also suitable for roughing and finishing sintered steel.

The WBK20 indexable inserts feature CBN 'tips' to each corner, while WBK30 is a solid CBN substrate to permit higher cutting speeds than carbide inserts. In addition, a microgeometry on the cutting edge also contributes to the insert's high quality, productivity and process reliability.



Walter offers the new grades in all of the most popular ISO sizes and radii.

Walter AG was founded in 1919 and is now one of the world's leading metalworking companies. As provider of specialised machining solutions, it offers a wide range of precision tools for milling, turning, drilling and threading applications. Walter works together with its customers to develop custom solutions for fully machining components for use in the aviation and aerospace industries, as well as automotive, energy and general engineering.

The company demonstrates its engineering competence at every stage of the machining process. As an innovative partner capable of creating digital process solutions for optimal efficiency, Walter is pioneering Industry 4.0 throughout the machining industry. With over 3,500 employees worldwide, together with its numerous subsidiaries and sales partners, Walter AG serves customers in over 80 different countries.

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Quickgrind introduces new HPC 'Thoroughbred'

Quickgrind has extended its product offering with the arrival of the new Mirage Super range of solid carbide end mills. Designed for a multitude of applications in a wide range of materials, the new Mirage Super is available in standard or application-specific formats to give end-users unrivalled performance characteristics when cutting stainless steel, titanium and other superalloy materials.

Building upon the already formidable reputation of the existing Mirage series, Quickgrind has introduced its next-generation coating technology and combined it with the very latest micro-grain carbide substrate that increases performance on the most challenging of materials. Providing High-Performance Cutting (HPC) to discerning buyers, engineers and programmers, the Quickgrind Mirage Super is considered a true thoroughbred when machining titanium, Inconel, duplex or stainless steel.

'Infinite Possibilities' is more than just a strapline at Quickgrind, it is a methodology, philosophy and is imbued in everything the company manufactures. To this end, the only boundary with regards to diameters, lengths or geometries for the Quickgrind Mirage Super is the machine tools that produce these high-end cutters. The new innovation is available with four, five, six or more flutes in diameters from 3 to 32 mm with any combination of edge preparation radius, chip breaker, through-coolant or neck reduction to allow you to optimise your program and machining processes without compromise. Perfect for trochoidal milling applications on challenging materials, the Quickgrind Mirage Super can achieve full flute engagement at 3XD.



This performance is afforded by the new XRed-SL coating technology that has been developed using advanced arc technology that Quickgrind is introducing in this new cutting tool range. The new process deposits coatings at far higher energy levels than possible with conventional arc sources providing a significantly increased coating density that leads to improved abrasion resistance and reduced tendency for chipping at the cutting edge. The coating also has fewer growth defects and this results in a smoother surface, which can be further improved with the appropriate post-treatment.

The cutting performance is enhanced due to the highly controlled composition and internal stress gradients that show increased performance in dry and wet machining. The multi-layered TiSiN based coating has been developed for high-speed milling of the hardest and toughest materials including exotic nickel and titanium alloys under low lubrication and dry conditions.

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Kyocera adds a new finishing tool to its innovative machining products

The new MFF milling cutter puts the finishing touch on the machining process. The tool stands out owing to its unique insert combination of semi-finishing and finishing inserts. It augments the industrial tools range offered by the Japanese technology company Kyocera in the field of highly productive finishing processes. The cutter is ideally suitable for use with steel, stainless steel and cast iron. It is available on the market from September 2020.



Focusing on productivity for large components

Kyocera's new and extremely robust cutter stands out due to its excellent efficiency. The combination of semi-finishing and finishing



inserts contributes to this efficiency, which has the effect of increasing productivity and demonstrable improvements in quality. Years' worth of know-how in developing and manufacturing machining tools has resulted in an innovative pressing method that yields robust inserts. These wiper inserts are especially suited to very high feed rates and achieve outstanding surface qualities. The strengths of the MFF milling cutter come into their own for large components, such as construction parts made of construction steel, carbon steel or cast iron, grey & ductile iron. The robust cutter can even be used for hardened steel, up to 60 HRC and stainless steel.

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The finishing process is very demanding and time-consuming because the finished parts must meet very high-quality standards, for example with regard to surface roughness and flatness. The MFF milling cutter can achieve a high-quality finish as well as increase productivity thanks to its wiper geometry. At the same time, typical problems such as vibrations or scratches are avoided, principally through a combination of a sharp blade and the patented Kyocera Cermet technology intended for use as substrate for inserts. Preset cartridge height in the MFF for improved user-friendliness. The new design of the milling body allows the plates to be changed reliably. More time is saved thanks to the preset cartridge height of the MFF milling cutter. It is no longer necessary to readjust after changing a plate. The resulting precisely adjustable cutting-edge height improves the handling and facilitates more reliable processes.

Headquartered in Kyoto, Japan, Kyocera Corporation is one of the world's leading manufacturers of fine ceramic components for the technology industry. The strategically important divisions in the Kyocera Group, which is comprised of 298 subsidiaries, as of March 31, 2020, are information and communications technologies, products which increase quality of life and environmentally friendly products. The technology group is also one of the most experienced producers of smart energy systems worldwide, with more than 40 years of know-how in the industry.

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Email: uksales@kyocera-unimerco.com
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ITC meets needs of subcontractor

When Steve Knowles founded Newport CNC over ten years ago, like many start-ups, he bought his first machine and worked evenings and weekends in his new venture while keeping the day job. His first port of call was to buy a HAAS VF4SS and use high-end cutting tools from Tamworth based Industrial Tooling Corporation (ITC).

Building its early success in the high-end automotive and aftermarket industries, Newport CNC is now entering its eleventh year of business and the company has celebrated this with several investments. Before the COVID-19 pandemic, Newport CNC had planned to move into a new factory and purchase its fifth HAAS machine, a ST20Y turning centre. The subsequent shutdown created several obstacles, but the five-employee business has now moved into its new 4,700 sq/ft facility and installed its HAAS turning centre.

One of the bedrocks of the business from day one has been the high-quality cutting tools from ITC as Steve Knowles explains: "I have used ITC cutting tools for over 20 years and they have never let me down. When I

started this business, my first port of call was Gary Bambrick at ITC. More than 80 percent of our work is aluminium machining and the solid carbide aluminium cutters from ITC are beyond compare. I have had sales reps from virtually every tooling company trialling tools down the years and none of them can match the tool life, productivity, surface finishes and overall performance of the ITC aluminium range. Over 80 percent of our cutting tools are now supplied by ITC and time has proven that we are applying the best tools available for our business."

With 3-, 4- and 5-axis machining as well as Y-axis turning capability, Newport CNC is well equipped to meet the demands of the industry. With 75 percent of the company's work revolving around aluminium machining and the remaining 25 percent being a mixture of titanium alloys, plastics and stainless steel, ITC has been instrumental in the tooling strategies adopted by Newport CNC.

For a number of years, the ITC 3081 Series



of solid carbide end mills for aluminium has been the go-to cutter. Steve Knowles concludes: "We started with several ITC solid carbide end mills, but we found our sweet spot with the 3081 Series for high-feed machining, it has been a revelation for our business. The metal removal rates are beyond compare and when it comes to finish machining, the surface finishes are outstanding.

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An important consideration for successful robot applications

Robot systems have become an essential part of a growing number of production processes, as manufacturers leverage the capability of the robot to offer high levels of flexibility and reliability.

A successful robot system installation will deliver the performance, productivity and quality levels required to justify the initial investment, however for this to be achieved there needs to be a close working relationship and a clear understanding of expectations between the end user, the robot supplier and importantly, a qualified system integrator.

This article by Stäubli's Simon Jenkins explores the relationship between the different project stakeholders and discusses what end users should look for when selecting a system integrator:

When the industrial robot first made an appearance, although revolutionary at the time, its functionality and capability was somewhat limited. In many cases robots would be purchased directly from the manufacturer and often integrated by the end user to perform relatively simple pick and place, handling or palletising tasks.

By comparison, today's robot systems are mature, high performance production tools with a proven track record within a multitude of applications and industry sectors. The sophistication of current robot models, together with the ability to interface with other proprietary technologies such as machine vision systems and lasers, requires a different approach to integration if the optimum solution is to be achieved. This is where the system integrator now plays a crucial role.

However, the choice of system integrator can mean the difference between a smooth and successful project, which meets all of the specific criteria in line with anticipated project costs and timescales and a potentially difficult and costly process. It is important that end users seek to work with a system integrator with a proven track record in their sector. This means that they will already understand the nuances of the sector and be familiar with appropriate

standards and regulatory compliance measures. In addition, the integrator should ideally have previous experience of working with the robot supplier.

Clearly, as the robot manufacturer, Stäubli engineers are the experts in understanding how to get the most from the robot in terms of programming and performance. Therefore, our part in the three way partnership of end user, robot supplier and system integrator is initially to ensure that the correct robot model is identified to meet the unique characteristics of the application and operational environment.

We then continue to work with the chosen system integrator to fully understand the detail behind the application, identify robot features and functionality to enhance the application, and of course contribute to the generation of the final user requirements specification. From the end user's perspective, it is essential that they clearly communicate the project requirements, objectives and goals to both the robot supplier and system integrator.

Although the robot(s) will become part of a larger system to be built and installed by the system integrator, the robot supplier still has a key role to play in the training of operators and maintenance personnel to ensure that they get the most from the robot(s). Training by the robot supplier supports both the system integrator, in ensuring installation proceeds smoothly and that anticipated cycle times are achieved, and likewise the end user, by helping them to become



self-sufficient in the operation and maintenance of the robot systems.

Stäubli has formed working partnerships with a number of highly respected and sector specific system integrators throughout the UK. These long term relationships mean that the integrators have in-depth experience of applying our robot systems within a broad range of often challenging and high performance applications. We will always be happy to introduce customers who may be considering the introduction of robot systems to one of our trusted partners.

Stäubli is a mechatronics solutions provider with three core activities: Connectors, Robotics and Textile. It is an international group that currently operates in 29 countries, with agents in 50 countries on four continents. Stäubli's global workforce of 5,500 shares a commitment to partnering with customers in nearly every industry to provide comprehensive solutions with long-term support.

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Food for thought

Robot stacks sandwiches in 800 milliseconds

Although simple automation can give some manufacturers the boost needed to increase production and product consistency, more complex applications often require intelligent, flexible robotic solutions that can adapt to variable products and picking locations. In the case of a large-scale sandwich producer, growing production demands coupled with a major labour shortage provided motivation for them to robotically automate a high-speed sandwich stacking application. To resolve the challenge, TechBrew Robotics, a Kawasaki Robotics Preferred Integrator based in British Columbia, Canada, designed a custom solution using Kawasaki's R series robots and F60 controller.

The robots' task may seem simple. After the sandwiches are halved in the cutting machine, the robots need to pick up and rotate to stack one half on top of the other, making them easier for human workers to package manually further down the line. However, this application was tricky to automate for a number of reasons. The sandwich halves vary in their position as they come out of the cutting machine, so the robot would need some sort of vision intelligence to recognise and understand the location of each half on the conveyor. They also needed to be able to stack the sandwiches in practically the blink of an eye.

As TechBrew needed to integrate its solution into the customer's existing production line, it meant making creative use of limited space. To this end, the R series robots were inversely mounted on a cantilever beam attached to the cutting machine and the F60 controllers' compact size made it possible to save further space by stacking them on top of the sandwich cutting machine itself. To maximise throughput, the robots face outward, stacking sandwiches on two different conveyors which are running simultaneously. There are many variables in this application, so TechBrew used a laser range finding system coupled with conveyor tracking to detect the shape and location of the sandwich halves as they emerge from the cutting machine. Once the sandwich halves have been stacked, they travel down the conveyor to a place where human workers are waiting to place the product into



triangular cardboard boxes. TechBrew designed a custom gripper specifically for this application. The pneumatic end effector is controlled directly by the F60 Controller, allowing for quick movements. A controllable pressure plate comes down to hold the product in place as two stainless steel paddles slide under the sandwich half to lift it. Once lifted, the actuator spins the sandwich half through 180° and force dampers at the end of the rotation keep the sandwich and its ingredients intact.

