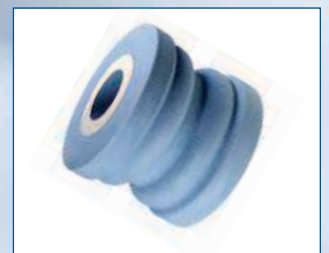
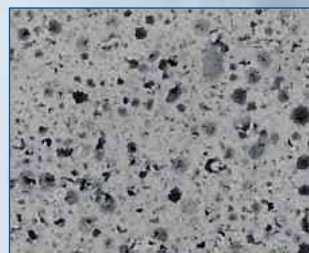


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Accounts: Jackie Barber - 01403 563791

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- Component Cleaning
- Polishing & Lapping
- Tool & Profile Grinding

New agencies give Advanced Grinding Supplies the 'cutting-edge'

In addition to being a UK agent for several of the world's leading cylindrical grinding machine manufacturers, Advanced Grinding Supplies Ltd has earned an excellent reputation for provide an all-embracing grinding related service by acting as a distributor for numerous high-quality grinding tooling and consumable companies.

Since being appointed as the exclusive agent in the UK and Ireland for both Meister Abrasives and ALFONS SCHMEIER ABRASIVES In 2020, the busy Gloucester-based business has witnessed exceptional levels of sales of the two prestigious brands.

Meister Abrasives offers a broad range of abrasive solutions, from the very smallest bore grinding applications of 1.3 mm diameter up to surface grinding applications using 1,500 mm diameter tools, all to specific customer designs. CBN, DIA, conventional and Ceralox tools are used depending on the application.

Complementing Meister Abrasives' offering, Schmeier Abrasives provides internal grinding wheels and fine grinding media made of CBN, diamond, silicon carbide and corundum in a ceramic bond, in conjunction with threaded and cylindrical shanks, plus grinding spindle extensions and dressing tools. Satisfying a wide range of uses, the company's quality grinding tools are offered in sizes from 0.8 mm to 180 mm and are available in a wide variety of shapes.

Advanced Grinding Supplies director Peter Harding enthuses: "Advanced Grinding Supplies' excellent reputation is founded on the first-class service we provide, our in-depth engineering knowledge and not least the high-quality and cost-effective nature of the products we supply. In addition to providing first-class technical advice, our skilled staff have access to an unmatched range of grinding related products. Therefore, rather than recommend a 'best-fit', compromise product, we are able to provide ideal, cost-effect solutions to our customers needs.

"Further complementing our offering, we were delighted to be appointed as the sole agent for the technically superior Meister Abrasives and Alfons Schmeier Abrasives brands for the UK and Ireland. Many current users of Meister and Schmeier products are companies that we already supply tooling and consumables to or are users of machines we are UK agents for, such as Studer. Our important new agency lines have proven to represent a perfect fit for our company, have ensured a seamless transition for existing customers and also allowed us to further expand our activities. These two globally renowned brands complete have completed our comprehensive abrasives offering and will continue to deliver a wide range of technical and cost benefits to our customers."

Advanced Grinding Supplies Ltd Tel: 01452 725191
Email: info@adgrind.com www.adgrind.co.uk



New digital solutions at GrindTec



GrindTec 2022 announces the dawning of a new era. Trade fairs have shown one thing in these times, with all the special challenges and characteristics: they are essential for the specific markets. No amount of professional digital communication can replace human interaction. It has been four long years since the leading industry forum for grinding technology was hosted in Augsburg. GrindTec 2022 will once again bring supply and demand together when it opens its doors in March.

Precise grinding is much more than the short contact between the workpiece and the tool, so GrindTec makers will focus even more on the entire process in 2022 and will represent the entire technology and process chain in Augsburg, from external cylindrical grinding machines to gear testing equipment. Only those who master the entire process will achieve results for themselves and their customers that are process-reliable, reproducible at all times and thus highly economical.

All the parameters that influence production, starting with the design of a tool, through holding and clamping systems, the integration of digital interfaces, the use of cooling lubricants and abrasives, measuring, finishing, right up to tool management and packaging of high-end tools will be presented by over 300 exhibitors. Examples include tool clamping systems that can be adjusted to the μ and correct wobble errors, tools manufactured using the high-vacuum brazing process, the presentation of optimisation options for the process through the use of the digital GDX data exchange interface, such as in-process measuring.



With a high degree of selectivity and in-depth knowledge, there are exhibitors in Augsburg for every niche, no matter how small, in the entire manufacturing process, whether it is gear tool grinding machines, hydrostatic grinding spindles, emulsion care, carbide saw teeth, honing stones, diamond dressing rolls, polyester-based finishing films that guarantee accuracies below $0.002 \mu\text{m}$, or re-used grinding machines.

GrindTec FACTORY will celebrate its premiere at GrindTec 2022. This large special exhibition is being conceived and implemented jointly by the FDPW and GrindTec organiser AFAG. A whole range of manufacturers, all from the field of cutting tool manufacturing, will present their technologies in a manually and digitally networked combination, thus mapping the process chain in the field of tool grinding. At the same time, this presentation also shows how mechanical or digital interfaces to other technologies work and introduces a whole range of new products and solutions. The central aim of this elaborate show is to make processes visible, tangible and perceptible. With an area of a good 500 m^2 , the GrindTec FACTORY is sure to be one of the highlights in **Hall 7**.

GrindTec INNOVATION

Another new feature is the GrindTec INNOVATION theme world, the industry's new digital platform. Since the middle of the year, experts from all over the world have had the opportunity to inform themselves and exchange ideas outside of the trade fair years. Whether via the social media channels on LinkedIn and Facebook or the Innovation Blog: with the new digital offering, grinding technology professionals will not miss out on any innovations and trends. The highlight every two years is the presentation of an innovation award at the world's leading trade fair for grinding technology in Augsburg. Current participants include: GDS, ISBE, Zoller, S-Techplus.

The GrindTec FORUM with its competent



lectures on the hot topics of the industry has been there from the very beginning. The competition "Tool Grinder of the Year" was added a little later. Leading companies in the industry have always made a significant contribution as sponsors so that this demanding competition could be held by the trade magazine FERTIGUNG from mi.connect. This GrindTec CHALLENGE will also take place again in 2022, this time supported by Schneeberger Maschinenfabrik. In addition to the competition, there will also be a GrindTec Innovation Award initiated by the FDPW for the first time in 2022.

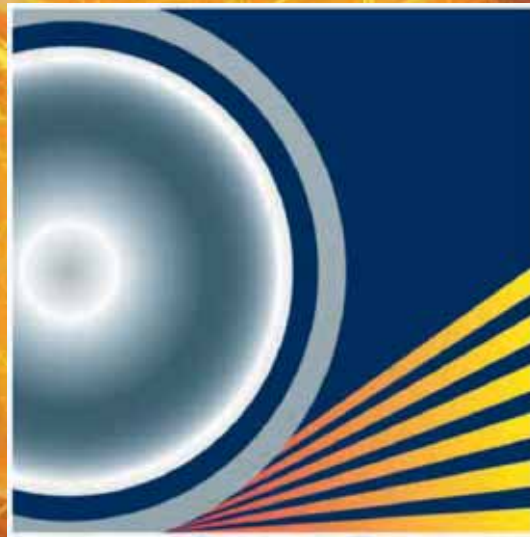
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Tel: 0049 821 589 82143

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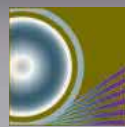
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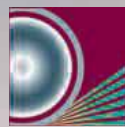
GrindTec
FACTORY



GrindTec
CAMPUS



GrindTec
CHALLENGE



GrindTec
START-UP



GrindTec
INNOVATION

Discover and experience the new worlds of topics of GrindTec 2022

www.grindtec.de

Diamond pastes and spray provide the cutting edge

LACH DIAMANT is naturally delighted for all athletes who achieved the qualification for the Olympic Winter Games. Through sponsorship with LACH DIAMANT pastes and »MF« diamond spray, it has developed a relationship with many athletes and in particular with Felix Rijnhen.

Not only is he a successful ice speed skater, but also the winner of numerous international roller blade races (Inline-Cups), for example in 2018 the gold medal in the marathon of the European Championship in Zandvoorde, Belgium and the winner of the 46th BMW-Berlin-Marathon in 2019.

LACH DIAMANT pastes and »MF« diamond spray are much in demand from winter sport athletes for the final finish of their skate, bobsleigh and sledge skids. The applied or sprayed micro-finish of the special diamond grit can be decisive for the successful outcome of the race in the last centimetres from the finish line.

Not only do winter sport athletes appreciate the spray-easy application of the



As an example Felix Rijnhen in the Olympic team

coveted »MF« diamond spray on their steel skids, for decades also tool and mouldmakers have been using it for fast lapping and polishing.

LACH DIAMANT offers diamond grits from 1/4 to 90 µ from quick surface removals to ultrafine polishes. It is also available as diamond paste filled in syringes for more intensive working on small surfaces.

For more information on the complete range of LACH diamond and CBN tools, contact:



Diamond paste conventionally filled in syringes

LACH DIAMANT
Jakob Lach GmbH & Co. KG
Tel: 0049 6181 103822
Email: office@lach-diamant.de
www.lach-diamant.de

HALL 1 - STAND 1069

Swiss precision

At GrindTec, SCHNEEBERGER Maschinen AG will present its innovative range of machines, software, fast robotics and finest mechanical engineering in the field of tool and component grinding.

The new NGx machine generation is complete. Five basic types complement each other in terms of machine size, grinding power and variety of options. They all have in common an optimised structural rigidity, yet a sporty weight for dynamic applications. Each machine comes with a T-slot table, which accommodates numerous options, dresser, tailstock and steady rest can be configured individually.

The latest release of the Qg1 CAD/CAM software includes prismatic and rotary thread rolling tools, a new design approach for drill-flutes and new methods for the combination of standard tools with profile and STEP elements.

The Toogle tool database comes with a number of interesting samples for each application group. Standard tools are listed very comprehensively, so that a new grinding task can usually be solved by automatically searching for similar tools and interpolating specific dimensions. With each



individually adapted or completely new created tool, the personal database grows. Toogle guarantees a perfect order and organisation of virtual tool cabinets.

Grinding professionals will be delighted by new features such as the import of 3D-STEP models or grinding path optimisation down to the detail. All this is possible thanks to consistent programming, based on geometric 3D models.

GrindTec visitors can experience the Qg1 large range of software features and unique user-friendliness. A super large touch screen is available, with grinding experts from SCHNEEBERGER will there to answer questions.

SCHNEEBERGER grinders' connectivity brings production close to the ideals of Industry 4.0. All six machines shown on the SCHNEEBERGER booth will be connected. It is demonstrated how easily machine status



and achieved productivity can be checked online, via smartphone browser or by notification via various channels.

J SCHNEEBERGER AG is a Swiss, family-run business devoted to grinding. Since Walter Scheeberger founded the company in Roggwil in 1923, it has worked with great consistency and success on creating added value for its customers. Today, customers are located in practically every developed country in the world.

J. SCHNEEBERGER Maschinen AG
Tel: 0041 62918 4400
Email: info@schneeberger.swiss
www.schneeberger.swiss

HALL 3 - STAND 3096

HAAS.

FUTURE NOW!

Welcome to the machine.



The new Multigrind® Radical:
The game changer for all tool grinders.

Haas Schleifmaschinen GmbH
www.multigrind.com

Visit us:
GrindTec | 15.03.-18.03.2022
Hall 7, Booth 7014

Welcome to the machine

The new Multigrind® Radical: the game changer for all tool grinders

Only someone who is completely convinced of his new tool grinding machine is that confident when he speaks. Dirk Wember, managing director of Haas Schleifmaschinen in Trossingen, Germany has revealed some interesting details about the new high-tech tool grinding machine: "With the new Multigrind Radical, we're making an offer to the industry to change the way we've been working and enter the future of tool grinding.

"Customers have been asking for years for us to develop a high-tech grinding machine that is focused consequently on tool grinding. Until now, the Multigrind® CU was available in the portfolio. However, this high-tech solution was intended for complex tools and not explicitly for fast, simple series production. For many customers, the universal grinding machine was simply too versatile. On our Multigrind CU, we now grind extremely complex free-form shapes, including medical products or gears. Of course, it is also possible to grind the absolutely perfect profile insert, or the perfect tap on this machine."

The requirements for the production of precision tools have grown significantly in recent years. The buzzwords here are: more precise tools, just-in-time production, lower quantities, very small batches from batch size 1 to 100, chaotic assembly and faster production. This significantly increases competitive pressure and requires greater flexibility in tool grinding with minimal non-productive time. A perfect fit for a



high-tech machine concept that leaves the beaten track behind.

The designers and software developers at Haas Schleifmaschinen have said goodbye to all existing solutions on the market and have radically rethought their tool grinding machine and then realised it rigorously. Since the end of last year, there have been repeated indications that Haas Schleifmaschinen has developed a promising machine and expectations among tool grinders are correspondingly high.

"Anyone who knows Haas Schleifmaschinen, knows we only develop something new if we can radically improve what we already have," continues Dirk Wember. "Better doesn't just mean faster, easier, more flexible, more economical and more precise than comparable tool grinding machines. At the end of the day, these are just results. We want to transform tool manufacturing with our Multigrind Radical, so it's not about better, we're starting a change. Of course, this is not done with one machine alone. We have developed the basics for the game changer in our own software department. The perfect choreography between software and hardware is crucial and we have succeeded excellently in this."

Haas Schleifmaschinen is not a traditional grinding machine manufacturer. For around 30 years, the high-tech machines have been operated using the company's own Multigrind® Horizon software. New applications and updates are constantly being added to increase both productivity and precision. With the innovative Multigrind® Styx visualisation software, grinding processes are optimised before production starts. At Haas Schleifmaschinen, software developers meet machine experts and customer experts meet an ambitious management team. This is what makes technology leaders work and creates the best conditions for a comprehensive range of solutions.

Cutters, inserts, drills; all on one tool grinding machine

The Multigrind Radical is an "all in one" machine, but not a universal grinding machine. It was explicitly developed for the future of tool grinding. According to Dirk Wember, there are no limits to this. Maximum precision for both rotary and plate tools means that all customer requirements can be produced extremely flexibly on just one tool grinding machine in the future. Milling cutters, inserts and drills are ground via a chaotic loading system as required, in large quantities or as very small series from batch size 1 to 1000.

On a small scale but very big

The Multigrind Radical bridges the gap between opposites: The new tool grinding



machine is on the one hand maximally equipped and yet radically reduced. It stands rock-solid on a minimal footprint and is ideally suited for a low hall height. The machine bed is inherently rigid and made of mineral casting. This makes the new Multigrind Radical a super productive production cluster with very low space requirements. Large production volumes and mixed jobs can be handled simultaneously with several Multigrind Radicals extremely quickly and efficiently.

According to Dirk Wember, the Multigrind Radical is radically fast and very efficient. Best times for both tool change and wheel change have been announced. The parallel tool and grinding wheel change saves additional time. Apart from this, non-productive times are consistently reduced. The announced increase in productivity will set new standards. The new machine will also be very easy to handle.

A new innovative operating concept is also set to provide a surprise. The manufacturer is talking here about decoupling operation from the machine. According to Haas Schleifmaschinen, the machine operator is mobile and always up to date everywhere. Fully automated, unmanned series production becomes the production standard with the Multigrind Radical. Haas is also going its own way with its operating concept and here, too, two opposites are combined: freedom and maximum control.

The software developers have done a great job. The very fast integration into the production succeeds without much programming effort. Production start immediately and without loss of time. Haas Schleifmaschinen promises no lengthy training during setup and operation. Programming is simple and makes very fast production changes possible. What's more, Haas precision is uncompromising. With the Multigrind Radical, there is no compromise on value, quality and precision. "This is our brand essence, we make no compromises here." emphasises Dirk Wember.

Incorporating Multigrind Horizon software, the Multigrind Radical is immediately ready for production. Parameterisation, templates and ERP information form the data basis. No control is necessary. Just provide parts and start. Here we are looking forward to the first demonstrations. Interested parties who have registered on the website will be the first to see it.

"Cloudgrinding" is another buzzword behind which real added value is hidden. The machine control is located in the customer's corporate network, the added value comes from the cloud. Additional performance service, current updates, physical information, safety instructions, process parameters can be easily retrieved from the cloud on request. So all additional information is available without time delay. Secure, certified and pay per use. In other

words, only when the added value is actually needed.

Dirk Wember concludes: the price for this game changer has probably already been set. Mr. Wember comments: "This will definitely not be a barrier. We offer maximum benefit, with a really low investment and significantly lower costs in ongoing operation. The Multigrind Radical pays for itself immediately."

It will still take a few weeks until the official market launch, but the Multigrind Radical will definitely be a topic at the leading trade fair GrindTec. After two fancy trade shows, many visitors will ask themselves the question: "where is our industry heading in the future?" A visit to the Haas booth will probably be a mandatory part of the program in this context.

Those who are already interested in the new tool grinding machine can register at www.multigrind.com and will no longer miss an update.

Haas Schleifmaschinen GmbH
Tel: 0049 7425 33710
Email: info@multigrind.com

HALL 7 - STAND 7014



Latest trends in grinding and tool grinding technology

GrindingHub in Stuttgart will showcase current industry developments

The first ever GrindingHub will be held in Stuttgart from 17 to 20 May 2022: the new leading trade fair and the new centre for grinding technology. It is scheduled to be run every two years by the VDW (German Machine Tool Builders' Association), Frankfurt am Main, in cooperation with Messe Stuttgart and the Swiss association of mechanical and electrical engineering industries as institutional patron. Grinding is one of the top four manufacturing processes within the machine tool industry in Germany. In 2020, the sector produced machines to the value of 870 million euros. Almost 80 percent were exported, with about half going to Europe. The largest sales markets are China, the USA and France. Germany, Japan and Switzerland head the list of top global producers. The grinding technology sector produced 4.9 billion euros worth of machines in 2019.

e-mobility, digitalisation and automation

These are just some of the key trends in the grinding technology sector at present. Research experts and the companies exhibiting at the new GrindingHub trade



Liebherr Verzahnstechnik

show will be providing insights into the latest technologies and processes in this rapidly developing industry.

e-mobility is bringing about a change in the entire powertrain in cars. Gear parts must be ever lighter and increasingly precise and robust. Liebherr-Verzahnstechnik GmbH has been taking a very close look at the requirements of e-mobility. Flank line modification methods are used to minimise noise and optimise load capacities. Here, generating grinding with dressing-free CBN grinding worms can represent an economical alternative to corundum worms. The process is reliable, ensures long tool life and significantly reduces the amount of time and effort required for measuring and testing.

The grinding process and clamping equipment for the production of finely worked e-bike transmission parts must be fast and precise. Using special clamping solutions, even small and collision-critical components can be machined without any problems. The exclusive Liebherr machine concept with single-table helps achieve optimum concentricity and high reproducibility in the production of parts with quality requirements in the micrometer range. The choice of process ultimately depends on the specific requirements. Liebherr can test all process parameters using its own machines. "Often there is no right or wrong," explains Dr Andreas Mehr, an expert in gear grinding. "As a partner and solution provider, we advise customers and show them alternatives, allowing them to make the best decision. That's precisely what we'll be doing at GrindingHub 2022."

Although the design of transmissions in electric cars is simpler than that of conventional internal combustion engines, it places far higher demands on the manufacturing accuracy of the gears. Electric motors must deliver constant torque over a wide speed range at rotation speeds of up to 16,000 rpm. There is also another condition, as Friedrich Wölfel, head of machine sales at Kapp Niles points out: "Internal combustion engines mask transmission noise. Electric motors, on the



Kapp Niles - generating grinding process

other hand, are virtually silent. At speeds of 80 km/h and above, rolling and wind noise are the dominant factors, regardless of the powertrain. In the range below that, however, transmission noise can become annoyingly noticeable in electric vehicles."

The fine machining of these components therefore requires the use of a generating grinding process that is both productive and, above all, optimised in terms of the noise behaviour of the ground gear teeth. It is crucial to avoid so-called "ghost frequencies" which can be caused during component grinding as the result of an unfavourable machine and process design.

It takes much less time to grind gears than to take control measurements. This makes it impossible to inspect 100 percent of all components. The best approach, therefore, is to detect possible defects during the grinding process itself. Process monitoring is crucial here. "Numerous sensors and measuring systems that provide us with a wealth of signals and information are already built into the machines," explains Achim Stegner, head of predevelopment. "We use these to assess the machining process and the expected quality level of each gear in real time in the gear grinding machines themselves."

For further information, visit www.grindinghub.de

VDW (German Machine Tool Builders' Association)
Tel: 0049 69 75608122
Email: g.kneifel@vdw.de
www.vdw.de

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 **SWISSMEM**

New advanced technologies for surface finishing aerospace components

While some hand finishing may still have a niche, most aerospace component manufacturers have transitioned to automated systems for their speed, accuracy and consistency. However, there are still some challenges not addressed adequately by the technology, such as finishing larger parts typical in aerospace and additively manufactured parts with fine holes, deep undercuts, and support structures.

To get around these difficulties, manufacturers have improvised between costly hand processes using powered tools, standard vibratory machines, or robotised powered tools, with all the disadvantages that they bring. If an improvised solution has not been possible, then pragmatic compromise is often the only option, redesigning the component to suit the post processing techniques.

Fintek outlines new surface finishing processes that will consign improvisation and compromise to history. Aerospace part designers will be able realise their concepts with the confidence that the new post processing methods will provide the required surface finish quality, do it quickly, consistently across areas (internally and externally) and cost effectively.

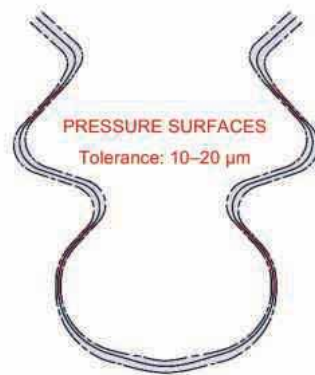
Large part finishing

Last year OTEC launched its SF-HP stream finishing machines for large workpieces up to 650 mm in diameter and weighing up to 200 kg. The machine builds on the success of its well-established stream finishing technology and meets the demand from the aerospace engineering industry for the automated finishing of turbine and compressor blades, turbine blade roots, blisks, servo valves, gear wheels, ball screw nuts and landing gear components. The SF-HP provides huge machining forces of up to nine tonnes, removing material precisely and quickly. Depending on the part size and initial preparation they can produce a radius of up to 700 μm in 15 minutes. Fine media granules make them suitable for complex shapes with difficult-to-reach surfaces.

In a real-life comparison, an aero-engine manufacturer worked with OTEC to test two different finishing technologies to improve



An illustration of a compressor disc fir-tree mounting slots for the assemble of turbine blades



A diagram showing the tolerances of pressure surfaces in the fir-tree slots

the finishing of fir-tree slots and turbine blade roots. The first method was a traditional round vibratory trough, the other was using the new SF-HP.

Fir-tree mounting slots are where turbine blades are inserted and held in place on a turbine or compressor disc. As always, safety is paramount in aerospace engineering so flawless assembly is vital. The slots are usually made by broaching, wire cutting or milling, and each of these result in unwanted burrs and sharp edges that compromise the component's integrity. Removing burrs and sharp edges requires absolute precision as the pressure surfaces where the turbine blades contact the slots and roots have a tolerance of 10-20 μm .