Like many other manufacturers, the customer struggled, sometimes daily, to keep up with production goals due to absent workers. "The main driver for the end user here was the frequent shortage of labour. Their production lines were understaffed and they were always missing people from their optimum shift capacity," says Kyran Findlater, mechatronics designer at TechBrew. Obviously TechBrew had to consider national food safety regulations when designing this solution and in this case the integrator used the cleanroom version of Kawasaki's 5 kg payload RS005L general purpose robot. As standard, it offers a pressurised cavity, ISO Class 5 cleanroom specification and comes with an aluminium arm cover, rubber outer seals and a chemical resistant epoxy paint finish for easy

wash down. The patent-pending end effector's tool-less design makes it easy to disassemble for cleaning purposes, and it is constructed with stainless steel and food-grade plastic.

The combination of Kawasaki's AS programming language and its F60 controller easily handled the complexities of this project. Findlater was able to program this application directly on the robot, without a co-processor, which reduced costs and simplified the installation. The Kawasaki F60 Controller's high processing speed handled real-time scanning and data analysis on the sandwich halves and output the robot coordinates in under 200 milliseconds, whilst processing a queue of sandwiches at a rate of 60 per minute.

The entire sandwich stacking process takes just 800 milliseconds and, according to TechBrew, it didn't take the customers' line managers long to adjust to their new robotic co-workers. Throughput has increased significantly as a result of the robot's consistency.

Kawasaki Robotics
Tel: 01925 713000
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www.robotics.kawasaki.com

FANUC expands range of handling robots

FANUC has expanded its range of handling robots with the introduction of the M-10iD/8L and M-20iD/12L models.

The two new robots are the handling versions of their Arc Mate counterparts, characteristically exhibiting high performance in a compact design. Both benefit from fully integrated cable management, which helps to minimise maintenance and eliminate external interference.

Andy Armstrong, sales and marketing manager at FANUC UK, comments: "Expanding our range of handling robots ensures there is an automation solution for every application. Floor space is a precious commodity in production facilities, which makes it crucial that robots are designed to maximise performance with a minimal footprint. The M-10iD/8L and M-20iD/12L were designed with this in mind and encasing the cables within the hollow arm and wrist further streamlines the solution."

The M-10iD/8L is capable of lifting an 8 kg payload and can use its long arm to cover a wide working area, a maximum reach of 2,032 mm. The larger M-20iD/12L model is



able to lift 12 kg payloads, and its slim lightweight design enables greater throughput.

Both robots are also equipped with FANUC's Zero Down Time software, which predicts mechanical and process equipment status to improve maintenance scheduling. The result is a pair of compact handling solutions that instils manufacturers with confidence that their production line is operating at maximum productivity.

Andy Armstrong concludes: "FANUC is dedicated to providing automation

solutions that combine performance, efficiency and minimal downtime in order to maximise productivity. The M-10iD/8L and M-20iD/12L handling robots incorporate the latest technological advancements to expand our already competitive handling portfolio."

At its state-of-the-art headquarters in Ansty Park, Coventry, FANUC UK brings together world-leading capabilities in industrial robots, machine tools and plastic injection moulding machines to facilitate the complete integration of factory automation systems for UK manufacturers.

It works in partnership with FANUC Europe Corporation to provide a range of customer support services, including sales, product support, parts, repairs and training, as well as development of bespoke engineering systems. FANUC UK is a subsidiary of FANUC Europe Corporation and employs approximately 107 staff.

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Kawasaki Robotics (UK) Ltd

German stockholder upgrades operational performance

Since 1995, an automated storage tower manufactured by Kasto in Achern, southern Germany, has been installed at stockholder Heine + Beisswenger, underpinning fast, punctual delivery of an extensive range of steels to customers. However, 25 years of constant operation had impacted performance and availability, so Kasto recently updated the Unitop storage system with a comprehensive retrofit. Further information on the project is available from the firm's UK and Ireland subsidiary in Milton Keynes.

Heine + Beisswenger is one of the largest family-run steel and metal stockholders in Germany. Over the years, the company has developed into an international group with 14 sites and almost 600 employees. The product range encompasses carbon and engineering steels, unalloyed steels, stainless steel, rolled steel and non-ferrous metals, totaling more than 25,000 stock items in various grades, profiles and dimensions. With an inventory of around 55,000 tonnes of material and a sophisticated logistics system, Heine + Beisswenger ensures that orders reach the customer in the shortest possible time.

Headquartered in Fellbach, the company opened a centre in Langenzenn in 1995, which from the outset has used the Kasto Unitop automatic cassette system for warehousing an extensive variety of materials. Measuring 68 m long by 13 m wide, the facility has space for 1,300 cassettes, each of which can hold four tonnes of material up to seven metres long.

A feature of the system is the Storage and Retrieval Machine (SRM), located at the top of the storage block. It automatically removes a cassette containing the required



material and transfers it to a carriage, which then makes the stock available at ground level at one of two storage and retrieval stations. Each has four locations, so the operator can store and retrieve several cassettes at the same time.

The system was showing signs of age, however. The control and automation technology was no longer up-to-date and the drives and positioning mechanisms of the SRM were unreliable. Breakdowns were becoming more frequent and procuring spare parts was increasingly difficult. In terms of throughput, the storage facility was struggling to cope due to the increasing number of orders being received.

Torsten Meincke, plant manager at the Langenzenn centre recalls: "Mechanically, the system was still performing well. It is also ideally integrated into our processes and our employees are familiar with it, so we decided not to replace the system completely, but to modernise it with a full retrofit by the OEM."

During the retrofit at Heine + Beisswenger, Kasto replaced the existing S5 system control with a modern Siemens Simatic S7 400 PLC and updated the drive controllers as well as the SRM's positioning sensors and Profinet connection. The hoisting gear was given an efficient, three-phase drive and the power supply to the SRM and carriage was renewed to improve reliability.

Another modernisation task was the replacement of the carriage that receives the cassettes and delivers them to the storage and retrieval

stations at the front of the Unitop. The carriage now has two roller conveyors instead of one to allow simultaneous handling of two cassettes. Additionally, the longitudinal travel speed of the new carriage is twice as fast at 120 m per minute, increasing efficiency further. According to Torsten Meincke, 35 seconds is saved per storage and retrieval cycle.

The control panels serving the two storage and retrieval stations were renewed and Kasto also replaced the old hard-wired emergency operation of the SRM with a modern radio remote control.



The storage facility is now controlled and managed by KASTOlogic warehouse management software, which has a graphical user interface that makes operation simple and intuitive. It is connected to the SAP ERP system in used at Heine + Beisswenger.

The conversion was completed in just two weeks, with Kasto engineers even working in the facility at weekends and over the Easter holiday to minimise disruption to the stockholder's day-to-day business. The operators were given in-depth training to familiarise them with the new system. Since then, the warehouse has been operating reliably at its increased efficiency level and Kasto is constantly available for troubleshooting and online remote maintenance via its service hotline.

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Tel: 01908 571590
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Hurco sets up automated production demonstration

Following the UK launch by Hurco at the end of 2019 of a range of portable cobots, collaborative robots, the company has set up a manufacturing cell in its High Wycombe technical centre to explain to potential customers across Britain and Ireland the way in which machine tool tending may be simply and inexpensively automated. The company is keen to explain the productivity and cost benefits that come from maximising spindle uptime and freeing machinists to perform more high-value tasks.

There is a range of several options supplied by Hurco's US subsidiary, ProCobots. Most models use the UR10e collaborative robot manufactured by Universal Robots of Denmark, selected because of its high build quality and reliability. The model installed in the demonstration cell has a twin gripper attachment and feeds a Hurco TM8i 3-axis CNC lathe having a maximum turning diameter of 256 mm and a Z-axis travel of 550 mm.

A double gripper is fitted to the cobot to

load billets and unload workpieces. It uses an optional QR code that the robot scans to reference the robot location when it is moved from machine to machine, without the need for additional setup.

Cobots are designed to work safely alongside machine tool operators to augment their activities by taking over repetitive tasks. They can be connected to any new or existing machine tool and are ideal for high-mix, low-volume production in job shops.

A notable feature of these collaborative robots is their almost human-like force sensing, meaning that a component can be pushed into a location or machine jaws with confidence that it has been located precisely.

All models in the ProCobot range have a compact footprint, so a machine can easily be operated manually whilst a cobot is



in-situ. As every application is different, there is a choice of electric, hydraulic and vacuum component handling devices. A user company may prefer to manufacture its own grippers or grid-plates for locating stock and finished components.

Hurco Europe Ltd
Tel: 01494 442222
Email: sales@hurco.co.uk
www.hurco.co.uk

Major version update of Robotmaster robotic software now available

Hypertherm, manufacturer of industrial cutting systems and software, has announced the release of Robotmaster Version 7.3 offline robot programming software with extensive features and enhancements designed to further simplify robotic programming.

There are a number of new additions found in V7.3 including support for the newest CAD file types, 3D printing software and third party plugs-in for software brands such as CATIA, SolidWorks, Autodesk Inventor, Siemens, Solid Edge, AutoCAD, Pro-E/Creo, Rhino and more. Performance has been improved for faster data processing and robot code output when creating additive manufacturing paths in

addition to post processor enhancements for major robot brands such as Kuka, ABB, and FANUC.

New modules have been added including a spray simulation module for companies who use robots to spray, coat, or paint products as well as a module that simulates material deposition during additive manufacturing, adhesive dispensing, welding and similar applications.

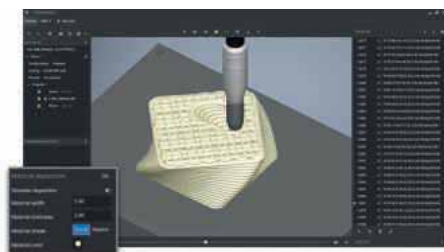
Numerous productivity enhancements to existing modules have been made for more accurate time estimates, the ability to quickly import g-code from 3D slicing software including Cura and Slic3r and the ability to automatically set a cutting direction based on material location with respect to the path.

Notable enhancements to the path import module provide users with an option to read custom instructions and set process activations and deactivations directly from imported code. They can enjoy a more accurate interaction, process simulation and robot code output for both g-code and APT formats.

“The many new features found in V7.3 are based on close work with many of our current customers to understand how we can further streamline offline robotic programming,” explains Garen Cakmak, leader of Hypertherm’s robotic software team. “By adding support for more software types, files, and robots, we are helping customers solve sometimes complex challenges quickly and easily.”

Building upon the completely redesigned V7 architecture, first introduced in 2018, Robotmaster uses integrated CAD/CAM functionality to make robotic programming easy and intuitive for everyone, even first-time users. It is used by a wide range of industries to program robots for tasks that include surfacing, 3D milling, additive manufacturing, welding, painting, and more.

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pL Lehmann 'turns the tables' on University's VMC

A member of the prestigious Russell Group, the University of York has more than 30 academic departments, amongst them the University's Department of Chemistry. The Department of Chemistry's research groups cover a wide variety of disciplines, including atmospheric chemistry, renewable technologies and both medical and neuroimaging, all of which are supported by the work of a multi-disciplinary mechanical workshop.

Led by senior technician, Mark Roper, the workshop's skilled staff undertake a wide range of projects, including designing and building bespoke instruments and apparatus for research and teaching purposes. Given the diverse demands placed on the workshop, the flexibility of its machine tools is vital to its effective operation. Therefore, when the need arises to purchase new equipment, Mark Roper looks for cost-effective products that add value and increase the workshop's machining capabilities.

This policy is reflected in the recent purchase of a pL Lehmann CNC rotary table that is now fitted to the workshop's DMG MORI CMX 600V, 3-axis Vertical Machining Centre (VMC). The pL Lehmann TF-507510 model was chosen as it provided the required levels of precision, ease-of-use and flexibility. In addition, the ingenious design and lower profile of the TF-507510 ensures minimum intrusion into machine tools' working envelopes. Therefore, when compared to conventional, bulky rotary tables, the use of the compact TF-507510 results in much greater space being made available for spindle and tool movement.

Since being put into operation, the pL



Lehmann CNC rotary table has significantly increased the effectiveness of the workshop's VMC by enabling it to perform high-efficient 3+2 axis machining.

Mark Roper explains: "Our DMG MORI CMX 600V VMC has an XYZ capacity of 600 x 560 x 510 mm and its 900 x 560 mm table has a maximum load capability of 600 kg. Although our VMC's specification allows us to produce a wide range of complex and accurate 3-axis work, we recently looked to further expand its capabilities into 3+2 axis work by the addition of a CNC rotary table.