Hand finishing with power tools to these tolerances is near impossible. Robotic deburring and rounding with grinding wheels and brushes also struggle. Sharp edges can slice through brush tips leading to surface variation and contamination. Grinding wheels tend to remove material unevenly and robot movements have to compensate for this. Trying to fine-tune for

difficult to reach areas often leads to more inconsistency, increasing costly reject rates.

To find a better method, the first machine put to the test was the round vibratory trough. Even after several hours of processing time, edge breaks on the compressor disc fir-tree mounting slots did not fall within the required tolerance range. Edge rounding was not symmetrical and difficult to reproduce consistently. Noise and vibration also had an undesirable impact on nearby sensitive measuring equipment.

Processing in the OTEC stream finishing machine proved much more successful from the first go. The SF-HP allows the component to be angled precisely so as it flows through the media all surface areas are contacted by the media such that edge breaks were within tolerance in just 15 minutes. Edge rounding was found to be symmetrical along the full edge. Repeating the process demonstrated that these results could be achieved consistently with a shape variation of less than 1 μm . Furthermore, low noise and vibration meant sensitive measuring devices were unaffected.

Time saving, consistency, repeatability, less risk of contamination, multiplied by the number of compressor discs in an aero-engine, means the SF-HP represents astonishingly good value for manufacturers wanting to surface finish larger parts.

Surface finishing complex additively manufactured parts

There is no doubt that 3D printing metal is revolutionising engineering. Aerospace continues to be at the forefront of deploying and testing the limits of this technology. Post processing additively manufactured



Loading an OTEC SF-HP, bringing the company's stream finishing technology to larger aerospace parts and more

parts, however, has been more challenging. Complex shapes, with ever finer holes and deep cavities, means the cost of post processing is significant and can be a determining factor in deciding if a part is commercially viable or not.

In order to help solve this problem, Fintek have become exclusive UK agents for RENA Technologies Austria GmbH new H-series range of machines that use its patented Hirtisation® process for the reliable finishing of 3D printed metal parts. The company recently took delivery of the first machine ever to be deployed in the UK.

The Hirtisation process effectively removes support structures and powder cake but goes further by reducing the surface roughness of metal parts

manufactured by 3D printing. The process is suitable for all common metals and alloys and all types of additive manufacturing technology such as Selective Laser Melting (SLM), Direct Metal Laser Sintering (DMLS) and Electron Beam Melting (EBM).

Importantly, the fully automated chemical-electrochemical process reaches into deep cavities, undercuts, fine holes and other design intricacies common in many AM parts. These are usually impossible to reach by manual or other mechanical methods. Along with the support structures, partially melted grains and residues are easily and quickly removed. As there is no harsh mechanical processing, the smoothing effect does not compromise the precision of important edge profiles.

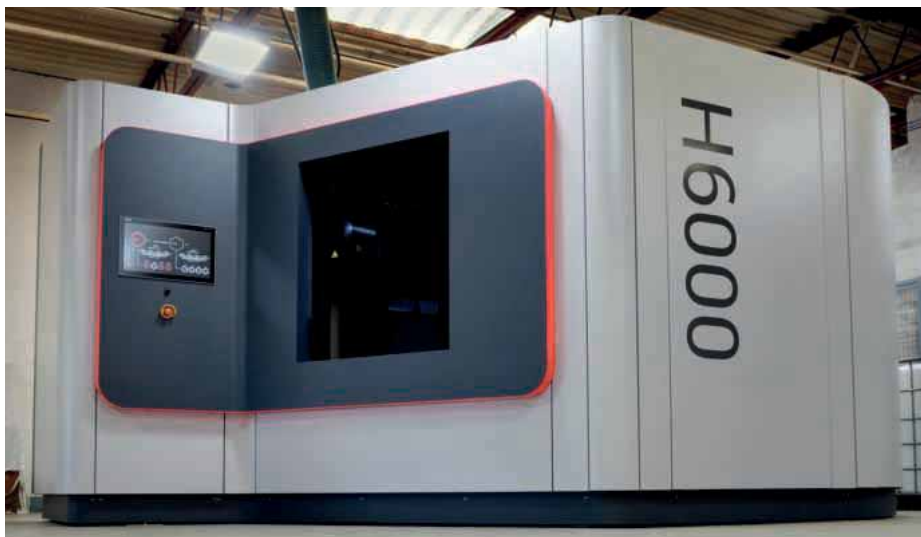
Printed metal parts leave the machine clean and vacuum dried in ready for further finishing processes such as protective coatings. Cycle times are short, from just 30 minutes depending on part size and target quality. H-series machines are easy to operate, requiring the minimum of training for personnel, even if they have little or no surface finishing experience. Designed to scale-up to any metal 3D printing operation, all process chemicals are fully integrated and can be safely refilled.

Available in three versions, the H3000 entry level is ideal for part sizes up to 300 x 300 x 150 mm and can handle the part feed from up to three AM-printers. The H6000 takes parts up to 500 x 500 x 350 mm and can handle the part feed from up to four AM-printers at a rate of up to 100 parts per hour. The H12000 is designed to integrate seamlessly into larger additive manufacturing processes and can handle the part feed from up to 25 AM-printers using four different materials at once. It also has a parallel post processing capability of up to 500 parts per hour.

Fintek operations manager, Jamie Phillips comments: "Achieving a commercially viable surface finish on additively manufactured metal parts has prevented the adoption of the technology for many aerospace applications. The Hirtisation process removes this barrier and we also



An additive part with support structures, before and after Hirtisation



Fintek is the first UK company to take delivery of a RENA H6000 and is providing a subcontract finishing service to additive part manufacturers as well as being exclusive agents for UK machine sales

have the capability with the OTEC range of high energy stream finishing systems to take external surface roughness down to Ra values of 0.01 µm. So whether a aerospace manufacturer wants a machine for inline production or to make use of our subcontract services, we can develop a cost effective post processing method for their part."

Fintek
Tel: 01706 283927
Email: jamie@fintek.co.uk
www.fintek.co.uk

MACH is poised to be the go-to event in 2022

Heading into 2022, the UK's manufacturing and engineering community has every reason to be confident. Government forecasts suggest UK growth of 6.0 percent while the incentive of 130 percent, capital allowances are in place on qualifying plant and machinery investments. Add in the COP26 global summit focussing attention on the importance of tackling climate change and 2022 is set to be a momentous year. There has therefore never been a better time for visitors to attend MACH and the new Engineering Supply Chain show to take advantage of these opportunities.

Organised by the industry, for the industry

MACH 2022 is the UK's national event for inspiring, innovating and connecting manufacturing and will take place 4-8th April 2022 at the NEC, Birmingham. Organised by the industry, for the industry, MACH is owned by the Manufacturing Technologies Association (MTA), a not-for-profit organisation. The Engineering Supply Chain will launch alongside MACH, taking place 5-7th April 2022 and is the destination of choice for engineering and manufacturing buyers looking to find world-class suppliers, exclusively in the UK engineering and manufacturing supply chain.

The 2022 events are designed to not just be a showcase for the manufacturing technologies sector, but a celebration of the manufacturing industry at its best. The development of the digital factory, new automation solutions and connected manufacturing processes, power by the hour and cost-efficiency solutions will dramatically improve production processes and help shape the industry over the next decade.

Chief executive officer at the MTA, James Selka explains: "There has been talk in the national media and beyond recently



about the challenges facing the manufacturing industry, much of it ill-informed and spouted by those without any real knowledge of what these challenges truly are.

"The Manufacturing Technologies Association is different. Why? Because we are the industry. We are owned by the industry and we talk regularly to our members to develop a true understanding of the issues facing them and what steps are needed to create the conditions under which they can thrive and add value as an important wealth-creating component of British industry."

He continues: "Unlike other commercial multi-sector organisations, the manufacturing technologies industry is in our DNA. For this reason, MACH is not just another manufacturing industry exhibition, it is the national manufacturing and engineering industry exhibition. We are staged for manufacturers by manufacturers; our members, our Board and most importantly in this context, our exhibition committee, all work to ensure we reflect the industry's true needs and offer show content that is relevant and value-enhancing."

Green manufacturing

James Fudge, head of operations at the MTA, outlines why MACH is the place to go for manufacturers looking to develop a sustainable, competitive advantage: "With the COP26 global summit focussing attention on the importance of tackling climate change, the green agenda has never been more relevant to UK manufacturers.

Manufacturers have a key role to play in helping to achieve the goals outlined by the Glasgow summit, which is why there will be a strong focus on the opportunities presented by decarbonisation during MACH 2022."

"The exhibition will have a strong emphasis on developing sustainable energy solutions, carbon reduction technology and much more. The desire to achieve sustainable manufacturing processes is now within our grasp and the latest engineering and manufacturing technologies are massively contributing to the 'greening up' of the industry. We stand at the threshold of a new era for green manufacturing with the processes required to achieve sustainability no longer a dream, but a reality. The opportunities this creates for the manufacturing technologies industry is immense."

Companies exhibiting at MACH 2022 will be demonstrating why the effective use of technology will be critical in achieving the low carbon agenda and how this will provide a competitive edge for UK manufacturing.

James Selka concludes: "There have never been more reasons for UK manufacturers to be confident. We no longer have to imagine how we are going to do this, the ability to achieve this lies in our own hands."

Visitors can now register for their entrance pass via the MACH website -

www.machexhibition.com/visit/visit-mach-2022-em

Further information about the MTA and its members can be found at www.mta.org.uk





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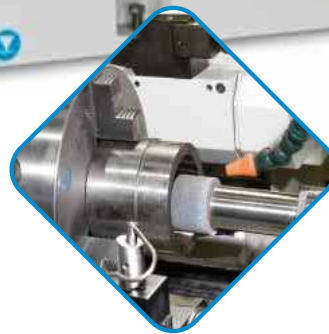
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Advanced Grinding Solutions at MACH

Advanced Grinding Solutions (AGS) has booked one of its biggest ever stands of 100 sq m at the forthcoming MACH show with all of the machines receiving UK debuts on the stand. None of these machines have been exhibited here before and therefore many UK engineers will be getting their first opportunity to see this wide range of advanced grinding and finishing machinery.

AGS is showing the new Rollomatic 660XW GrindSmart multi-axis tool grinding machine: the first machine of several sold into the UK having been purchased by a leading UK cutting tool manufacturer.

The unique hybrid design of this latest Rollomatic machine combines, for the first time, the power and performance of a blank prep cylindrical grinder with the flexibility of a multi-axis tool grinder to allow for all machining operations to be carried in one single automatic operation on the same machine and in one



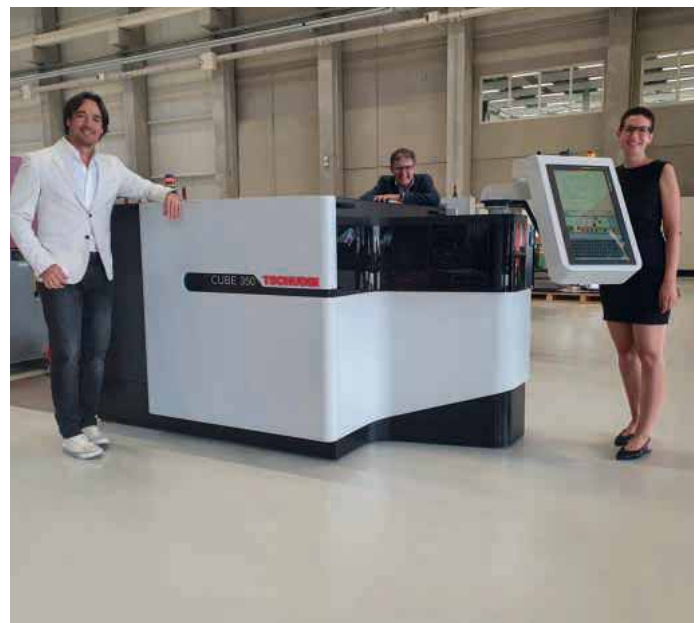
Rollomatic's 660XW machine in action

clamping. Therefore, for the very first-time cutting tools may be machined complete in a highly efficient single grinding process. The use of this technology also brings dramatic gains in production efficiency for tool manufacturers and the savings made are enormous because lengthy set ups on multiple machines are avoided all together, and the handling and storage of partly finished tools between machines is also negated completely. Typical production efficiency from the traditional multi machine production method for standard end mills is in the region of 11 percent, but this is increased to some 82 percent on the Rollomatic 660XW machine. There are also large savings in manpower as the number of different machine types needed is greatly reduced. This is a totally new design of grinding machine that despite combining all necessary grinding operations actually has a smaller footprint than standard tool grinding machines that do not have a true cylindrical grinding capability. Like all Rollomatics it is also an extremely accurate machine that is easily capable of holding tight tolerances of just 2 µm on tool runout across large batches of tools and as with all Rollomatic grinding machines comes with the industry leading three years unlimited hours parts and labour warranty.