"As we have enjoyed the trouble free operation of an older pL Lehmann CNC rotary table for over 10 years, we were aware of the quality of the company's products. Although, as we wanted to make sure that we purchased the correct product for our own particular use and as we also needed to ensure that we received best value for money, in addition to pL Lehmann products, we also looked at other brands and models. Having considered the merits of several CNC rotary tables, we decided that the pL Lehmann TF-507510 was ideal for our use.

"Given the amount of one-off

components we produce and the very small production runs we perform, we need each of our machine tools to provide the best possible levels of adaptability. Our pL Lehmann CNC rotary table has made a significant contribution in this area as it allows our 3-axis DMG MORI VMC to now perform efficient 5-axis machining.

"Fitting a pL Lehmann CNC rotary table to our existing 3-axis VMC has proven to be a practical way add to achieve five-sided machining in a single setup and to eliminate steps in our production process'.

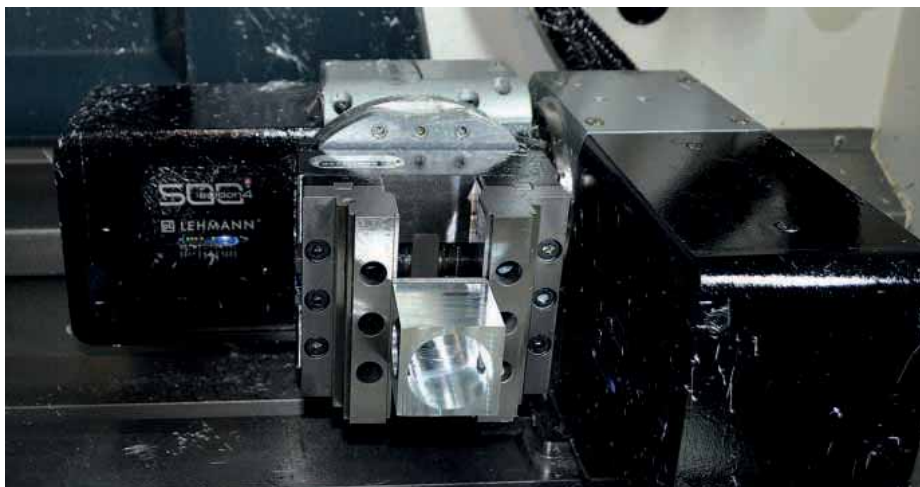
Furthermore, the rigidity of our pL Lehmann TF-507510 CNC rotary table and its high clamping forces allows high cutting forces to be applied and high-precision workpieces to be produced."



The pL Lehmann TF-507510 CNC rotary table, as purchased by Mark Roper, is based on a solid steel base-plate that has 2 through bores, clamping elements and 'T'-slot fittings. Secure clamping is assured by the use of a pneumatic-hydraulic system that applies a force of up to 800 Nm, while a high-level of precision is aided by the use of a PGD backlash-free, long-life gear unit.

pL Lehmann CNC rotary tables represent an extremely cost-effective means of entry into 5-axis machining for users of 3-axis VMCs. When mounted on VMCs, the company's CNC rotary tables are able to deliver a tilting A-axis and/or a rotational C-axis.

The extra available machining space that results from the use of compact pL Lehmann CNC rotary tables means that additional workholding devices can be



located alongside them inside VMCs. They are able to remain in the machine or, if required, can be quickly removed and later replaced to suit the machining tasks being performed.

When involved in serial production, a flexible VMC + pL Lehmann CNC rotary table combination provides a major advantage over the use of a 5-axis machining centre. By mounting additional workholding next to the rotary table, a virtual 6-axis condition is created. In this arrangement, following the 5-sided machining of a workpiece located on the rotary table, without interruption, machining operations can be performed on the next workpiece in a batch that is held in the adjacent workholding.

As CNC rotary tables are located inside users' existing 3-axis VMCs, the problems associated finding floor space for an additional large machine tool are avoided. As the multiple advantages of purchasing a pL Lehmann CNC rotary table are gained without the need to invest in an expensive 5-axis machine tool, a rapid return on investment soon follows.

pL Lehmann has been involved in the design and manufacture of high-quality rotary tables for more than 40 years. The in-depth expertise gained throughout this time is reflected in the company's advanced products and in its first-class levels of service. To minimise parts and to enable the delivery of swiss quality at a cost-effective price, pL Lehmann rotary tables are based on an innovative, standard modular system. This highly efficient approach allows a



wide range of CNC rotary table options to be made available to meet customers' diverse needs.

pL Lehmann
Tel: 0121 368 0843
Email: a.gregory@plehmann.com
www.lehmann-rotary-tables.com/en/home

Precision three-jaw chucks now available from norelem

Accuracy and effective workholding has always been key to engineering. Now, engineers can hold workpieces securely with the highest precision while at low clamping forces thanks to norelem's new precision three-jaw chucks.

Specially developed to easily hold cylindrical workpieces externally or internally, norelem's three-jaw chucks are ideal for holding tasks such as measuring technology or laser labelling.

The components are designed for manual operation and are available in four compact sizes with diameters of 50 mm, 64 mm, 104 mm and 160 mm. The bodies of the 50 mm and 64 mm chucks are made from steel, while the 104 mm and 160 mm versions are made from aluminium so they are light and ergonomic to handle. For increased durability, the chuck's jaws are engineered from hardened steel.

"We have added these precision three-jaw chucks to our range because we know just how important it is to be able to securely hold cylindrical workpieces easily and efficiently," says Marcus Schneck, CEO of norelem. "To meet this challenge, the

jaws on our components are easily operable, and are opened and closed by simply rotating the clamping ring by hand or using the supplied lever."

With a concentricity of <math><0.03\text{ mm}</math>, a circular runout of <math><0.01\text{ mm}</math> and a repeat clamping precision of <math><0.01\text{ mm}</math>, the new workholding technology from norelem offers excellent performance and accuracy. The hardened jaws are stepped on the internal diameter and can be reversed. To further help engineers, numbers are marked on the top and bottom of each jaw and this number must match the number marked on the matching slot on the chuck body.

norelem also supplies different sized pins as an accessory to these chucks from their standard components catalogue THE BIG GREEN BOOK. The pins fit into the holes of the jaws and will hold small parts in a raised position. This makes all faces of a workpiece accessible for tasks such as measuring or marking. The chuck can be fixed in place using the thread on the rear side.



norelem is a leading manufacturer and supplier of flexible standard parts and components for mechanical engineering. The company supplies 60,000 standard products relating to standard machinery and operating elements, as well as automation components.

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Groundbreaking hyperMILL 2020.2

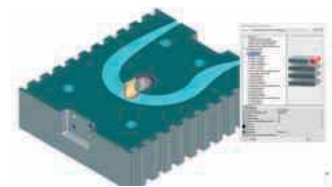
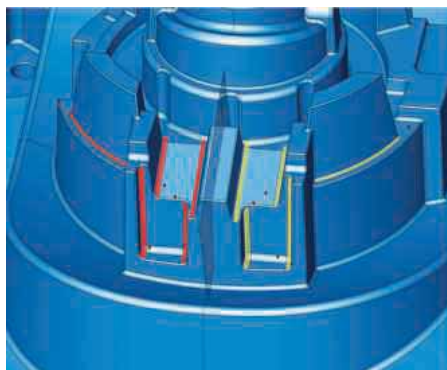
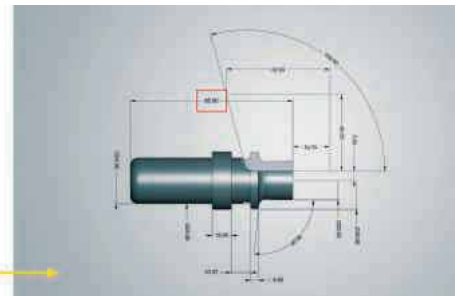
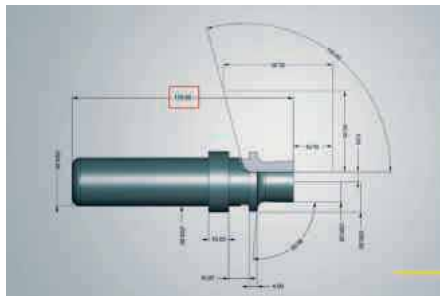
OPEN MIND Technologies AG drives forward automation and the integration of additive manufacturing with the latest 2020.2 release of its hyperMILL® CAD/CAM suite. The developers at OPEN MIND have also implemented numerous functions to further simplify everyday machining tasks. hyperMILL 2020.2 highlights include new strategies for the machining of cutting edges, upgrades for mill/turning, parametric design in hyperCAD®-S and the hyperMILL AUTOMATION Center Advanced.

Plunge-milling cycles have been added to the 3D and 5-axis strategies for the machining of cutting edges. The material can be removed by plunging with 3-axis or 5-axis movements. The plunge-milling process reduces vibration for surface edges with steep walls, thus improving the surface finish. Any rest material machining using a smaller tool is easily calculated automatically from the previous job. With 5-axis machining, you can also reach undercut areas, such as for cutting edges. The tilted tool is specified by the lateral inclination and in order to optimally adapt the retract movement from the component, you can specify both a distance, circular or linear movement profile.



hyperMILL already offers strong mirror functions where the toolpaths for symmetrical components are recalculated on the basis of mirrored geometry data. Now with version hyperMILL 2020.2 OPEN MIND enhanced the functionality. The 'Mirror Path' function enables simple mirroring of the previously calculated toolpaths. Here, the machining direction is also mirrored and climb milling therefore becomes conventional milling. Users benefit now from shorter calculation time and improved process reliability. Both methods are available to provide the ideal solution for all situations.

The user-friendliness of hyperMILL has



been improved even further. For a faster search in the tool database, the filter properties are now integrated into the top level of the user interface, meaning they are always visible. The filter properties are pre-loaded with the material from the job list and the spindle holder from the machine properties. Other tool parameters and custom fields can also be used with the tool database filter. Feature management has also been improved to save time during programming. Now you can quickly locate special feature types such as holes or pockets even faster due to a new text search. These filter functions allow nimble access through a large customised tool database.

Round inserts, as well as rhombic, T, and W inserts can now be used with 3-axis simultaneous mill/turning. There is now a function to control the approach and retract movements by applying user-defined curves for all turning strategies. This option unlocks the potential for productivity and programming optimisation on workpieces with areas that are particularly difficult to reach. All movements are still collision checked, despite the manual operations.

The hyperMILL AUTOMATION Center has been upgraded in hyperMILL 2020.2 and OPEN MIND now offers an optional advanced version that boasts numerous additional functions and extensive templates. These templates allow the user

to define and standardise complex processes independent of the specific geometry from any one CAD model.

All the individual steps for data preparation and programming, right up to simulation and NC program generation are defined. Once you have defined a manufacturing process, you can apply it to a new model and have it automatically executed. If there are any decisions that cannot be made with confidence within the automated process, the user can be prompted to make the relevant choices during the automation sequence. The user is interactively guided through the individual process steps, making it possible to program the component in a fraction of the time it would normally take.

Components can now also be modeled directly in hyperCAD-S parametrically. This function is of particular interest for fast, production-related designs. For example, you can design a fixture plate parametrically and change dimensions to define different variants to the base model very quickly. It can be simultaneously used in parametric mode in hyperCAD-S, while static models can also be placed inside the same dataset. Similarly, you can use a static solid model in parametric mode and add parametric features to it for a hybrid approach. Parametric geometry data used in hyperMILL is associatively linked and, when there are any changes, it is updated automatically.

OPEN MIND Technologies

Tel: 01869 290003

Email: adrian.smith@openmind-tech.com

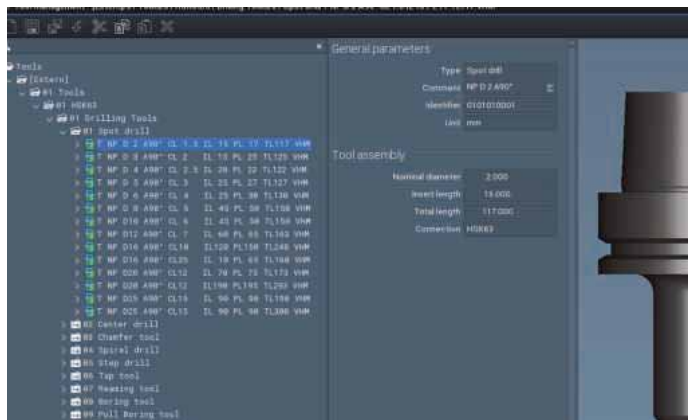
www.openmind-tech.com

Tebis CAM automation with NCsets

For Tebis, CAM automation is a key principle for effective and efficient CNC programming that improves machining quality, efficiency and safety. One of the features that supports CAM automation with Tebis CAD/CAM is the use of NCsets.