Also on display for the first time in the UK is the latest Tschudin Cube centreless grinding machine. The Tschudin Cube machine benefits from a highly radical design that sets it apart from all other centreless grinding machines as was acknowledged by it winning the prestigious Red Dot Design Award.

The Tschudin Cube machine enables users to achieve significant productivity gains and the machines particularly quick and flexible changeover times help to minimise machine downtime. What sets the Cube machine apart in particular is its very small size and radical open design for easy access. Users only need access to the rear of the machine to perform maintenance and servicing tasks, which means that several machines can be positioned together without any gaps. The grinder can be manually loaded in a very safe and ergonomic way outside of the grinding zone. The Cube uses Tschudin's patented W-axis, which has the workrest blade mounted onto its own CNC axis allowing parts to be loaded to it outside of the grinding area making loading efficient, fast, and very safe.

Traditional centreless grinding machines require parts to be loaded to a fixed workrest blade that sits inside of the machine between the grinding wheel and control wheel making loading difficult, more expensive, and sometimes unsafe. This also makes changeovers more complex and therefore lengthier. The Tschudin machine overcomes all of these issues and claims to be the world



Tschudins Cube centreless grinding machine

easiest and fastest centreless grinding machine to set up, as the grinding and control wheel can be changed in only around six minutes. AGS has sold this highly advanced Tschudin grinding machine to Hydraulic Projects Ltd of Dawlish; a specialist manufacturer of very high precision hydraulic control valves and pumps. This is part of a large investment in new machinery as Hy-Pro, a family company founded in 1966, looks to expand further and to increase its manufacturing capabilities at its base in Devon.

Receiving its UK debut and exhibiting here for the first time ever is Comat with their C-120 filtration system. Comat Superfiltration systems are engineered to filter neat cutting oil to 2-3 microns (with a classification NAS 1638 – ISO 4406 better than new oil), whilst constantly maintaining a stable temperature (+/- 0.2 degrees), without compromising filtration or flow rates so to ensure maximum

consistency over time. Comat Superfiltration systems minimise the running costs to obtain the lowest cost per litre of oil filtered. The C120 is the latest generation of compact Superfiltration systems designed to manage a single machine tool and is able to filter any type of contaminant (hard metal, high speed steel, medical steel, ceramic, brass) as well as guarantee intelligent performance including energy saving and process optimisation by remote monitoring from Comat's headquarters near Milan to ensure systems are always delivery peak performance.



COMAT C120 SuperFiltration system

FLP fine grinding, lapping and polishing machines are represented by the new FLP380 single-sided lapping machine. The broad range of FLP machines also includes twin wheel, double sided CNC lapping/fine grinding machines and visitors to the AGS stand are invited to attend to discuss their requirements for the face grinding of components.

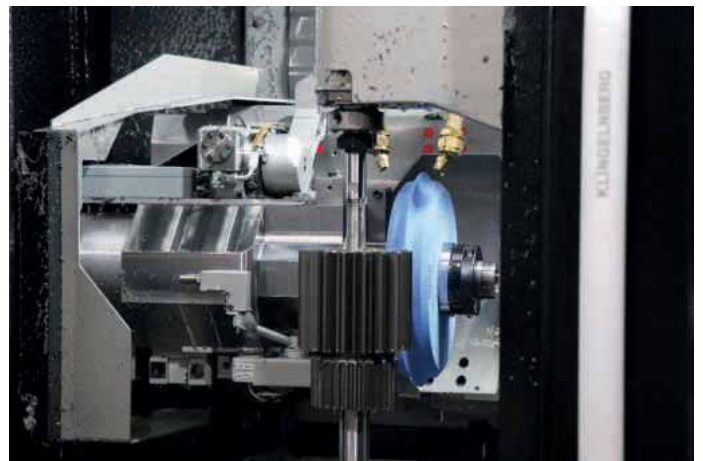
FLP Double Disc or twin wheel machines have seven machines in the range offering a working disc diameter of between 540 and



Parts being loaded to an FLP machine

1,300 mm. These can all be offered with full automation via linear or robotic solutions, and weigh between 7 and 16 tonnes. These advanced machines are offered as high-precision versions with granite machine beds and the latest machine controls, drives and measurement technology. FLP machines are in use across many branches of engineering including automotive, aerospace, bearings, optics and ceramics. FLP machines ensure that components are produced to the closest possible tolerances and at the highest production rates. Operator friendly simple machine operation is ensured as is the lowest cost per machined component.

Specialists from Krebs & Riedel will be present on the AGS stand to discuss all grinding applications and the best use of their range of internal and external grinding wheels. Krebs & Riedel manufactures high quality conventional, diamond and CBN abrasives and are



Krebs grinding wheel on a Klingelnberg gear grinder

constantly introducing new types of wheels with improved grain structures and novel bonding systems that enhance grinding wheel quality and optimise performance.

Companies involved in grinding are invited to meet the Krebs & Riedel specialists and to discuss their grinding issues and aims to improve their grinding processes. Apart from offering high stock removal rates to improve cycle times, combined with more consistent part quality by avoiding micro-cracks in the surface of sensitive parts, another large benefit of using Krebs wheels lies in large cost savings made possible by reducing wheel dressing requirements. This has the three major advantages of lower wheel waste due to less dressing, faster cycle times as wheels can be kept grinding longer in between dressing them, and also a reduced spend on expensive diamond rollers. Krebs and Riedel are developing new wheels all the time and those are added to the existing collection of over 60,000 different wheel types that are available.

The range of grinding and finishing machinery receiving its UK debut can all be seen on the AGS stand at MACH. For further information, contact:

Advanced Grinding Solutions

Tel: 024 76 226611

Email: sales@advancedgrindingsolutions.co.uk

www.advancedgrindingsolutions.co.uk

Hall 17 - Stand 320

Grinding and turning take centre stage for RK International

RK International Machine Tools will focus attention on its extensive grinding machine portfolio and the recently introduced EUROPA eturn VS range of manual lathes at MACH 2022. In total, seven machines will be on display with all but one under power. Grinding machines shown come from its long-term supplying partners Robbi, Perfect, Delta, and Jainnher; covering all aspects of abrasive machining through universal grinding, surface grinding, vertical spindle rotary table grinding and centreless grinding. Those looking for manual turning will be able to see and discuss the EUROPA eturn VS range represented at MACH 2022 by the mid-range VS390 gap bed lathe.

There will be two machines on show from Italian manufacturer Robbi, the Robbi Omicron 1000R conventional universal grinder and the company's latest development, the Robbi Omicron T7 PLC universal grinder. The Omicron 1000R is the smallest in the R-series with a between centre distance of 1,000 mm (600 mm available on the smallest R Series model). Delivering high standards of precision, with roundness of 0,8 micron and cylindricity from 2 to 6 micron, its versatility and flexibility also make it ideal for small batch production. The Omicron conventional universal grinder is also the only western European produced machine of this type. The second machine from the Omicron T7 PLC features the latest version of the company's control system with touch screen interaction allowing ease of programming for operations such as wheelhead and table positioning; multiple diameters in the same cycle; semi-automatic grinding cycles, with auto stop of the wheel feed once the programmed diameter has been reached;



Robbi Omicron grinders are renowned for its build quality and accuracy

automatic wheel dressing cycle with compensation of grinding dimensions; plus numerous other time-saving features.

The Perfect range of grinders will be represented by the new PFG-3060DT, a new to market range of touchscreen controlled surface grinders. With a table size of 300 by 600 mm, spindle centre to table distance of 500 mm and a 300 kg maximum table load, the PFG-3060DT is a highly capable machine whose performance is enhanced by the use of a CP4 high-precision spindle and a fully-supported rail design for added precision and stability. The easy to use control features multi-function grinding and dressing programs developed by Perfect to



The latest Perfect DT-series will be represented by the PFG-3060DT along with the Perfect PFG-400R

deliver optimum performance and grind quality. The Perfect PFG-400R rotary table surface grinder is representing the company's R series of horizontal spindle, rotary table models. Often referred to as a ring grinder, the spindle is a class P4 high precision angular contact bearing unit, giving run-out accuracy of 2µm. Thanks to the spindle being a cartridge-type it is completely sealed and lubricated for extended service life. The PERFECT PFG-400R surface grinders on show will also feature full machine enclosure, a requirement that more and more UK customers are expecting from a grinding machine.

Representing the Delta range will be the LC500 vertical spindle, rotary table surface grinder. The LC500 can grind up to 500 mm diameter and up to 205 mm in height. While a manual machine as standard the LC500 can be equipped with Delta's L11E



The Delta LC 400 will be shown at MACH 2022

automation system. This system allows micron-level feed increments to the vertical axis. Additional features include canned cycles to automate certain functions such as material to removed, increment (min. 0.001 mm), number of spark arrestors, number of table revs per increment. Once the cycle is complete the wheelhead is retracted and the machine comes to a complete stop ready for part unloading.

Centreless grinding is represented by the Jainnher JHC12S machine. This machine allows through-feed and plunge grinding of components measuring up to 40mm diameter while holding micron level accuracies. Further enhancements to the grinding performance come from the servo motor driven regulating wheel which provides perfect control of linear speeds for optimum grinding results. This kind of performance has already made the JHC12S popular with a number of UK customers.

For more information, contact:

RK International Machine Tools Ltd
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Hall 20 - Stand 265

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Five good reasons to visit ActOn Finishing

ActOn Finishing Ltd will be exhibiting its full range of surface finishing products at MACH 2022. The Coventry-based finishing expert will showcase some of the latest technologically advanced finishing systems, including different types of vibratory finishing machines, the centrifugal disc finishing machine, the DLyte electropolishing system, shot blasting cabinets, waste water treatment solutions and finishing consumables.

New wet blasting cabinet

At the start of this year ActOn has launched the AWB-1100 wet blasting cabinet. This is an economical option for wet blasting, built to offer the extra benefits and features of a premium wet blasting cabinet. The AWB-1100 is ergonomically designed for easy operation in sitting or standing position, for cleaning, descaling, deburring, roughening, oil or grease removal, die cleaning. This machine is suitable for blasting with all kinds of inert abrasives. At MACH exhibition visitors will be able to see and test this new shot blasting cabinet.



MADE IN BRITAIN

Single Portable Unit

With more than 50 years of experience in surface finishing, ActOn team knows the importance of offering solutions that will benefit the manufacturing industry by reducing processing times and producing a repeatable and quality product. With this in mind the SPU-1 vibratory finishing system was developed. This Single Portable Unit is ideally suited for small batch works and delicate components. SPU-1 is perfect for deburring, descaling, degreasing, cleaning,

smoothing, radiusing, polishing and drying. This is both an excellent and economical finishing option.

This space-saving machine complements ActOn Finishing's range of vibratory surface finishing systems. The design of the SPU-1 finishing system integrates a VB1S vibratory bowl machine for wet processes and a VBD1S dryer for polishing and drying applications. Simply insert the parts in the VB1S machine and then process these with a specially formulated media and compound.

Once the wet finishing process is completed, the parts are then transferred into the VBD1S machine in the preheated work chamber to be dried. The dust free agro product, used in the VBD1S, is an excellent moisture absorbent media which also produces a stain free polished effect on parts. Components are then unloaded from the machine via the separation screen.

DLyte electropolishing technology

The DLyte machine combines grinding and polishing in a one-step process to produce smooth and shiny finished parts. It is used for metal parts which require high performance or superior finishes, including steel and stainless-steel, cobalt chrome, titanium, nickel and other common metal alloys. This machine uses Dry Lyte, a new patented technology by GPAINNOVA, for surface finishing metals by ion transport using free solid bodies.

The finishing machine can polish complex parts without programming, producing a high-quality finish without leaving grinding

patterns and micro-scratches. It provides fully automatic polishing to a mirror finish in one step, and reaches every corner of the piece which cannot be accessed mechanically. Grinding and polishing of metal parts is an important process step for removing the defects in components, following the initial manufacturing process. It is especially important for high-precision engineering applications such as those within the medical, automotive and aeronautics industries, where surface quality is essential.

DLyte is suitable for finishing anything from surgical instruments, industrial moulds and blades to engine parts, fuel injectors and guide vanes. It achieves an Ra of under 0.09 micrometres as well as offering controlled costs and predictable lead times

Consumables for a wide range of finishing requirements

From ceramic media, plastic media, shot blasting and peening media, agro and pre-treated media, burnishing media to liquid compounds and abrasive powders and pastes, consumables from Acton Finishing will offer you superior processing results.

Over the years, ActOn Finishing has been at the forefront of the industry, developing and manufacturing a range of specially formulated consumables approved by the industry. Working closely with highly skilled manufacturers, ActOn Engineers understand the numerous challenges faced in the industry and have developed suitable consumables accordingly. The R&D department always sets high standards for the environmentally friendly, biodegradable compounds and high quality media.

ActOn is regularly audited by clients and independent certification bodies and have successfully demonstrated on-going compliance with a number of client and ISO quality and environmental standards.

The team will also be available to discuss with you the best finishing subcontract solutions for your requirements.

ActOn Finishing Ltd

Tel: 024 76 466914

Email: sales@acton-finishing.co.uk

www.acton-finishing.co.uk



Hall 6 - Stand 521

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Advances in surface finishing of large components and 3D printed metal parts

Featuring on the Fintek stand at MACH 2022 will be the automation of the surface finishing of larger components and new electro-chemical processes for the removal of support structures and finishing of internal and external surfaces of additively manufactured parts.

"Since the last show, there have been significant advances in surface finishing for traditionally engineered parts and metal components manufactured by 3D printing. From OTEC Präzisionsfinish we have the new SF-HP which brings fully automated high-energy stream finishing to workpieces of 650 mm in diameter and 650 mm long and weighing up to 200kg. From RENA Technologies, we have the Hirtisation® process that finally resolves one of additive manufacturing's major hinderances, the cost effective and efficient removal of support structures, residues and the smoothing of hard to reach internal surfaces and deep cavities," says managing director, Jonathan Dean.

In addition to the new systems, the ISO9001 and AS9100 accredited company is keen to show improvements made by OTEC across the full range of CF Disc Finishing, DF Drag Finishing and SF Stream Finishing machines for deburring, edge honing,



smoothing and mirror-like polishing metal parts, from the extremely small and thin right up to aircraft landing gear. From table-top variants to fully automated systems with robotic loading and unloading for inline production, the stand team will be able to advise on the best process for any metal part.

"In an exclusive deal with a UK company, we will also be introducing



another new technology for finishing the internal and external surfaces of 3D printed metal components. In 40 years providing UK manufacturers in aerospace, motorsport, medical devices and more, with world leading surface finishing machines and subcontract finishing services, this is the most exciting time for major advances in the technology," concludes Jonathan Dean.

Fintek has been solving metal small parts finishing problems for more than 35 years. Machine deburring and super fine surface finishing reduces costs for engineers in aerospace, autosport, toolmaking, medical device and other demanding precision industries.

Fintek
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Hall 19 - Stand 26





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Filtermist to introduce new clean air innovations at MACH

Filtermist Systems Ltd is gearing up to showcase a host of clean air innovations that have been introduced during the forced four-year interval between the last MACH exhibition and the upcoming show in April.

The Telford-based company is heading to MACH 2022 with a simple message for manufacturers: everything required to create and maintain 'clean air' working environments can now be accessed in one place, making it easy to protect people from exposure to harmful airborne contaminants and ensure compliance with Health and Safety Executive (HSE) regulations.

Providing effective oil mist and fume extraction for companies that undertake metalworking operations remains at the heart of Filtermist's business. This issue is particularly pertinent right now as the Health and Safety Executive (HSE) is continuing with its Fabricated Metals Inspection Programme in the run-up to MACH in an effort to reduce exposure to metalworking fluids and welding fume.

Divisional sales director Craig Woodward comments: "HSE inspectors are currently visiting premises to check that effective control measures are being used to minimise exposure to hazardous substances. We work with customers throughout the UK to ensure their workshops are free from potentially harmful airborne oil mist by specifying the best solution for their specific requirements.

"Individual Filtermist filters are the best option for some customers, whereas others will prefer static filter media units from our sister company Absolent AB. These can be fitted as stand-alone items or can be ducted into a central system if required. We have extensive experience of a huge variety of applications and individual installation requirements and can offer tailored solutions to fit all needs and budgets.

"All Filtermist units installed for end-users by our dedicated install engineers include the first service as part of the package, and every single Filtermist that we sell comes with a free five-year warranty. This is testimony to the confidence we have in the quality of the products that we manufacture in Telford."

Filtermist will also be showing its Bluetooth enabled F Monitor 2 & 2+, a monitoring device designed to make it easy for machine operators to spot if their Filtermist oil mist filter needs servicing. This product was originally launched at EMO 2019, but is yet to make its UK debut due to the pandemic.

"All Filtermist units we install in the UK are fitted with an F Monitor 2," explains Craig Woodward. "COSHH regs require machine operators to report any potential issues with control measures 'forthwith.' The F Monitor's traffic light system makes this simple as one glance and the operator can immediately spot any potential issues."

Dustcheck wet and dry dust collectors

In addition to its market leading UK manufactured centrifugal oil mist filters, the company will be showcasing a range of new products as CEO James Stansfield elaborates: "Dustcheck was a relatively new addition to Filtermist's product portfolio back in 2018. Fast forward four years and the brand is thriving. We acquired the rights to manufacture Carter Wet Dust Collectors (also known as Wet Scrubbers) back in 2019 and have since reorganised to include this range in the product offering from Dustcheck.

"Dustcheck's Wet Dust Collectors use water and air pressure to 'scrub' dust from the air. Wet Dust Collectors send the dust through a water spray then, using gravity, dust is separated from the water and the dust can be removed. Dustcheck's range can be used on metal finishing applications such as grinding, finishing and fettling, where the materials used could include aluminium, titanium, magnesium etc., which may present a fire or explosion risk. We offer four models of wet collector, the most popular of which is the NonFlam Series.

"The Dustcheck brand also includes dry dust collectors which are popular in the metal industry. These include venting and extraction solutions for applications including grinding, bulk silo venting, foundry shake out, casting and polishing."

Kerstar industrial vacuum cleaners

Kerstar was another 2019 acquisition made by Filtermist. Kerstar industrial vacuums have been manufactured in the UK for more than 60 years and are a firm favourite in a wide range of industries. The product range includes ATEX rated models, Type H machines which are suitable for hazardous dusts, and Swarf and Coolant Vacuums widely used in the metalworking industry.

Vacuuming at source reduces the risk of injury caused by manual clean down and helps to protect machine operators from irritation, rashes and dermatitis which can be common amongst people exposed to metalworking fluids. A KSV 45/2 W will be on show at MACH. This model is specifically designed to pick up engineering coolant (suds) and metal chippings.

The motor unit is protected by a ball float



system to cut off the suction, preventing over filling of the canister with liquid. The float cage is surrounded with a perforated steel filter to prevent swarf being sucked into the vacuum motors. A perforated steel basket that holds the metal chippings/swarf sits inside the canister and a lifting handle makes it easy to remove for emptying, whilst a drain hose and stopper enable all liquid to easily be drained from the canister.

The KEVA range from Kerstar is also a valuable addition to many workplaces, particularly those that generate potentially hazardous dusts such as companies involved in additive manufacturing.

KEVA vacuums are purposely designed to pick up potentially explosive and conductive dust and debris in a Gas Zone 2 and Dust Zone 22, as well as dust and debris that is hazardous to health in a Gas Zone 2 and a Dust Zone 22. All models are built using an electronically commutated brushless motor featuring soft start and thermal protection.

Each model in the range is equipped with three stages of filtration on the negative pressure (suction) side of the motor.

"The Kerstar range has been developed to meet the requirements of a wide range of industrial applications," comments product manager Ben Kimpton. "We included a KSV swarf vac on Filtermist's stand at EMO Milan last year and it proved really popular. We actually use one of these in the area around a spinning machine in our own factory so we know first-hand how useful it is. The whole Kerstar team is really excited about the upcoming MACH show as it will be the first opportunity we've had to introduce the range to end-users in the UK's manufacturing industry."

All Dustcheck and Kerstar products are



manufactured at Filtermist's Telford HQ and both brands have recently undergone a refresh to help cement their positions in their respective markets. Kerstar has also just launched a brand-new website and finalised the move of production from its previous base in Northampton to Filtermist's Telford HQ.

Aftersales

In addition to introducing new products, Filtermist has also reorganised its Aftersales department to ensure customers benefit from the best customer service possible. Dedicated teams look after oil mist and dust customers to ensure they remain COSHH compliant, as Jo Morris, director of Group Shared Services, explains: "Fitting effective extraction is vital, but COSHH regulations also stipulate that anyone using LEV systems is legally required to maintain them and

have them thoroughly tested and examined at least once every 14 months by a competent person. As a business, we are continuing to invest heavily in external qualifications to ensure our employees have the knowledge and skills they need to deliver a first-class service to all of our customers."

"The past four years have been extremely busy and we're confident that both existing and potential customers will value the full offering we provide to UK manufacturing and engineering firms," concludes James Stansfield. "Creating a 'clear air' workshop has so many more benefits than just meeting legislation. It has been proven to improve morale and increase productivity, whilst also reducing staff sickness. MACH is one of our biggest shows and we're delighted to be presenting the full Filtermist range to an industry that needs to take more strides towards delivering cleaner factory and production facilities.

"Our turnkey solution gives customers a simple way of accessing the latest technology and the unrivalled might that comes with being part of Absolent Air Care Group. That's a pretty powerful combination and this is reflected in continuing demand for our offer from customers throughout the UK."

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Hall 6 - Stand 430

VOLLMER to show how to cut saw blade production times

At MACH 2022, VOLLMER will be demonstrating its circular saw blade production expertise with the VOLLMER CHX/HS CNC grinding machine and the Loroch Powerstar 850. The two machines will appear alongside the VOLLMER Vgrind 360S tool grinding machine at the UK's showpiece manufacturing event at the Birmingham NEC.

The impressive CHX/HS automated CNC machine is capable of sharpening the tooth face and top of circular saw blades in a single setup with continuous unmanned running. VOLLMER has developed this machine in line with the requirements of sharpening specialists and manufacturers that continuously re-sharpen circular saws. The CHX/HS is available in two variants, the CHX840 and the CHX1300. This designation means the respective machines are ideal for machining carbide-tipped circular saw blades with a diameter up to 840 mm or 1,300 mm diameter.