Andrew Walters, application engineer of Tebis UK, explains why you need Tebis CAM automation with NCsets: "In Tebis, NCsets are described as sets of predefined machining operations for individual geometry features. Once the NCsets are associated with geometry features in Tebis CAD/CAM, we are able to machine entire groups of geometries with a single programming operation."

Tebis' NCsets employ variables and conditional statements which make the automation elements in Tebis very powerful and intelligent. The software will also apply NCsets to the machining of 3D open surfaces as well as the more typical 2.5D ruled geometry features. The variables are also used to define collision elements up front, making the NC programs very safe.



To be able to program faster and easier, Tebis software is able to decide which size of drill and tap are necessary to machine the specific CAD feature. The user can also select tools for the CAD features from the tool library and assign the position in the carousel to produce a range of thread sizes.

Andrew Walters states that the use of conditional statements is unique to Tebis. Tebis can make choices for alternatives strategies. This could be if the user is programming an M14x2 thread but the biggest drill in the library is only 10 mm, the Tebis software can drill 10 mm and automatically mill out the hole to 12 mm before tapping with no additional input.

In addition, the machining processes are predefined which means that every time a new part is programmed, the surface quality and positional accuracy of the part is the same every time. With this level of consistent programming it is very easy to control quality and control/estimate how long a part will take to manufacture.

The automated programming also allows job knowledge to be retained within the company. Andrew Walters concludes: "If the company lose a key member of staff then the standards and strategies already developed within the company are retained with Tebis libraries."

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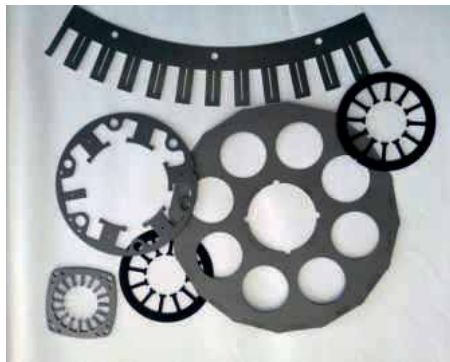
A company specialising in renewable energy is seeing major changes in the components it is being asked to produce for electric vehicles.

H. V. Wooding Ltd works at the high end of the electric vehicle market, manufacturing parts for two technologies in the powertrain involving the battery and the motors. Customers include companies across the spectrum of electric vehicles: Tier 1 and Tier 2 suppliers of big name car marques; Supercar manufacturers; Supercar e-racing; Electric motorbike GP racing throughout Europe; railways; aerospace; electric buses; construction; agricultural vehicles.

For the battery, the Kent-based company makes a wide range of customer-specified busbars, forming part of the electrical connection, along with modular busbars that connect the battery to the rest of the vehicle's configuration.

The other key area for them is around the electric motor itself, producing specialist products both for the drivetrain and in-wheel. While most of the parts, both for busbars and motor laminations, are cut from sheet material on a TRUMPF laser CNC machine tool, programmed with RADAN CAD/CAM software, they also use wire erosion, mainly for prototyping and developing small series production.

Sales director Paul Allen says RADAN is also used as part of the process of quoting for jobs: "For example, most busbars are made from copper or aluminium, so we'd input the relevant material, such as 4 mm copper and lay the proposed parts out in a RADAN nest. This calculates accurate material usage and prices, in order for us to present the most commercial and cost-effective solution to the customer. Then, when we're ready to go into



production, we've got a finished nest already in a file."

He says as every busbar is different, RADAN is vital for nesting a wide variety of shapes and sizes of the same thickness: "If we were to do all this manually, the quotation process would take much longer and may not be accurate and we'd need to carry out a lot of manual work prior to manufacturing to get the best material usage. So RADAN speeds up both our quotation and manufacturing processes."

Radbend, is used to calculate bend angles, and the order of bends for forming the busbars into a variety of configurations.

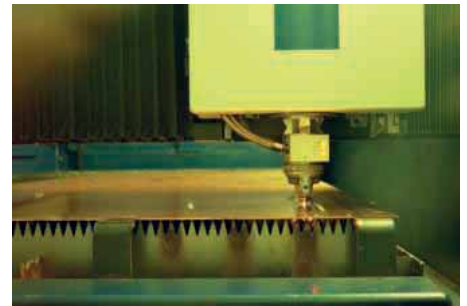
RADAN also plays a major role in manufacturing motor laminations, several thin pieces or sheets of electrical steel or cobalt iron cut on the laser and bonded together to form the Core Pack. Paul Allen adds: "It's vital that these parts are high precision. The busbars and laminations are all required to be cut to tight dimensional tolerances, sometimes down to 50 µm for laminations."

Higher end electric motors increasingly need thinner electrical steel, meaning the amount of adhesive applied becomes more

significant, with as much metal as possible in the motor and not so much adhesive.

H.V. Wooding have identified gaps in that market and are now actively seeking ways of making a breakthrough to provide a specialist solution. To this end, the company are working to develop a process for accurately applying a bonding agent to the electrical steel. Some types of material are available which is pre-coated with adhesive, but not the very thin grades in low volume and cobalt iron, which are becoming more prevalent.

Many of its customers are working on projects involving battery technology, looking at battery life to improve vehicle distance on one charge. Paul Allen adds: "A lot of new designs using different grades of copper and aluminium are coming through to us and they're also looking closely at the insulation of the busbars."



In conclusion, he says the market is extremely dynamic and the company continually invests in line with current demands. "H.V. Wooding has been established for 50 years, diversifying from traditional switchgear through renewable to data centres, and now to electric vehicles and drivetrains. As a result, we now need different technologies and processes to take full advantage of the new opportunities relating to our core activity, particularly around assemblies.

"RADAN is a key part of the processes we have in place to make a one-off component, right up to high volume production."

Hexagon Manufacturing Intelligence

Tel: 01242 542040

Email: enquiry.uk@hexagonmetrology.com

www.hexagonmi.com



DP Technology announces the new ESPRIT 4.5

DP Technology, a leading developer of CAM software, has announced a new update to its popular new ESPRIT series. The new ESPRIT 4.5 includes features such as an updated user interface, turning feature offset and circle segment tools.

The 4.5's updated user interface features clearer, more consistent icons. The ribbon commands have been reorganised for a more intuitive experience. In addition to improving ease-of-use, these updates also give the ESPRIT interface a more streamlined, higher-end look and feel.

The new turning feature offset lets the user offset individual elements of a turning feature in the axial and radial directions to program median tolerances or leave stock for subsequent processes, all without modifying geometry. It also includes an offset calculator that allows the user to easily program a target diameter or apply standard ISO tolerances.

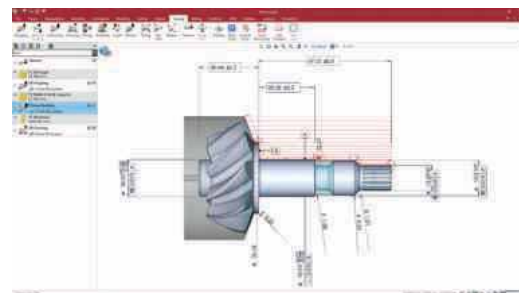
Finally, ESPRIT's new support for circle segment tools lets you parametrically define and create milling tools with oval, barrel, tapered, or lens profiles, without the need

to create custom tool geometry. These tools offer several benefits over conventional milling tools in many 5-axis applications, including a larger axial depth of cut, superior surface finish, higher stability, and reduced tool wear. In addition to simplifying circle segment tool creation, parametric tool definition allows ESPRIT to better optimise toolpath strategies that use such tools.

"Before we release any product update, we take the time to ensure it's packed with features that make a difference to our customers," says Tania Campanelli, director of research and development for DP Technology. "The 4.5 is dedicated to improving the user experience and, as always, ensuring our customers stay as efficient as possible."

Ongoing product updates like this one allow job shops to maintain and improve their performance without replacing their valuable machine tools.

DP Technology Corp. is a leading developer and supplier of CAM software.



ESPRIT, DP Technology's flagship product, is a powerful CAM system for CNC programming, optimisation, and simulation, supporting the entire manufacturing process. With factory-certified post processors delivering machine-optimised G-code and ESPRIT's ability to solve unique challenges with automation solutions, ESPRIT is the smart manufacturing solution for any machining application.

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Aberlink's new Horizon

Aberlink has launched a new range of CNC bridge-type CMM, named the Horizon. Utilising linear motors, it breaks new ground in CMM design. With an 800 mm travel in the X axis, the Horizon completes Aberlink's range of bridge CMMs and will further extend into the high-end CMM marketplace.

The Horizon CMM is the culmination of Aberlink's 27 years of CMM design innovation and in-house manufacturing technology. It sets new standards in performance, reliability and ease-of-use and yet is still offered with Aberlink's traditional extremely competitive price-tag.

The frictionless linear drives are the key to its fast, exceptionally smooth and silent motion. With no wearing parts they offer the perfect solution for CMM drives, not only improving reliability and reducing maintenance, but are ideal for fast contact scanning.

The novel kinematic isolated drive system uses a tetrahedral arrangement of carbon fibre tubing to transfer the thrust from the motors through the centre of gravity of the moving parts. This drive system is completely independent of the CMM structure and not only avoids acceleration induced metrology errors but also has the effect of thermally isolating the linear motors from the metrology structure of the CMM.

The optimised split Y-axis carriageway design derives all the metrology benefits of a high carriageway while providing all the convenience and ease of loading associated with a traditional bridge structure.



Further clever design and use of high-tech material technology ensures that a varying cross-section X-beam optimises the stiffness-to-weight ratio along the entire axis.

The Horizon is the most accurate machine ever produced by Aberlink. When fitted with the Renishaw SP25M scanning probe, the first-term accuracy statement is just 1.75 µm.

Should the CMM need to be housed in an uncontrolled environment, then Aberlink's Automatic temperature compensation ensures that measurement results are reported as if measured at 20°C.

For extremely small, flexible or 2D parts, Aberlink's revolutionary camera system can be fitted to the Horizon. A clever design of magnetic, kinematic joint allows the probe and camera to be changed in just seconds.

The Horizon will be supplied with Aberlink's world-renowned Aberlink 3D measurement software. Widely regarded as the easiest to use software on the market, Aberlink 3D will construct a representation of a component on the monitor as it is measured. Dimensions between measured features can then be picked off and appear exactly as they do on the part drawing. The software incorporates GD & T dimensioning, RPS alignment and SPC data analysis. Further modules are also available for off-line programming of parts from a CAD model and also for comparing measured results to the CAD. Automatic shape recognition means the 'smart' software works intelligently to minimise operator input and improve efficiency and hence productivity and profitability. The simplicity of use allows even the most inexperienced of operators to use the Horizon with the minimum of training, whilst the software contains all the functionality to satisfy even the most demanding of metrology requirements.

Customers of Aberlink CMMs are entitled to free-of-charge upgrades of their Aberlink 3D measurement software for the life of their CMM. The latest version of software is always available to download from Aberlink website and there are no software



maintenance charges ensuring that the cost of ownership is also minimal.

Fast, accurate and reliable, the Horizon is a stand-out CMM starting the linear drive revolution. A product video can be viewed at <https://vimeo.com/465992772/ecd19c0aa9>

The largest UK-owned CMM manufacturer, Aberlink's comprehensive range includes 40 variants of both CNC and manual CMM. Aberlink CMMs enable the precise measurement of the smallest of components, to parts of over 3 m long and up to six tonnes in weight. Customers can select from a wide range of probing and non-contact measurement options and on-machine fixturing. The company's wide range of available solutions allows Aberlink to offer high quality CMMs and vision measuring systems to suit all applications and budgets.

Based in Eastcombe, Gloucestershire, Aberlink has established a global reputation for its metrology products which are innovative, easy-to-use and competitively priced.