With five CNC-controlled axes, the CHX/HS can machine saw blades with all common tooth geometries and this also applies to axial angle and group tooththing. The CHX machine at MACH will be connected to VOLLMER's HS automation solution, hence the CHX/HS designation. The HS system ensures automatic loading of the CHX machine, so end users can benefit from more than seven hours of unmanned operation. The programming and preparation of the saw blade stack can be undertaken during machine operation and with a saw blade stack height of up to 180 mm, the HS automatic machine loading system can hold up to 25 circular saw blades. As saws are stacked with intermediate layers, tooth breakages and blade damage can be avoided. The CHX/HS is equipped with different automation options to reduce machining and setup times and, at MACH, the machine will certainly draw the crowds. The automation options include an optional automatic setup process that consists of running in the saw, diameter detection and also an acoustic sensor for touching. Due to a double grinding wheel configuration, the sharpening of tooth face and top is conducted in a single setup. The operating



concept is based on the VOLLMER multi-function hand-wheel that facilitates the selection and movement of the axes, which in turn avoids operating errors.

Alongside the CHX/HS will be the VOLLMER Loroch Powerstar 850, a machine that simplifies the production of metal-cutting saw blades. The Loroch Powerstar 850 boasts a host of innovative features that enable it to undertake sharpening, re-tooththing and chamfering of saw blades. The PowerStar 850 is a flexible, CNC controlled high-tech grinding machine that provides semi-automatic chamfering of the saw blade, an adjustable chamfer angle and it has an attachment for cutting-in chipbreaker grooves.

This powerful and economical machine is perfect for any small to medium-sized business involved in the grinding of metal cutting saw blades as it can process blades from 130 to 850 mm with a blade thickness up to 8 mm. Capable of processing saw blades with anything from 2 to 998 teeth, the VOLLMER Loroch Powerstar 850 incorporates a 19" touch screen CNC control unit that enables blades to be programmed in minutes with data inputted directly at the machine via the colour display that is comparable to a Smartphone configuration.

Perfect for processing HSS saws, solid carbide saws and friction saw blades, the

Loroch Powerstar has a powerful direct-drive grinding wheel configuration that reduces power loss and eliminates undesired vibration that can impact blade quality. Capable of both manual and automatic processing, the machine demonstrates the flexibility that is second-to-none with just one clamping flange required for blades from 130 to 850 mm diameter.

For any manufacturer that is interested in circular saw blade production, the VOLLMER CHX/HS and Loroch Powerstar at MACH 2022 provide the perfect blend between high-end automated saw blade manufacture and user-friendly cost-effective and efficient production. For further information on either of these machines or the range of VGrind machines for carbide and PCD rotary tooling, visit the VOLLMER stand at MACH, or contact:

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Chinese refrigeration compressor manufacturer invests in British-built PTG Holroyd rotor grinding machine

A leading Chinese manufacturer of industrial refrigeration compressors has chosen a British-built PTG Holroyd TG Series CNC rotor grinding machine to bring even higher levels of accuracy and speed to its manufacturing strategies.

Valued in excess of £1.4 million, the machine, a TG350E, will be built at PTG Holroyd's Rochdale-based technology centre, ready for commissioning in Summer 2022. It will be used by the customer to precision-grind stainless steel screw rotors of up to 350 mm in diameter and 1,800 mm in length.

"We are delighted to announce this significant export order, which follows on from a number of sales of our PTG Powerstir friction stir welding machines to overseas customers," comments PTG Holroyd sales director, Mark Curran. "Although we are not able to name the compressor rotor manufacturer, it is rewarding to know that the uncompromising levels of accuracy provided by our rotor grinding machines were a significant factor in them choosing the TG350E."

PTG Holroyd TG Series machines are widely recognised as providing the industry benchmark for high-speed, high-accuracy, efficient stock removal. Advanced automation means reduced setup time, while a significant amount of production time can be saved due to the fact that each machine's diamond dressing discs are continuously dressed during the semi-finish grinding cycles. The TG range starts with the TG50E, a machine designed to precision grind components of up to 50 mm in diameter and 610 mm in length, with models offering stepped increases in capability up to the production of helical components measuring 450 mm in diameter and 2,020 mm in length.

Equally suited to prototyping, batch and volume production, TG Series machines are designed primarily for the finish grinding of helical screw components such as worm screws and rotors after they have been milled to a rough or semi-finished state. TG models offer production rates and accuracies to suit precise manufacturing strategies. Fully automated on-machine probing provides closed loop feedback of



corrections to the dresser wheel and does not require a high level of operator skill.

Delroyd selects PTG Holroyd's newly launched precision worm gear grinding centre

Delroyd Worm Gear, the North American manufacturer of precision worm gear drives and a part of Nuttall Gear, a business unit of Altra Industrial Motion, recently placed an order for one of PTG-Holroyd's newly launched HG350-WG worm gear and gear grinding centres. Scheduled for installation in summer 2022, this will be the first of UK-based PTG Holroyd's new HG350-WG machines to be purchased by an overseas customer.

"Delroyd is renowned globally for the quality of its worm gear drives and custom-engineered worm gear products," comments PTG-Holroyd's Mark Curran. "We are therefore delighted that, after considering the gear grinding centres offered by a number of manufacturers, they decided to invest in our new British-built HG350-WG machine and the cutting-edge technologies that it brings to manufacturers of precision gears and worm drives.

"In an interesting historical twist, this isn't the first time that Delroyd and PTG Holroyd have worked together. Back in the late 1950s the then De Laval Gear Company of Niagara Falls formed a partnership with Rochdale-based John Holroyd & Company. De Laval wanted to improve its competitive position in the United States and Holroyd wanted to expand its sales into the USA. Called De Laval-Holroyd, the partnership lasted several years and led to the creation of the Delroyd name."

Designed to bring greater levels of efficiency and accuracy to the production of specialised gears and tooth forms, PTG-Holroyd's new HG350-WG worm gear and gear grinding centres are the latest models in the company's HG350 series machine tool range to use Siemens' new Sinumerik ONE future-proof CNC.

In designing the HG350-WG, PTG Holroyd's goal was to offer customers much more than a new generation machine for the one-off and batch grinding of high-accuracy worms and screws, and precision spur and helical gears of up to 350 mm in diameter. "We wanted to create a machine with class-leading integrated safety and failsafe

features, rich, real-time reporting of machine health and performance data, as well as the highest levels of industrial security," adds Mark Curran. "It was also a given that the HG350-WG should be exceptionally intuitive for operators, easily able to accommodate each customer's Industry 4.0 strategy and be future proofed against legacy software issues. These were all attributes that the Sinumerik ONE CNC was able to offer."

By working in close collaboration with Siemens, PTG-Holroyd was also able to embrace the 'Create my virtual machine' and 'Run my virtual machine' software capabilities of the Sinumerik ONE suite. Used in tandem with its own internal machine design packages, these capabilities enable PTG Holroyd to build virtual 'digital twin' HG350-WG worm and gear grinding centres, such as that destined for Delroyd, on the desktop, then grind virtual gears and threads, observe entire manufacturing cycles, and test safety and failsafe capabilities before commencing the physical build. "The virtual machine build and run capabilities offered in the Sinumerik ONE suite also make acceptance testing exceptionally straightforward. In short, customers are able to sign off on their new machine before it has even been built," says Mark Curran.

Replacing PTG Holroyd's well-established GTG2 model, HG350 series machines feature the high power required for deep grinding operations. A specially developed

extended machine bed allows screws and worm shafts of up to one metre in length to be accommodated. Dedicated software compensates for helical twist, and full topological capability comes as standard.

Embracing the Sinumerik ONE CNC's Profinet capabilities, IO-Link communication technology will be offered with all new HG350-WG machines, as will RFID scanning, an option that will be particularly suitable for machines destined for production cells, by helping ensure that virtually any component or tooling item that needs to be switched between manufacturing cycles, is correctly changed for each gear grinding operation.

Maintaining the Holroyd tradition of building machines that simplify even highly complex manufacturing processes, the HG350-WG combines extreme rigidity with high power for both CBN and conventional deep grinding operations. On-board features include: automatic coordinate adjustment, in-cycle wheel dressing, integrated profile management and coordinate measurement. Grinding cycles are included for: spur gears; helical gears; crowned helical and spur gears with root or tip relief; worm gears of the form ZK, ZI, ZN and ZA; dual lead (duplex) worm gears; splines. The HG350-WG also features PTG Holroyd's Profile Management System (HPMS) for highly accurate profile grinding, while an advanced touch-screen interface allows the operator to enter design drawing information directly into the machine.

PTG: the first name in precision

Incorporating the brands of PTG Holroyd, PTG Powerstir Friction Stir Welding and Holroyd Precision Rotors, PTG has established itself at the forefront of high-precision machine tool design, build and supply for specialised applications. The range includes advanced machine tools for the production of complex helical components such as compressor rotors, pump screws and high-accuracy gears, and Powerstir machine tools for friction stir welding advanced alloys used in transport applications. With production facilities in the UK, USA and China, Holroyd Precision Rotors manufactures the special purpose, ultra-precision helical components used in a wide range of industries, including refrigeration, air-conditioning, gas and vacuum pumping, industrial air handling, aerospace, medical equipment, motion control, power transmission, power generation, oil & gas, fluid transfer and high-end automotive. PTG also provides advanced technical consulting services.

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Tel: 01706 526 590

Email: mark.curran@holroyd.com

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New GEARS inline focuses on renewable energy

In the eighth issue of its GEARS inline customer magazine, Klingelberg presents the projects and developments it has advanced in recent months, with a special focus on trends and developments in renewable energy, particularly wind energy. An exclusive interview on this topic with Gary Gu, executive director the Asian gear box manufacturer NGC Transmission Equipment, reveals some fascinating responses. In addition to a range of solutions for wind energy, the current issue also includes impressive customer reports.

Mexican automobile manufacturer Transmisiones y Equipos Mecánicos S.A. de C.V. (TREMEC) reports on its experience with the Viper Höfler Cylindrical Gear Generating Grinding Machine Speed. The customer received an entire production system consisting of design software, new operating software and an innovative machine; TANDLER GmbH & Co. KG, which specialises in gears and transmissions, demonstrates the advantages of retrofitting and explains when it's worth it to overhaul a machine; Klingelberg also introduces its latest machine development: the Höfler R300 Cylindrical Gear Roll Testing Machine. Klingelberg is introducing onto the market a machine that is designed for a compact, flexible, high-precision testing technology for 100-percent quality control of cylindrical gears.

Time for wind power: the future of energy production

For the United States, the Paris Climate Agreement is once again taking centre stage. China is also pursuing an ambitious climate target, aiming to reach CO₂ neutrality by 2060. Regenerative energy, particularly wind power, is playing an important role in the country's growing energy demand. Gary Gu, executive director of the gearbox manufacturer NGC, and Prasad Kizhakeel, chief sales officer of the KLINGELBERG Group, discuss opportunities, trends, and technologies.

The development of gearing technologies contributes to the technical progress of wind turbine generators (WTGs), offering a wide range of tooth flank design options that provide an important basis for high-performance transmissions. Dr Hartmuth Müller, head of Technology and Innovation, explains the history of wind

turbine generators and highlights a range of concepts.

Volume production and precision measuring technology for large gears

Due to the worldwide expansion of wind energy production, the demand for large components is experiencing tremendous growth in the field of gears. A logical consequence of this is the targeted introduction of high-volume processes in large-gear manufacturing. Handling large gears for wind turbine transmissions poses very special challenges – and as a result, specific production-related solutions have been developed for efficient, automated volume production.