Aberlink Ltd
Tel: 01453 884461
Email: sales@aberlink.com
www.aberlink.com

Enjoy simple contactless measurement with the Trimos Tr-Scan 2D

Sole distributor for Trimos products in the UK, Bowers Group has introduced the new Tr-Scan 2D. The first in the series of TR-Scan products from Trimos, this completely CNC controlled system offers customers a fresh and simple approach to contactless measurement with a large vertical measurement range.

Martin Hawkins, Bowers Group sales director, says: "We are delighted to be able to introduce the Trimos Tr-Scan 2D to the UK. Trimos has cleverly adopted a fresh perspective for contactless surface measurement with the Tr-Scan 2D. Its stable mechanism enables contactless measurements down to a few nanometres and the simple optical coupling system allows for fast changes in measuring range. Add in a wide range of sensors and the Tr-Scan 2D is versatile enough to satisfy a variety of measurement needs and simple enough for multiple operators."

Driven by the Trimos measurement software Nanoware, the system allows any type of 2D mode measurement and the

integration of "vertical patching", stitching, enables it to comfortably exceed the measuring range of the sensor. Macros can be created in the software to enable an entirely automatic measurement with integration to component pallets from a production line environment. The software analysis program can produce log sheets that are used in accordance with current roughness standards, such as Ra, Rz, Rq etc. It is also possible to transform the profile into a contour analysis by using the contour option.

Trimos has been a leader in the field of dimensional metrology since 1972, guaranteeing 'Swiss-made' quality from its manufacturing. Trimos offers a range of solutions that respond to dimensional measurement needs, combining high precision, innovation, advanced design and ease-of-use.

As sole UK agent, Bowers can exclusively offer its customers the full range of Trimos height gauges, horizontal measuring instruments and surface analysis



instruments, along with the new Trimos Tr-Scan 2D.

To find out more, speak to a member of the team, or to receive a demonstration, contact the company.

Bowers Group

Tel: 01276 469866

Email: sales@bowersgroup.co.uk

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Engineering firm gains optical measurement advantage

A leading supplier of complex components and sub-assemblies to the aerospace and defence sectors says an investment in optical measurement technology has 'revolutionised' its part inspection capabilities.

Benham Precision Engineering's 22 machining centres work around the clock to create parts such as manifolds, bodies, castings and casings. Products that are critical to safety and where even the smallest errors cannot be tolerated.

Across its two sites in Southampton, the company is now running three non-contact metrology systems supplied by VICIVISION UK which, according to programme manager Joe Benham, have taken Benham's quality control processes to a whole new level. "Speed, repeatability and accuracy were three things we were looking for as a business. Obviously on-time delivery to our customers is absolutely essential, as well as the quality of the parts.

"We need to make sure that our customers are able to satisfy their demand requirements, but also maintaining the fact that a lot of our product is critical to flight

and safety and therefore the quality needs to be absolutely 100 percent.

"What VICIVISION has provided is a reliable, repeatable, accurate measurement solution. We work down to sub 10-micron tolerances on our machine tools and we're able to reliably repeat those processes using the equipment around us and the technology to verify what we're doing.

"The VICIVISION machines have become evident as tools for reducing different methods of verification. So previously where we would be utilising micrometers, height gauges and shadowgraphs to check components, now we're capturing all of that within 30 seconds to a minute on a VICIVISION machine.

"It's completely revolutionised the way that we go about inspecting parts within Benham."

VICIVISION UK's leading optical measuring solutions cater specifically for turned, ground and cylindrical parts. Using a combination of advanced video camera technology and light projection, the machines automatically deliver detailed and consistent results on even the most complex



features in just seconds, down to the last detail.

Having initially installed an MTL1, Benham now also runs two systems from VICIVISION's flagship Techno range. Thanks to the wide measuring fields, impressive load capacities, high-resolution capabilities and intuitive software, the M306 and M309 are suited to both current and future manufacturing demands.

VICIVISION UK

Tel: 01283 585933

Email: info@vicivision.co.uk

www.vicivision.co.uk

LVD introduces Strippit PL Punch-Laser combination machine

LVD Company nv has introduced the Strippit PL Punch-Laser combination, a machine that combines the punching and forming advantages of the Strippit PX or V Series punch press with the speed and versatility of fibre laser cutting to complete multiple processes on a single machine, answering the need for flexible manufacturing. Three punch-laser models are available: the single-head style Strippit PX 1530-L and Strippit V 1530-L in thick- and thin-turret configurations.

The addition of the Strippit PL to the LVD portfolio creates the most comprehensive punch press product offering in the industry.

Combined advantages

Small batches, short lead times and increasingly complex parts drive the need for flexible manufacturing. Strippit PL offers two technologies in one machine for more versatility than single-process equipment. Strippit PL can laser cut intricate shapes and process materials up to 10 mm, efficiently punch holes up to 6.35 mm, produce forms and bends up to 90 mm in length and up to 75 mm high on the Strippit PX 1530-L.

Combination technology offers complete part processing. The punch press handles high-speed punching and forming operations. The fibre laser delivers high-quality cutting of outer contours, intricate inner contours and can be used for material etching.

The combination of technologies eliminates processes, can improve part quality, reduces production time and material handling and lowers the cost per part in both small lot sizes and high production runs.

Technology pioneer

In 1978, Strippit brought punch-laser technology to sheet metal fabrication. Today, a combination machine is more practical than ever because of advances in laser cutting and punching technology.

The solid-state fibre laser has minimal components, offers high cutting speed and low-maintenance costs making cutting operations faster, more accurate and cost-effective. Strippit PL is offered with a 3 kW or 4 kW fibre laser source.



The Strippit PX single-head 20-ton punch press can punch, form, bend and tap, forming flanges up to 75 mm high, countersinking and scribing with top productivity. Twenty indexable tool stations hold any size tool, up to a maximum tool diameter of 90 mm.

The Strippit V thick-turret model features a versatile 48-station turret. The Strippit V thin-turret configuration has a 40-station turret. Both 30-ton machines are equipped with four programmable 88.9 mm indexable stations and are designed to handle high tonnage applications.

Stand-out features

Strippit PL includes features that deliver high productivity with uninterrupted operation. The machine can process a 3,048 mm x 1,524 mm workpiece without repositioning. A large 406 mm x 1,524 mm work chute evacuates laser cut parts. A rack and pinion drive system eliminates backlash and provides accurate positioning.

Automation adds next-level productivity. LVD offers MOVit, a comprehensive range of automation systems, including Tower Automation System (TAS) and Warehouse Automation System (WAS) options providing highly configurable tower storage solutions. Also available in the MOVit range is the Compact Tower (CT-P) for loading, unloading and storing raw materials, skeletons and finished parts.

LVD is a leading manufacturer of sheet metal/plate working equipment, including laser cutting systems, punch presses, press brakes, guillotine shears and automation systems, integrated to and supported by its CADMAN® software suite. LVD Industry 4.0-ready products and technology make smart manufacturing possible.

LVD is named after its founding fathers, Jacques Lefebvre, Marc Vanneste and Robert Dewulf. Established in the 1950s, LVD gained recognition as a precision press brake manufacturer. Significant growth in the 1990s, which included the acquisition of Strippit, Inc. in 1998, a US-based manufacturer of turret punch press equipment and the addition of laser cutting products to its portfolio, helped position the company as a leader in laser, punching and bending technology.

Today, LVD offers a full range of integrated products for the global sheet metalworking market. The company has five manufacturing facilities and is active in more than 45 countries following the principle of localised sales and service for each region.

LVD UK Ltd

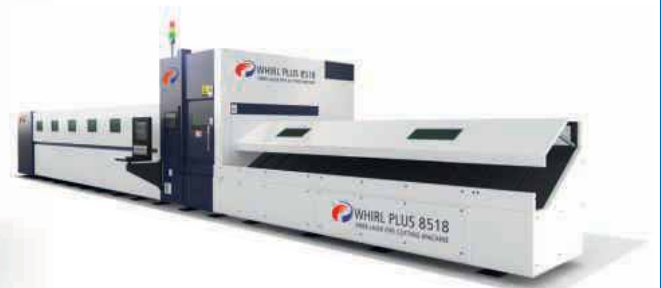
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Prima Additive launches in the UK and IRELAND with a comprehensive line up of machine solutions

Prima Power UK Ltd has recently launched a completely new range of machinery solutions for additive manufacturing produced by Prima Additive, the specialist division of the global Prima Industrie Group.

From a purpose-built innovation centre at the Prima Power headquarters and technical centre in Turin, Prima Additive offer a range of solutions for both powder bed fusion and laser metal deposition technologies that draw from the group's long-established experience in manufacturing laser cutting and welding machines for industrial applications.

An exciting and rapidly emerging technology, additive manufacturing allows the production of complex components, utilising metallic powders fused via the thermal energy delivered from a laser. Powder bed fusion uses the laser to melt specific points on a layer of metallic powder, which is built up during the process to form the finished component. In laser metal deposition, an alternative approach of directly applying the powder at the focal point of the laser is used, thus allowing the manufacture of much larger pieces that are only limited by the machine capacity, rather than the size of a powder bed.

For powder bed fusion processes, the Prima Additive Print Sharp and Print Genius models feature a compact and easy to use solution with build volume capacities of up to 262 mm x 262 mm x 350 mm. The Print Sharp 250 utilises a single 200 W or 500 W power laser for a build rate of up to 30 cm³ per hour, whereas the more powerful Print Genius 250 uses twin 500 W power lasers to achieve a faster build rate of up to 50 cm³ per hour.

Components with complex geometries can be produced with an excellent degree of accuracy and quality for a wide range of



applications. Operation is via an easy to use, intuitive HMI and Prima Additive offers its own 3D Printing Suite software, with a range of powerful functions for quick file preparation, design change, part creation and slicing, reducing the time from design to manufacture.

Laser metal deposition manufacturing is undertaken on several already well-established Prima Power machine models, the Laserdyne 430, Laserdyne 795 and Laser Next 2141, all of which have been thoroughly proven in 3D laser cutting and welding applications across the highly demanding aerospace and automotive sectors.

Utilising a specialised head to provide the powder spraying and fusion at the focal point of the laser beam, the machines offer working volumes starting from 585 mm x 400 mm x 500 mm up to an impressive 2,100 mm x 4,140 mm x 1,020 mm. Laser power options range from 1 kW up to 6 kW and deposition rates are possible up to 70 cm³ per hour. The large working envelope of these machines offers considerable versatility for applications ranging from R&D, rework and prototyping fully through to part manufacturing.

Prima Additive is able to offer both technologies into many industrial sectors such as aerospace, automotive, motorsport, rapid prototyping and medical. For maximum versatility, the machines can be used with a wide variety of metal powders that include aluminium, nickel, steel, cobalt-chrome and titanium alloys.

Complementing the machinery, Prima Additive also provide a host of additional services, tailored to suit the individual needs of each customer. Offering advanced expertise in process and application consulting, training, support, process monitoring and certification, Prima Additive take a customer focused approach, ensuring that the often-complex demands of each application are fully met.

Prima Power is a world-class supplier in the high-tech field of laser and sheet metal working machinery. Its product portfolio is one of the most complete in the industry and includes: 2D and 3D laser machines for



cutting, welding and drilling, punching machines, combined punching/laser and punching/shearing systems, press brakes, panel benders, bending centres and Flexible Manufacturing Systems (FMS).

Prima Power is the Prima Industrie machinery division, a group with more than 1,800 employees worldwide, manufacturing facilities in Italy, Finland, USA and China and a sales and service network in over 80 countries.

Prima Power UK Ltd
Tel: 0844 4996241
Email: sales.uk@primapower.com
www.primapower.com



Park Sheet Metal is UK's first to buy upgraded TruLaser Cell 7040

In December 2019, Coventry-based Park Sheet Metal became the UK's first company to invest in the newest version of TRUMPF's TruLaser Cell 7040 5-axis laser cutting machine. Adding to a fleet of existing, previous-generation TruLaser Cell 7040 machines, the latest version brings a number of advantages to this specialist in low-volume automotive metal parts and assemblies, including greater energy efficiency.

Established in 1947, Park Sheet Metal is a £16 million turnover, business that occupies five sites covering a total of 85,000 ft². This world-class company, which is certified to IATF 16949, ISO 9001 and ISO 14001, supplies to prestigious customers that include Aston Martin, Bentley, Lotus, Jaguar Land Rover and LEVC (London Electric Vehicle Co), to list but a few.

"Although we already had three TruLaser Cell 7040 machines, the need arose to invest in another as one of our major customers, Aston Martin, has opened an additional factory at St Athan in Wales" explains director Graham Penter. "In turn, there was

a clear requirement to expand our capital expenditure and facilities, to continue supporting their expansion over the coming years. The same is true for LEVC, with the introduction of their new electric van. Due to these developments, extra 5-axis laser cutting capacity was an obvious need."

Typical components produced at Park Sheet Metal include pressings, brackets and assemblies, many of which are complex in nature. As a specialist in lightweight components, the majority of the parts are laser cut from aluminium and steel.

"As with all of our capital investments, we evaluate the market carefully before making purchase decisions," says Graham Penter.

"However, as previously, we considered TRUMPF TruLaser Cell 7040 to be better than the alternative solutions available. Our technical staff have always had a preference for TRUMPF in terms of cutting quality and consistency. In addition, a big advantage was the ability to transfer all of our existing programs to the new machine."

He adds: "It's really nice having four TruLaser machines, giving us the flexibility



to grow, which is the main reason we have retained TRUMPF as our preferred supplier of 5-axis laser cutting technology in recent years."

TRUMPF Ltd
Tel: 01582 725335
Email: sales@uk.trumpf.com
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salvagnini

Fast-track machine installation helps Eastleigh subcontractor deliver demanding project

An Eastleigh-based precision manufacturer has turned to Yamazaki Mazak to install new, state-of-the-art machinery in a challenging four-week time window following a project win.

The swift installation and commissioning of a new Mazak HQR-200MSY CNC turning centre has enabled GW Martin & Co. (GW Martin) to expand its machining capacity and fulfil its exceptionally strong order book.

Established in 1959, GW Martin supplies a complete CNC machining service, providing components to the automotive, medical, electrical, vacuum and defence sectors. While the company has traditionally specialised in the production of high-volume, precision parts, it has been driving a strategy to reduce costs and increase capacity over the last five years, with investment in automated production being central to this. This was demonstrated when it purchased its first Mazak MULTIPLEX W-200Y Multi-Tasking CNC turning centre with an automatic gantry loading system in October 2019.

After winning a tender to machine a specific high-precision component in large volumes, GW Martin needed to further increase its machining capacity to complete the order in time. Having been impressed by Mazak's work adapting the MULTIPLEX to fit the bespoke component manufacturing processes, GW Martin turned to the machine tool manufacturer to supply an HQR-200MSY.

The new unit's highly efficient two-turret, two-spindle enables reduced cycle times and, when combined with the long Y-axis stroke, high-accuracy milling required for precision manufacturing. The machine can perform high-accuracy turning and milling and, crucially for GW Martin, is compatible with a variety of automation equipment, including bar feeders, workpieces unloaders and robots.

Following the machine's order at the end of February 2020, Mazak's application engineering team was able to quickly engineer the HQR-200MSY off-site to fit into GW Martin's machining line. This entire process, from order to installation, took only four weeks and enabled the company to



manufacture the volume of bespoke parts in line with the project's demanding schedule.

"Having worked with Mazak in the past, we were aware of their reputation for supplying quality turning centres," says Richard Blake, business development manager at GW Martin. "So, when we required an automation-capable solution at short notice that could machine high-quality components in large volumes, we knew where to turn.

"Our previous experience with the MULTIPLEX W-200Y meant we were fully confident that Mazak could adapt the HQR-200MSY to suit our existing processes. Bearing in mind the time pressures of this project, this was absolutely vital. Yet as we expected, even in such a short timeframe, the installation was completely seamless and risk free.

"While this all sounds very simple and easy to do, it really isn't. Mazak's adaptability and applications engineering proficiency was already well known to us. We really appreciate how they were able to help us react quickly to this project win, and following this success, we ordered another new MULTIPLEX W-200Y for installation in August."

Alan Mucklow, managing director UK & Ireland sales & service division at Yamazaki Mazak, adds: "General subcontracting is a fast-moving industry and companies

working for customers across a variety of market sectors often require increased machining quality and volume at short notice in order to complete project work.

"The installation of GW Martin's HQR-200MSY is a perfect example of how Mazak can assist organisations working in this demanding sector. We are thrilled that the quick and effective installation of this machining centre enabled GW Martin to complete their project order and look forward to working with the company again in the future."

Yamazaki Mazak Corporation was founded in 1919 in Nagoya, Japan. It now has over 8,300 employees worldwide.

Yamazaki Mazak has 10 existing manufacturing plants, with five in Japan as well as manufacturing operations in the United States, the United Kingdom, Singapore and China. Products include multi-tasking machines, CNC turning centres, vertical and horizontal machining centres, CNC laser cutting machines, flexible manufacturing systems (FMS), CAD/CAM products and factory management software.

Yamazaki Mazak UK Ltd

Tel: 01905 755755

Email: sales@mazak.co.uk

www.mazakeu.co.uk

Luxinar launches SR AOM CO₂ lasers for high-precision applications

Leading laser manufacturer Luxinar has launched the SR AOM range of sealed CO₂ lasers for high-precision applications that require a reduced Heat Affected Zone (HAZ).

The new SR 10 AOM and SR 25 AOM, both available at a wavelength of 9.3µm and with rated powers of 150 W for the SR 25 AOM and 75 W for the SR 10 AOM, add value to the established SR series of sealed CO₂ laser sources from Luxinar. The integrated Acousto-Optic Modulator (AOM) creates much faster optical rise and fall times of less than 1 µs which can minimise unnecessary heat energy from typical pulse rise/fall times of approximately 60 µs.

Unique to the industry, the RF power supply, AOM, control driver and optical parts of the SR 25 AOM and SR 10 AOM are all hermetically sealed to IP66. This rating ensures a high level of protection against dust, heat and water spray, making them ideal for the harshest of industrial environments.

The AOM range provides superior pulse-to-pulse control, output power

stability and an integrated and field replaceable RF power supply for ease of installation and servicing at customer sites. The simple control interface and compact mechanical design of the unit allow easy integration into a variety of laser-based processing machines giving distortion-free materials processing.

Andrew Chambers, sales director of Luxinar, explains: "Due to its precise pulse control, the SR AOM series is ideal for a variety of high precision processes such as microfilm cutting in the flat panel display market and scribing, engraving, marking and surface patterning applications that need less HAZ. Other thin film applications, including those in the automotive, electronics, lighting and flexible packaging industries, can benefit from the higher quality cutting edge which the SR AOM offers when compared to standard pulsed CO₂ lasers."

In common with the rest of the SR series,



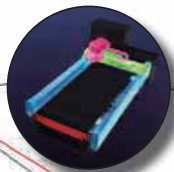
the SR AOM range offers simple integration, clean and high-quality laser processing, with low running and maintenance costs and, as with the whole of the Luxinar range of CO₂ lasers, the minimum shipment power of the SR AOM range is 20 percent higher than the rated power to give extended lifetime and increased reliability.

Luxinar Ltd
Tel: 01482 650088
Email: sales.uk@luxinar.com
www.luxinar.com

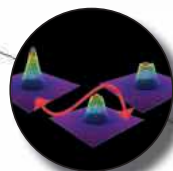


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Salvagnini L5 investment means success is in the air for Altex

Altex Engineering, a leading precision subcontractor based in Calne, Wiltshire, has invested in a new Salvagnini L5 CNC fibre laser cutter to increase capacity and meet growing demand. The 6 kW machine is notable for its 50 µm beam which, in combination with its proprietary Air Pressure Multiplier (APM), means mild steel, aluminium and stainless steel up to 10 mm thick can be cut using nothing more than a standard compressed air supply.

Established over 30 years ago by current owner John Jackett, Altex Engineering has grown into a 30-employee business with UK-wide customers in sectors such as medical, telecommunications, defence and office furniture. The company, which undertakes fabrication, machining and finishing operations, extended its Wiltshire premises in 2014.

Altex is committed to an ongoing programme of investment in plant, software and processes, key among which is laser cutting. "Due to rising orders, we recently ran out of capacity on our existing Salvagnini L1Xe laser cutter," explains John Jackett. "We therefore took the decision to invest in another machine, the L5 and take advantage of the progression in technology. The two machines are now running side-by-side."

He recalls the time 10 years ago when he invested in his first Salvagnini, the aforementioned L1Xe. When it was installed in 2010, it was thought to be the first fibre laser cutter in the UK from any manufacturer.

"So many people were sceptical," he states. "CO₂ laser cutting technology was dominant and hardly anyone had heard of



Salvagnini L5 at Altex

fibre lasers, it took a real leap of faith. I even visited Salvagnini's headquarters in Italy to see a demonstration. Although everyone thought I was crazy to consider a fibre laser, we went ahead and bought the L1Xe. Over the years it's been a fantastic performer and is still going strong today. We simply ran out of capacity."

The arrival of significant new contracts from the telecommunications sector proved to be the tipping point. It was clear that alongside extra capacity, Altex would need to seek out a new machine with even greater speed and efficiency.

"I looked at several machines but the L5 was best," states John Jackett. "Speed was certainly a factor."

The L5's highly dynamic laser cutting system has no optical path and is equipped with a patented compass that comprises two carbon arms. These arms are driven by a pair of rotary motors that move the laser head dynamically in the XY plane in small steps, reducing the movements of the whole carriage. A specially developed algorithm in the control provides the greatest acceleration to the axis with least inertia, thus ensuring highly dynamic performance of both the cutting movement and rapid traverse motion.



Compass axis on the L5



Salvagnini L5 laser head

In combination with the new 6 kW high power density source, the L5 is notably faster than previous-generation models. For instance, in tests against the company's L3 with a conventional 6 kW source, cutting times were 30-40 percent quicker on materials up to 3 mm thick, and 10 percent quicker on 4 mm thick material. From 6-10 mm, the performance was the same.

These elevated performance levels also help from a quality perspective. The quality gap that historically differentiated between cutting with nitrogen and air has now narrowed to negligible levels. Higher power density and ultra-fast cutting speed help to reduce the opportunity for oxidation at the cutting edge, vastly improving its quality. A further influencer for Altex in favour of the L5 was low running costs.



Salvagnini L5 in-situ at Altex

Installation of the Salvagnini L5 took place in July 2020. Although the machine cuts material up to 10 mm thick, on a day-to-day basis the L5 at Altex processes parts made from zintec up to 3 mm thick, as well as various gauges of stainless steel and aluminium. Batch sizes extend from 1-off up to 10,000.

The L5 is currently running continuously over an 8-hour shift, with plans to extend its use to a second shift in the near future. "Our operators love it, not just because it's such an exciting machine, but because it gets through work quicker, which makes them look good," concludes John Jackett with a smile.

Salvagnini UK & Ireland

Tel: 01989 767032

Email: steve.williams@salvagninigroup.com

www.salvagninigroup.com

AMADA releases its fastest ever laser cutter

AMADA is launching its brand-new offer for high-speed CNC laser cutting. The high-specification REGIUS-3015AJ CNC fibre laser profiling centre not only becomes the fastest in AMADA's portfolio but also the first to integrate a number of key technologies, including linear drives in all axes, the company's all-new laser integration system and its original variable beam control technology. In addition, the new AMNC 3i Plus control houses new functionality designed to provide the ultimate in easy operation.

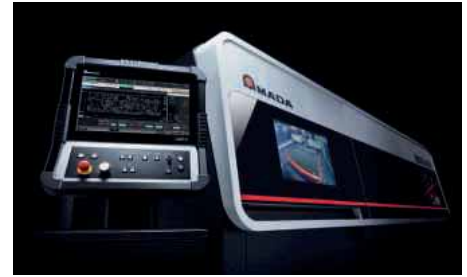
The AMADA REGIUS-3015AJ features linear drives in all three main axes, resulting in outstanding precision and ultra-fast point-to-point positioning speed of 340 m/min. In support of the linear drives is AMADA's intelligent head control system. This innovation makes real-time decisions about its retraction height. For example, in the case of two close-proximity holes, the intelligent head will not simply retract to a specified height, but instead remain low to reduce cycle time. Together with the speed of the linear drives, incredibly fast

hole-to-hole motion is achieved.