With the newly developed P 152 Precision Measuring Center, designed for gears with a maximum outside diameter up to 1,520 mm and weighing up to 8,000 kg, Klingelberg offers an innovative solution in measuring technology. Even for the "giants" among gears, with weights up to 30,000 kg, there are high-precision measuring machines that can be used in a variety of applications.

Quality through Roll Testing

The Höfler R300 Cylindrical Gear Roll Testing Machine is the latest machine development in the area of cylindrical gear technology. Designed for all five roll testing methods, this compact machine is the ideal high-precision testing technology solution for anyone who wants to combine inspection cycles and reduce disassembly costs while benefiting from a user-friendly design.

Founded in 1863, the machine manufacturing firm Klingelberg is one of

the leading companies in the gear industry. Thanks to numerous innovations in the areas of calculation, production, and measuring technology, Klingelberg considers itself a technological leader in this industry. With its acquisition of Höfler Maschinenbau GmbH's core business in 2012, Klingelberg has added machines for machining cylindrical gears to its range of products, reinforcing its position as a holistic system provider.

Headquartered in Zurich, the machine manufacturing firm currently develops and manufactures at its sites in Zurich, Hückeswagen and Ettlingen. The company also maintains a presence with sales and service offices and numerous commercial representatives around the world. Klingelberg solutions are used in the automotive, commercial vehicle, and aviation industries, as well as in shipbuilding, the wind power industry, and the general transmission manufacturing industry. Applications range from vehicle drives, aircraft turbine engines, and cement mill gear units to drive systems for ships and oil rigs.

With over 200 patent grants, the company continuously demonstrates its capacity for innovation. Above and beyond this, its 14001 certification and participation in the VDMA's Blue Competence initiative give credence to the company's sustainable, environmentally sound business practices.

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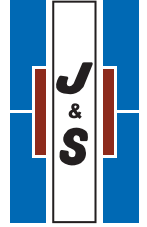
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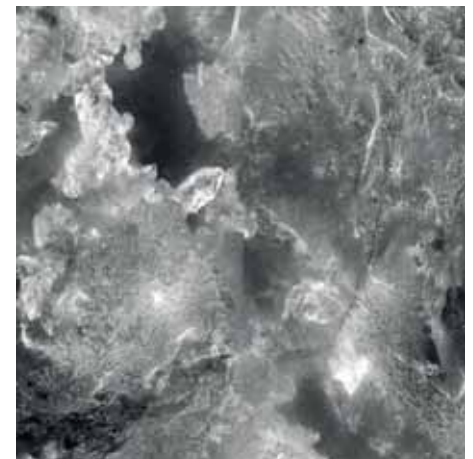
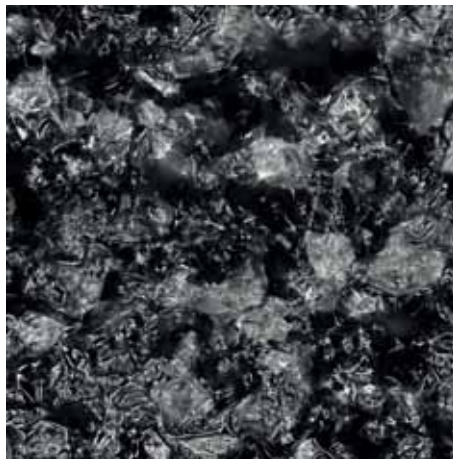
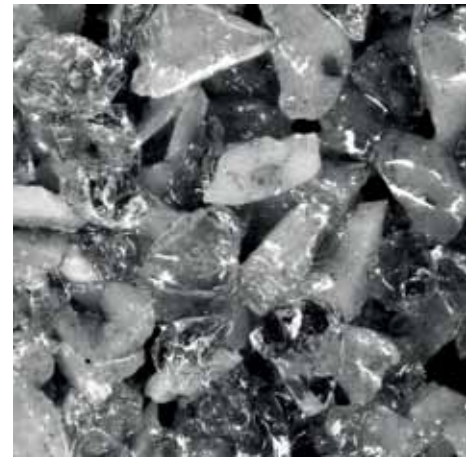
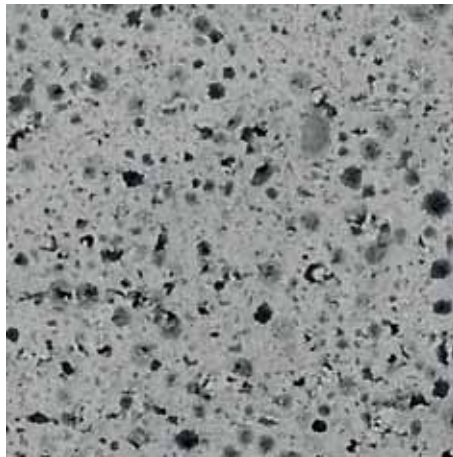
Gloucester-based Advanced Grinding Supplies Ltd has been appointed as the exclusive agent in the UK and Ireland for both Meister Abrasives and Alfons Schmeier Abrasives. As a distributor and agent for several of the world's leading cylindrical grinding machine manufacturers and also for numerous high-quality grinding tooling and consumable companies, the prestigious new agency lines further expand Advanced Grinding Supplies' already comprehensive grinding related offering.

Since it was established in 2002, Advanced Grinding Supplies has grown to become the preferred supplier to a wide range of businesses, from small subcontractors to multi-national manufacturers. In order to efficiently serve its growing customer base, the company moved to its current impressive premises in 2015.

In addition to providing world-class grinding machines and equipment from Switzerland, Germany and Italy, Advanced Grinding Supplies now delivers an impressive range of vitrified CBN, vitrified diamond, live and dead centres, face drivers, precision tooling, coolant filtration equipment, filter media rolls and many other consumables.

The latest additions to the company's inclusive grinding offering are the advanced products from Meister Abrasives and Alfons Schmeier Abrasives.

Meister Abrasives offers a broad range of abrasive solutions, from the very smallest bore grinding applications of 1.3 mm diameter up to surface grinding applications using 1,500 mm diameter tools, all to specific customer designs. CBN, DIA,



conventional and Ceralox tools are used, depending on the application.

Schmeier Abrasives provides internal grinding wheels and fine grinding media made of CBN, diamond, silicon carbide and corundum in a ceramic bond, in conjunction with threaded and cylindrical shanks, plus grinding spindle extensions and dressing tools. Satisfying a wide range of functions, the company's quality grinding tools are offered in sizes from 0.8 mm to 180 mm and are available in a wide variety of shapes.

Advanced Grinding Supplies director Peter Harding enthuses: "Advanced Grinding Supplies' excellent reputation is founded on the first-class service we provide, our in-depth engineering knowledge and, not least, the high-quality and cost-effective nature of the products we supply. In addition to providing first-class technical advice, our skilled staff now have access to an unmatched range of grinding related products. Therefore, rather than recommend a 'best fit'

compromise product, we are able to provide ideal, cost-effective solutions to our customers' grinding needs.

"Complementing our full range of Saint-Gobain abrasives, which include Norton, Flexovit and Baystate brands of grinding wheels and abrasives, we are delighted to have recently been appointed as the sole agent for the technically superior Meister Abrasives and Alfons Schmeier Abrasives brands for the UK and Ireland.

"Many current users of Meister and Schmeier products are companies that we already supply tooling and



consumables to or are users of machines we are UK agents for, such as our Studer range. The important new agencies are a perfect fit for our company, have ensured a seamless transition for existing customers and also allowed us to further expand our activities. These globally renowned brands complete our now comprehensive abrasives offering and will deliver a wide range of technical and cost benefits to our customers."

"As with all our other product lines, rather than being regarded simply as a provider of machine tools and accessories, when it comes to abrasives we prefer to be a trusted source of free expert technical advice. The reputation we have gained for supplying this advice means that growing numbers of customers are now contacting us regarding their products requirements. When supplied with the information related to material specification, hardness, the process used, stock removal, coolant type etc., we are happy to provide free advice on the most efficient and cost-effective product to use."

Having previously been employed as a UK service engineer for Fritz Studer AG, Peter Harding gained in-depth experience in applications related to the company's market-leading technology. Having been



appointed a UK agent for Studer in 2002, he now applies his considerable expertise to help his UK customers specify Studer grinding machines that match both their production need and their budgets.

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High performance VICTOGRAIN abrasive provides impressive economic benefits

PFERD reports significant positive feedback from the market

"When we launched VICTOGRAIN in 2018, we looked forward to experiencing the market's reaction, as we thought that demand for such a high-performance abrasive would be limited," recalls Ralf Heimann, product manager for abrasives on substrates and other products at August Rüggeberg GmbH & Co., the Marienheide-based manufacturer of tools for working on surfaces and cutting materials.

"Today we know that the cautiously optimistic expectations we had back then have been greatly exceeded. We are receiving extremely positive feedback from users, and not only those who do coarse machining; we hear from a wide variety of users in many disciplines. They all confirm that our VICTOGRAIN tools are changing the nature of grinding and have modernised it."

Of course, most users value the enormous power of the triangular, precision-moulded high performance abrasive. "VICTOGRAIN outperforms other, established solutions by up to 30 percent, with a consistent degree of aggressiveness," says Ralf Heimann. "It performs impressively in use. While other abrasives offer a similarly high level of aggressiveness at the beginning of use, it usually decreases after a certain amount of time in use. Users would usually respond by replacing the tool, but they do not replace VICTOGRAIN tools due to their sustained level of aggressiveness. This feature and a high stock removal rate make VICTOGRAIN tools highly efficient. "Users appreciate this, as they benefit from an efficient machining process with fast work progress, a long tool life and a reduced influx of heat into the workpiece."

VICTOGRAIN abrasive grain triangles are fixed to the substrate on one side. This means they are integrated very securely and in conjunction with their streamlined design, they provide an extremely large chip space that makes the machining process even



more efficient. "The structural design of the VICTOGRAIN triangles is specially adapted as well," explains Ralf Heimann. "The very small crystals inside the triangles ensure optimum wear characteristics." Very sharp cutting edges are always exposed and only the minimum necessary amount of the abrasive grain or the triangle breaks off.

"During use, the uniformly sized and shaped triangular abrasive grains on VICTOGRAIN's cutting edge contact the workpiece at an optimum angle," says the product manager to describe the actual grinding process. This means the individual abrasive grain requires very little energy to penetrate the workpiece. For coarse stock removal using angle grinders, PFERD offers three different tool types: The classical fibre disc, the patented COMBICLICK quick-clamping and cooling system, and the CC-GRIND-SOLID or CC-GRINDROBUST system (currently available only in Europe but available worldwide from April 2022) as a grinding wheel replacement. "There's the right solution for every application here," says Ralf Heimann. For smaller, hard-to-reach areas, VICTOGRAIN tools in the familiar COMBIDISC range are also available. According to Heimann, in future PFERD will also offer long belts in the VICTOGRAIN-COOL version.