Recent tests that pitched the new REGIUS-3015AJ against the company's previous fastest laser, the FOL-AJ, showed the potential gains on offer. Cutting an identical nest of parts in 1 mm stainless steel with the same power output, the REGIUS proved itself 14 percent quicker, all thanks to linear drive technology and intelligent head control.

The second major technology housed on the REGIUS-3015AJ is the all-new AMADA laser integration system, which offers functionality such as automatic inspection and automated recovery from processing failure. Automatic inspection utilises technology such as the i-Nozzle Checker to assess nozzle damage, position and circularity. If the nozzle requires changing, against a predetermined set of parameters, this will happen automatically via the machine's 16-station nozzle changer, negating the need for subjective operator judgement.

A further function of the i-Nozzle Checker is automatic alignment of the laser beam to



the nozzle if or when required. Checking of the beam condition will also be performed automatically to ensure the focal reference position is optimised.

REGIUS-3015AJ users can also take advantage of the new i-Process Monitor system, which checks the wavelength of reflected light in real time to prevent processing defects before they occur.

A REGIUS-3015AJ demonstration machine will be available at AMADA's UK headquarters in Kidderminster from early December 2020.

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Fast quotes for sheet metal

Rob Powell, UK commercial director at Lantek explains the advantages of simplifying the quoting process for sheet metal



Rob Powell, commercial director of Lantek UK

In the sheet metal industry, financial planning is one of the most important activities to ensure the smooth running of a business and preparing quotes is one of the most critical. To be managed effectively, quotations must be as close as possible to the reality of production.

Preparing quotes is not an easy task and unforeseen circumstances can frequently make this more difficult and, with so many variables involved, most of the time it is necessary to carry out a complete simulation of the process including CAM, nesting, method selection, process capacity control, material selection, geometries etc.

All this assumes the availability of trained personnel who have acquired these skills through many years of experience, the consumption of resources and, of course, time. Time is an element that is increasingly valuable to customers and manufacturers

due to the expectations of the market itself and the demands of the new Industry 4.0 production methodologies.

New times with digital transformation

Moving towards more intelligent manufacturing requires more than just speed. Simplicity, precision, and consistency are also important factors when it comes to preparing a quote.

These principles are only achievable if we are committed to innovation and technology, and it is here where Lantek offers real world answers to the new requirements of the sheet metal sector, making it easier to prepare proposals.

Lantek's software enables manufacturers to analyse, plan and, of course, quote better and much more quickly and accurately! The secret: combining powerful technologies into modular and scalable software solutions that are perfectly integrated, offering comprehensive business management and greatly streamlining any process.

Our company's quoting tools, are designed to be intuitive, easy to use, and produce automatic and highly accurate quotes in a matter of minutes. They eliminate the need for expert technical personnel as it is no longer necessary for users to have advanced technical knowledge of design or nesting by making this process more accessible, simple and standardized so that anyone can carry it out.



More details

Two advanced solutions are Lantek iQuoting and Lantek MetalShop. Lantek iQuoting is a cloud application that connects to Lantek Expert CAD/CAM, enabling fast and consistent quotes, which can be prepared from anywhere, thanks to instant access to the information needed for the job. With everything connected, it is possible to collect key information on the parameters to be considered (such as part geometry, hourly wages, shipping time, type of material, margin etc.) all in an instant, eliminating production stoppages and the long waiting times that can occur from the time a quote is requested until it is costed and then accepted by the client.

Lantek MetalShop further streamlines the process with an online store which is available 24/7. The operation of requesting and confirming a quote is totally digital. This e-commerce system also helps customers to track their orders, providing total visibility and transparency of the processes.

Analytics help manufacturers keep up to date with business performance. Lantek's Customer Analytics software delivers KPIs which are used as feedback, further optimising the accuracy of quotations and hence customer loyalty and profitability.

Finally, many of our customers using this technology report that there is a definite correlation between the speed in returning an accurate quotation and the chances of gaining the order.



Lantek Systems Ltd

Tel: 01684 585384

Email: rob.powell@lantek-systems.co.uk

www.lantek-systems.co.uk

Reliability and durability are the priority

transfluid, the engineering company from Schmallenberg, develops and produces machines to bend and process tubes. During a recent review of the product portfolio, the company decided to make changes to its K series of machines. All the machines in this series can now be controlled easily with a touch panel and this opens up new possibilities, like displaying the comparison of target and actual values for all axes. Control of the tolerance of the length and the rotation means very little involvement by the operator during the manufacturing of tubes. The options have also been improved by the possibility of loading the bending data for individual products from a PC via a USB port.

The machines are extremely robust and easy to operate. A selection of setups is available, of course, to process tubes of different lengths, with an operational length from 1,500 mm to 3,000, 4,500 and up to 6,000 mm. "We have again improved the areas of excellence of our K series," explains Stefanie Flaeper, managing director of

sales. "As an example, I want to mention the DK 642K bending machine with mandrel. Its specific area of application is hydraulics."

The machines have special equipment available, like an integrated saw, a burring device, a tool for cutting ring pre-assembly or one for flaring. The area of excellence covers all standard diameters, from 6 to 42 mm, in hydraulics, as well as the processing of tubes with thin and thick walls. All compact bending machines with mandrel can bend up to 180°. Radii of 1.5 or 2 times the diameter of the tube are common in this application and easy to achieve with these machines.

For the processing of tubes up to 76 mm, transfluid offers its DB 2076K, capable of processing tubes with diameters of 6-76 mm and all the standard wall thicknesses and materials. To be able to obtain radii of 1.5 x D, tube diameter, of ideal quality with a



bending procedure, this machine has a follower pressure die. It is operated hydraulically and supports the tubes during the bending process. This makes many applications possible, like construction of railings, tubing for installations and the production of systems for exhaust gasses.

transfluid Maschinenbau GmbH
Tel: 0049 2972 97158700
Email: sales@transfluid.de
www.transfluid.net

Cevisa offers solutions in agriculture

Basque company Castellanos y Echevarria - Vitoria, S.A. has successfully completed the test series for a new application. This time the request for a demonstration comes from the Portuguese agricultural sector and it concerns the production of cutting edges of the plow blades. The test was carried out with a Cevisa CHP 60G bevelling machine at an angle of 72°, the materials were different, but given the requirements of the product, all with high durability.

Rotary plow blades have a high frequency of wear losses to which they are exposed. They are used both in tractor-operated machines and in small machines. The rotary plows are turning tools that break, cut and mix the soil profile. They consist of a rotor that is equipped with blades that are activated by the power take-off of the tractor, with the exception of the hoe, which is driven by its own motor, so that they break and mix the soil in a single pass and mix it for provide the plants.

One of the most serious problems using rotary plows is the break of the blades when

they collide with stones and / or hard floors. To avoid this problem, several systems are used that dampen the impact of the blades and protect them from overloads. Handling this class of tillage equipment requires technical understanding. The use and operation of rotary plows is very complex, so when defining their use, a thorough study must be carried out before they are introduced into a particular soil. Grinding wear is one of the main causes of failure and loss of performance of rotary plows, as the blades come into permanent contact with hard or abrasive particles under heavy use and cause plastic deformation of the material and detachment.

Steels, which are the basic material for agricultural tools, have different levels of wear resistance depending on the microstructure and chemical composition. For example, martensite generally has higher abrasion resistance than ferrite-pearlite and ferrite carbides as long as the operating conditions do not contain high impact components. A material that



has been used successfully for agricultural tools is AISI 15B30 boron steel due to its advantageous combination of toughness and wear resistance. In addition, boron increases the hardenability of hypoeutectoid steels by delaying the nucleation of ferrite at the austenitic grain boundaries.

Cevisa
Tel: 0034 945261299
Email: cevisa@cevisa.es
www.cevisa.net

CLOOS and MPA Technology present Cobot Welding System

Across all industries, companies face the increasing challenge of finding qualified manual welders. The shortage of skilled workers and increasing labour expenses make this even more difficult. At the same time, the demands on quality, flexibility and efficiency are growing continuously. New solutions are needed to ensure competitiveness. The Cobot Welding System from CLOOS and MPA Technology offers an easy entry into the world of automated welding. With the Cobot Welding System, users can weld even small batch sizes economically and with consistently high quality. The high-tech MIG/MAG welding power source and the very precise Cobot complement each other perfectly.

The compact "Ready to weld" package is delivered completely ready for operation. This guarantees a problem-free integration into existing production processes. A torque sensor in each axis allows the Cobot to be programmed and moved precisely. The intuitive operation significantly increases work efficiency. The user can make individual adjustments on the user-friendly touch control panel with macros specially developed for welding. In addition, the Freedrive option with foot switch and the intelligent safety concept guarantee sensitive and safe control of the Cobot.



Another special feature is the simple restart after an emergency stop as no extensive unlocking or free movement of the robot is necessary.

In addition to the relief of the employees, especially with monotonous, repetitive tasks, the users benefit from excellent welding results due to the constant, reproducible quality. The integrated safety components ensure the necessary personal protection and an electrically movable protective screen mounted to the optional welding table protects the surroundings from the UV radiation generated during welding.

CLOOS offers users a wide range of innovations for the economical automated welding of even small batch sizes. Whether it's the new Cobot Welding System, the new QIROX microcells, the Instant Robot Programming System (IRPS) or the offline programming software RoboPlan, CLOOS supports users in finding their individual solution for welding small batches.

Since 1919, Carl Cloos Schweisstechnik GmbH has been one of the leading companies in welding technology. More than 800 employees all over the world realise production solutions in welding and robot technology for industries such as construction machinery, railway vehicles, automotive and agricultural industry. The

modern CLOOS welding power sources of the QINEO series are available for a multitude of welding processes. With the QIROX robots, positioners and special purpose machines CLOOS develops and manufactures automated welding systems meeting the specific requirements of the customers. The special strength of CLOOS is the widely spread competence. From the welding technology, robot mechanics and controller to positioners, software and sensors, CLOOS supplies everything from a single source.

Providing added value for its customers. This is the motivational force behind the company's 800 employees. It is constantly raising the bar by pushing itself to provide innovative welding processes and solutions that will contribute to the long-term commercial success of your company. Its process competence is at the forefront in welding and cutting of various ferrous and non-ferrous metals. The company offers customers individual solutions which are optimised and adapted specifically to your product and production requirements.

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Pulse welding with Fronius TransSteel Pulse

Fronius is upgrading its TransSteel series with the addition of the pulse function. Not only does the pulsed arc allow faster welding speeds on thicker materials, but rework is reduced as the pulsed arc causes less welding spatter.

The pulse mode makes it possible to bypass the intermediate arc, which is difficult to control and prone to spatter. The resulting reduction in spattering leads to up to 70 percent less rework. Furthermore, the pulsed arc allows welding speeds that are up to 30 percent higher to be achieved. All these advantages are now also available from the Fronius TransSteel 3000 compact as well as the TransSteel 4000 and 5000.

Pulse tacking to avoid distortion

The TransSteel devices were developed especially for use on steel. The addition of the pulse function now makes these power sources true all-rounders, as a wide range of functions supports the welder in various applications. With the help of the spot function, even and consistent welding spots can be produced. This is ideal for tacking workpieces. Interval welding not only produces a rippled seam appearance, but the lower heat input also reduces the possibility of material distortion on light gage sheets.

Special characteristics ensure the user has the ideal arc properties at their disposal. The "Steel" universal characteristics are particularly suitable for simple and fast welding applications. "Steel Root" has been developed for root welding and also



provides a soft and stable dip transfer arc for good gap-bridging ability over wide gaps. The "Steel Dynamic" welding program, on the other hand, produces a particularly hard and concentrated arc, thus achieving high welding speeds and deep penetration. Where minimal spattering and deep penetration are the order of the day, the TransSteel Pulse models with "Pulse Controlled Spray Arc" provide the perfect settings. With the "SynchroPulse", the welding power alternates between two operating points at a frequency of up to 5 hz. As the change between high and low current facilitates welding in a vertical up position, for example, it is possible to produce a pronounced seam rippling on aluminum alloys.

Three power categories, two models, one solution

The intuitive operating concept of the TransSteel allows immediate commissioning of the device without any previous knowledge. All the necessary welding

parameters can be set on the front panel. A simple option for documenting the welding data completes the device concept. A USB thumb drive can be connected to the rear of the power source to store all important data, including time and device-related data, but also the parameters used such as current, voltage and wire speed.

Fronius has added the pulse function to three models. The TransSteel 3000 compact Pulse is a multiprocess device that masters all three welding processes to the same high degree. The compact unit is ideal for a wide range of welding tasks on the construction site, in the workshop, or for repair work. For recurring welding tasks or in small series production, the pulse function on the TransSteel 4000 Pulse and TransSteel 5000



Pulse brings more options and speed. In contrast to the Compact version, these higher-power units have a separate wirefeeder.

Fronius Perfect Welding is an innovation leader for arc welding and a global leader for robot-assisted welding. As a systems provider, the Fronius Welding automation division also implements customised automated complete welding solutions, for the construction of containers or offshore cladding for example. The range is rounded off by power sources for manual applications, welding accessories, and a broad spectrum of services. With more than 1,000 sales partners worldwide, Fronius Perfect Welding has great customer proximity.



Fronius UK Ltd
Tel: 01908 512300
Email: info-uk@fronius.com
www.fronius.co.uk

Extraordinary arc welding productivity

Kemppi has announced the launch of a brand new industrial multi-process welding system for steel welding: the X5 FastMig. The X5 FastMig is built with an energy-efficient inverter technology and developed in collaboration with professional welders. It is made in Finland. Available in Manual and Synergic 400A and 500A models, the X5 FastMig significantly enhances arc welding productivity. The X5 FastMig offers possibilities to increase the arc-on time by improving the ergonomics, weld quality and user experience.

Faster welding, better quality

The X5 FastMig offers possibilities to overcome the challenges of steel welding and save time and money in after-treatment. The precise ignition using the latest ignition technology, Touch Sense Ignition, is featured as standard in all available models. It minimises spatter and reduces the need for after-treatment.

Effortless operation

Ease-of-use is at the core of the X5 FastMig.

The graphical and impact-resistant 5.7" TFT display wins over both experienced welding professionals and new talents. The operating basics are easy to grasp in just 10 minutes.

"The excellent usability results in an increase in valuable arc-on time, especially for companies that employ an outsourced workforce and have a welding fleet with shared usage," explains John Frost, product manager.

Excellent welding ergonomics

The ergonomically designed, top-loading wire feeder saves space and improves occupational safety when changing wire spools. Adjustable hanging, even in dual setup, enables easy accessibility. Flexlite GX welding guns feature flexible cable sets and ball-jointed cable protection and reduce wrist loading. The neck structure adds to welding comfort with more efficient cooling and extends the lifetime of consumables. The on-torch GXR10 remote control allows parameter adjustment at the weld joint.



Flexible equipment setup

The modular system with excellent accessories provides the optimal solution for every production line and cell, enabling higher arc-on times. The X5 FastMig's wide range of accessories includes transport units, interconnection cables of various lengths and wired remote controls. With the help of X5 Selector, an online configurator tool, the user can easily choose the equipment setup to best suit his needs.

Kemppi UK Ltd

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Thompson can trace its roots back to a family firm started in the Black Country in 1834, several decades before the advent of the Industrial Revolution. Initially manufacturers of industrial boilers, the Thompson brand diversified its engineering capabilities, to include friction and robotic welding systems.

Today the Thompson product falls under the KUKA brand. Our collective global reputations for high quality, reliable, technically advanced, and highly customized welding machines serves an established portfolio of customers across numerous sectors, with bespoke manufacturing solutions.

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ESAB SR-B 21 and XCT-B premium water-cooled torches

ESAB Welding & Cutting Products has introduced its SR-B 21 and XCT-B 400w high-performance TIG torches. Designed for welding professionals, these compact water-cooled torches offer small neck-to-head dimensions to promote access in tight spaces and more precise bead placement. Common features include an ergonomically formed handle with integrated soft grips that keep the handle in place with minimal grip pressure to reduce hand fatigue and precision switch technology for comfortable On/Off control. A ball joint on the back allow free movement in all directions without torsion of the cable assembly, which comes in length options of 4, 8, 12 and 16 m.

Due to its extra-large cooling channels, the SR-B 21 offers a 100 percent duty cycle at 240A when AC welding and 340A when DC welding. The SR-21 B torch accepts tungsten electrode diameters from 0.5 to 3.2 mm and has rigid or flexible head options.

“Compared to leading competitive SR-20-style torches, the ESAB SR-B 21 provides 40 amps more output for AC welding and 120 amps more output for DC welding,” says Jan Taagaard, global product manager, torches, ESAB. “The higher duty cycle rating keeps the SR-B 21 torch cooler, which increases operator comfort and allows welding for longer periods of time at higher amperages.”

The torch is part of ESAB’s new SR-B series of TIG torches designed for welding professionals across a spectrum of applications. The SR-B 9, 17, 26 and 26 HD are air-cooled torches with a duty cycle rating of 60 percent at 110, 140, 200 and 230 amps DC, respectively. The SR-B 18, 20, 21 and 400 are water-cooled torches with a duty cycle rating of 100 percent at 220, 320, 340 and 450 amps DC, respectively.

No gas lens needed

The new XCT-B 400w water-cooled torch offers ESAB’s top-of-the-line construction and an even higher duty cycle while maintaining an extremely compact design. The XCT-B 400w offers a 100 percent duty cycle at 315 amps when AC welding and 450A when DC welding. It features a unique collet design that consolidates parts, there



are only three wear parts, creating a larger mating surface between the electrode and the water-cooled torch head. This design provides more efficient electrical transfer for greater arc stability and more efficient thermal transfer to keep the torch cooler. The electrode will remain securely fixed even under an extended high-amperage load and will offer longer service life.

“Further, the collet design produces a smooth, laminar gas flow that is comparable to using a gas lens,” says Jan Taagaard. “Users can increase electrode extension or hold the XCT torch farther away from the weld puddle, such as for better visibility of the joint or in a restricted access situation, yet still achieve good gas coverage and porosity-free welds.”

The XCT-B 400w accepts tungsten electrode diameters from 1.6 to 4.0 mm and has gas nozzle length options of 25.5 or 35 mm.

ESAB Welding & Cutting is a recognised leader in the welding and cutting industry. From time-honoured processes in welding and cutting to revolutionary technologies in welding and cutting automation, ESAB’s filler metals, equipment, and accessories

bring solutions to customers around the globe.

The story of ESAB is the story of welding

When its founder Oscar Kjellberg developed the world’s first coated welding electrode in 1904, he launched a company whose innovation and uncompromising standards have helped create the history of welding itself.

For more than 100 years, ESAB has been powered by the will to continuously seek new and improved ways of serving its customers. This has made ESAB a leader in welding products and advanced cutting systems.

In 2012, ESAB was acquired by Colfax Corporation, one of the world’s leading diversified industrial manufacturing companies. Colfax, like ESAB, is a solidly customer-focused company that places strong emphasis on constant innovation and improvement.

ESAB Group (UK) Ltd
Tel: 0330 8080442
Email: service@esab.co.uk
www.esab.co.uk

KM Tools welding gantry supplied to Bombardier Transportation

KM Tools Ltd has demonstrated its machine building capabilities by supplying a new welding gantry to Bombardier, the UK's leading rail engineering and manufacturing company. Now installed at the iconic Litchurch Lane facility in Derby, the new gantry is supporting the production of carbody structures manufactured at the site. Bombardier is the only company in the UK with the capability to design, develop, manufacture, test and service trains. Producing multiple unit rail vehicles for a host of UK train operators, the business has to ensure adequate manufacturing capacity to support these extensive operations. Litchurch Lane has been producing railway rolling stock since the late 19th century and now KM Tools Ltd is a part of the site's modern era.

The welding gantry provided by KM Tools is a key machine in the production of train underframes and roofs. Sections of underframe/roof are held in jigs next to one another, ready for welding. With the expert help of operatives in protective gear, the welding gantry passes over, its two heads carrying out high-quality welds across the

length of each seam. Once one side of the underframe/roof section is welded, the jig is rotated 180 degrees and the process repeated for the opposite side.

Adrian Degg, engineering director at KM Tools Ltd, was instrumental in the project: "We are primarily a machine builder, working with our customers to provide specialist equipment to support OEM production lines. We had previously supplied a wide range of jigs and fixtures to support Bombardier's production activities, so when the time came to add a new welding gantry at the facility, we were ready to offer a solution."

Bombardier required a new welding gantry that closely matched those already operational on-site. KM Tools offered to reverse engineer a new machine to the required specification, offering a reduced lead time and increased value compared to its competitors. The welding gantry would



need to be installed and operational by mid-February, 2020.

KM Tools managed the entire build process and the machine was finished within seven weeks, with installation completed before the deadline. The machine is now operational, boosting welding capacity at the site.

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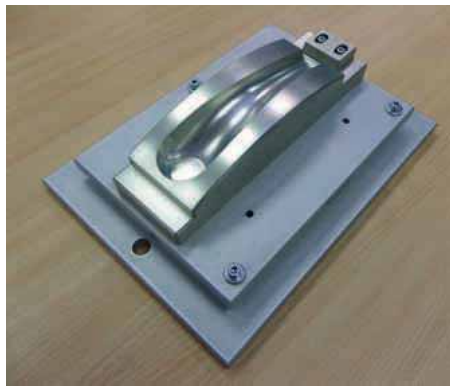
Telsonic shower Whale Pumps with weld success

Whale Pumps manufactures and supplies a wide range of freshwater, bilge and waste pump products and heating systems for the marine, caravan, motorhome, healthcare and industrial sectors. An important area for growth for this Northern Ireland-based business is the expansion of its technical services offering, which includes injection moulding, design and manufacturing expertise. This has been possible with their help in developing an innovative new product within the medical market, in the form of a specialist Medi-shower system for use in hospitals and patient care environments. This patented anti-microbial showering solution enables institutions to reduce the risk of water-borne infection and offers a standard showering option for all healthcare organisations.

As part of the manufacturing process, a series of weld operations are required to assemble and join the individual shower head moulded components. The quality and aesthetics required on this product were key criteria in Whale selecting Telsonic's ultrasonic welding technology for the application.

This innovative product comprises a three part ABS moulded hand held shower head assembly, with bayonet located interchangeable nozzle cartridges. The first weld to be performed in the assembly sequence seals the inner water feed tube which runs from the threaded shower hose connection point to the shower nozzle chamber on the outer half of the head. This is followed by a second weld which secures the inner cover moulding, completing the full shower head assembly process. The weld joints for all parts feature a tongue and groove section combined with an energy director preparation incorporated in each of the three mouldings, as recommended & designed by Telsonic UK.

The ultrasonic welding solution supplied by Telsonic UK, which is now in full production, comprises a machine and a suite of two tool sets for the three part ABS Medishower spray head. The ultrasonic welding process was determined as the most suitable following a DFMEA appraisal. The short process welding time, plus the ability to both join and achieve a robust hermetic seal, with high process repeatability using moulded weld features alone and eliminating the need for



adhesives or mechanical seals, clearly identified ultrasonics as the process of choice.

The configuration of the production system included a Telsonic USP3000 - 20 kHz 2 kW ultrasonic press complete with two sets of CAD machined hard anodised slotted aluminium block sonotrodes and CAD machined anodised tooling nests set onto precision levelling plates. Subsequently a 2nd USP3000 press 20 kHz 3 kW system has been purchased.

The challenge in this application is to complete the welded assembly with no gaps or flash on the exterior outer joint line, without marking the highly polished outer shell halves to provide a superior aesthetic finish. In addition, the welded joints need to achieve a hermetic seal, especially between the feed tube and outer half of the moulding which are pressure tested. The inner tube component and outer shell half also each incorporate half of the shower hose thread section, making it important for the joint design to accurately align the thread form and weld without producing flash.

To achieve this weld cycle, Telsonic devised a time based weld, split into three step pressure profiled stages, with concurrent amplitude profiling. This was achieved using the USP3000 proportional pneumatic valve control together with the



machines digital generator system to control the melt, with a progressive and optimised energy draw.

Telsonic UK was selected for this application based upon the company's reputation for delivering robust and reliable ultrasonic welding solutions, combined with its pro-active input at the design stage and experience with similar high quality and demanding applications.

Telsonic UK offers a comprehensive range of ultrasonic modules and systems for a variety of food cutting, plastic welding, cutting, sealing, cut'n'seal, metal welding, packaging, sieving, and cleaning applications within a wide range of industries.

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