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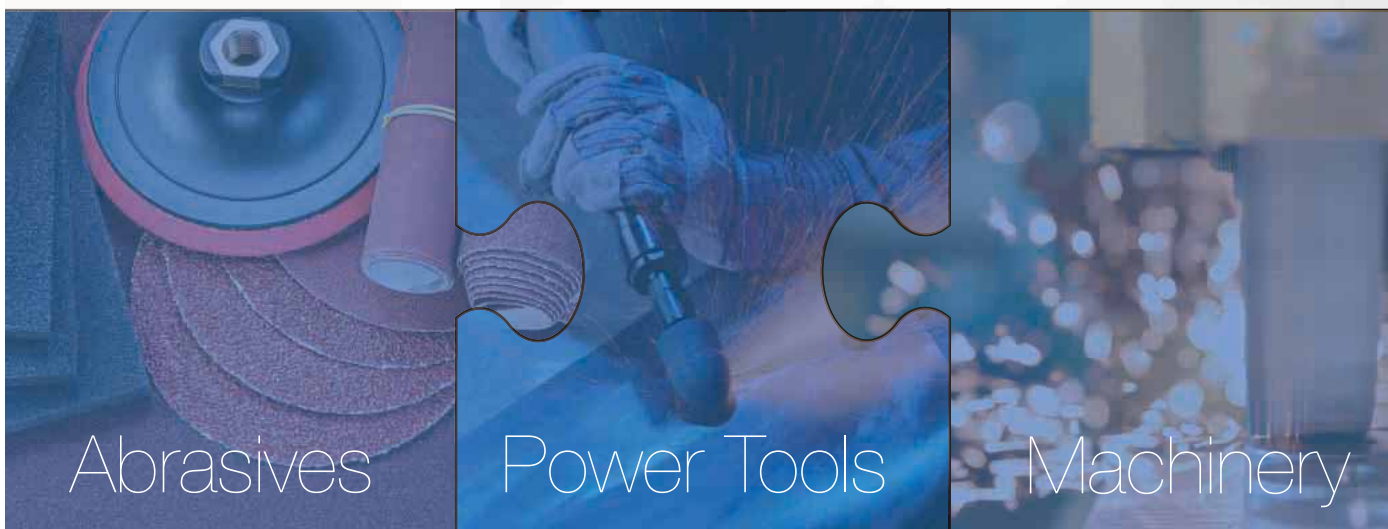
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Next generation application engineering support

The pressure for manufacturing to increase productivity has never been greater as industry recovers from the effects of the pandemic and the welcome ramp up of output starts in earnest. The problem in finding solutions to the constant demands to reduce cost and speed up production is often governed by access to machining time and limitations of engineering capacity.

So how helpful would it be if you could call in Application Engineering support with knowhow in your specific industry to take on the task of cost reduction for you? Tyrolit believes this is an invaluable extension to its service from simply trying to make improvements to grinding tool specifications to looking at total process costs, from optimisation of existing grinding operations to complete new part introduction including defining tool paths, cut strategies, dresser design and even programming of CNC machines and first part pass off.

Tyrolit has long been an advocate of having highly experienced sales and engineering staff with knowledge of the industries in which they serve, but have come to realise that the constraints on freeing up machine time and engineering support for their customers means that, despite a need to make improvements, there is rarely the capacity to do so.



Sales director Pete Duffy explains: "We realised that finding qualified people with the expertise and experience we needed has become increasingly difficult, but equally we could see our customers were also struggling to do everything that was required of them." Tyrolit decided to

expand its Application Engineering team with additions of both medical and aerospace specialists that had real hands-on experience and knowhow at the highest level.

When combined with the right software and the latest tools, Tyrolit was able to offer practical help going far beyond expert advice. Pete Duffy explains "Customers were not only struggling to give us the time we needed on the machines they were being swallowed up with new part introduction, we made an offer to assist which was welcomed and the results were outstanding for both parties."

Tyrolit offered to take on the task of introducing a new part which included approach angles, dresser stack design, method and cut strategy, CNC programming and on machine prove out. The result was a right first-time part with a cycle time significantly faster than existing processes. Application engineer Jim Kelsey explains: "Knowing the grinding tools' exact capabilities allowed us to fully optimise the process whilst always staying in a safe zone with regard to part quality and wheel wear."

"Additionally, in an effort to save time, new parts are often introduced by replicating existing processes with little opportunity to revisit and make necessary



changes or improvements." The danger with this approach is clear, the potential for repeating errors or failing to take advantage of improved specifications.

Another recent aerospace project involved using Tyrolit's power monitoring equipment. Jim Kelsey says: "Over a period of weeks we were able to evaluate total process times, including the non-cut times. By effectively taking a fingerprint of the process, we realised that we could programme out wasted time and make a big reduction in cycle time" The result was a saving over a group of very expensive machines of 1,200 hours per year. The added bonus was that, as no changes were made to the grinding parameters, there was no need to requalify the part, so no lab time and no risk to part quality.

Further examples can be found in recent developments with Tyrolit's vitrified CBN tools for the medical industry combined with recent additions to its application engineering team, enabled a doubling of parts per wheel and a reduction in cycle of 14 percent, giving a total saving to the customer in excess of £400,000.

Tyrolit's intentions are clear: increased capability, increased engineering capacity



and increased services, creating a closer cooperation and support to customers across manufacturing industry.

Tyrolit is one of the world's leading manufacturers of bonded grinding, cutting, and dressing tools, producing 80,000 variant products. The family-owned business company founded in 1919 and a member of the Swarovski Group, has over 4,500

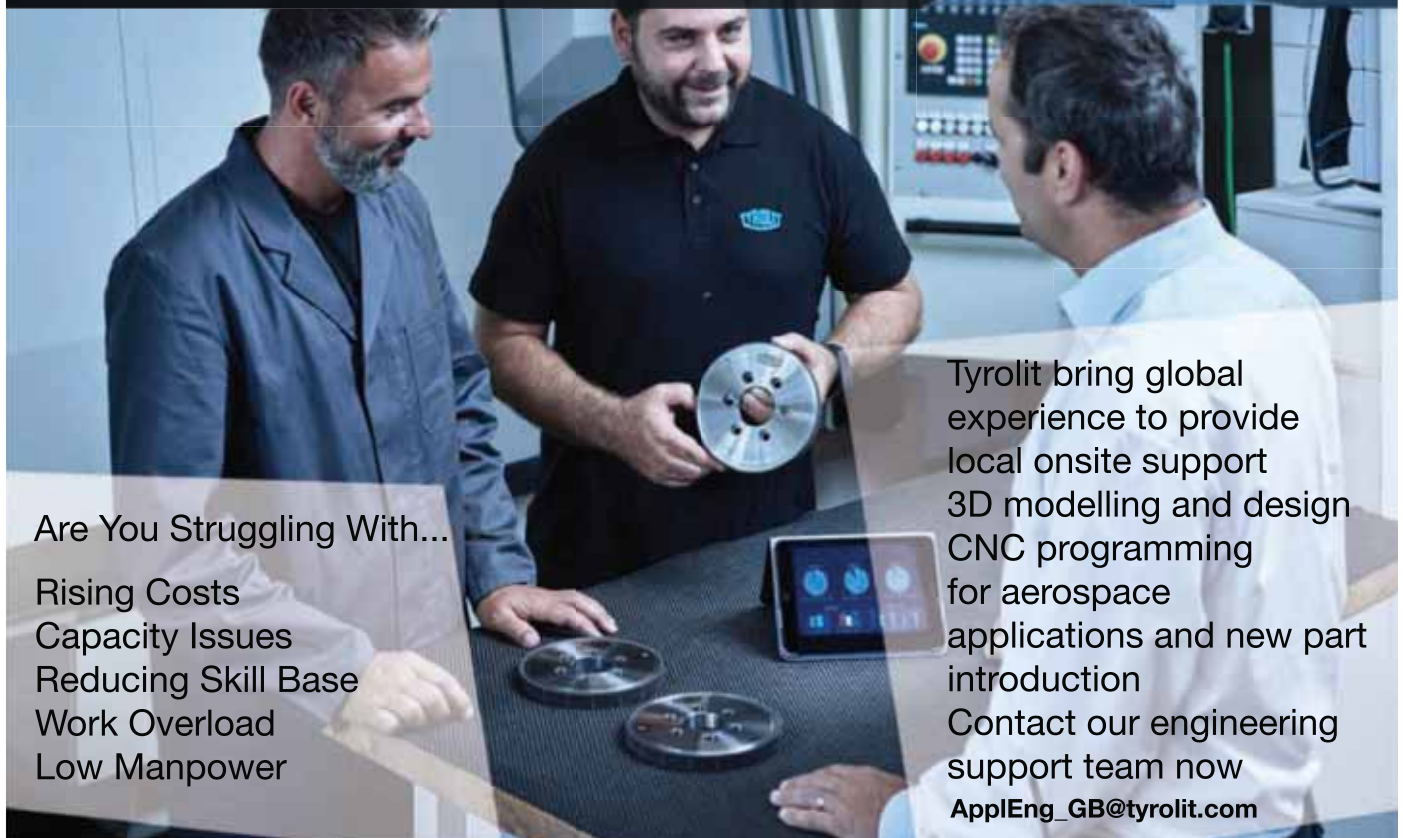
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Choosing a grinding wheel

Weiler Abrasives boasts an extensive line of abrasive grinding wheels designed to deliver the performance welders and fabricators need to get the job done right and done fast.

Weiler has grinding wheels made for working on all metals in both Type 27 and Type 28 designs. These wheel styles each have triple reinforcement for added stability in aggressive applications but differ in their profile to offer unique advantages:

Type 27 wheels have a flat profile with a depressed center that performs best between 25 and 35 degrees. However, effective stock removal with these wheels is achievable at working angles up to 45 degrees.

Type 28 wheels have a concave design that is aggressive at lower working angles and increases access to tight spaces. Their optimal performance angle is between 0 and 15 degrees from the surface.

Grinding wheels are mixed combinations of resin and abrasive grains. The abrasive does the work and grinds metal when it makes contact with metal surfaces, while the bond holds the abrasives in place and helps the wheel keep its shape. Choosing a grinding wheel with the right composition for the application and material will ensure consistent results and continuous efficiency.

Grinding wheels come in different exterior diameters made to accommodate different size grinders. The inner diameter is also important to note. Wheels attach to angle grinders on a spindle, known as an arbor. Arbor size varies, and an exact match for the grinding wheel ensures a secure fit. Weiler's lineup of grinding wheels offers compatibility with 5/8-inch and 7/8-inch arbors, and includes wheels with 5/8-11 threaded arbor hubs for easy spin-on/spin-off mounting.

Aluminum is a preferred material for countless metal fabrication applications due to its lightweight and natural resistance to rust and corrosion. While only weighing around 30 percent as much as steel, aluminum can be just as strong and sometimes even more durable when made in the proper alloy.

Tiger Aluminum grinding wheels are ideal tools for working on aluminum-based alloys. This silicon carbide grinding wheel is enhanced with an aluminum oxide blend for a consistently high cut rate throughout the



wheel's life. A non-loading formula keeps the wheel from gumming up, allowing operators to get more work done in less time without compromising durability. Tiger grinding wheels for aluminum are contaminant-free, so there will be no after-rust.

The most important factor when grinding stainless steel is to use contaminant-free or INOX wheels. This designation means the wheels are manufactured with additives that contain less than 0.1 percent iron, sulfur and chlorine. Weiler grinding wheels overcome this challenge and there are two options available:

Tiger Ceramic are the Max Performance option. These stainless steel grinding wheels have the fastest grind rate of the entire line and feature innovative ceramic alumina grain. This contaminant-free grain rapidly cuts through stainless steel at low temperatures to prevent heat damage.

Tiger INOX grinding wheels are free of contaminants and feature bonded abrasives specifically manufactured for working on stainless steel. This grinding wheel delivers a fast cut rate and long product life on stainless steel.

Weiler Abrasives manufactures several different grinding wheels for use on carbon and structural steel. These leading-edge grinding wheels are all dependable, consistent and made to last:

Tiger Ceramic: Tiger Ceramic grinding wheels are Weiler's most versatile grinding wheels. They are also the most effective,



featuring grains that continually sharpen for reliable results and maximum time on the job. Cool-cutting Tiger Ceramic wheels will produce minimal discoloration on carbon and structural steel workpieces.

Tiger Zirc: If a high-performance option is required, Tiger Zirc grinding wheels produce optimal results. These wheels have a zirconia alumina grain infused with advanced ceramic alumina for added boost in cut rate.

Tiger AO: The performance line offers the Tiger AO grinding wheel. Tiger AO grinding wheels have a hard resin bond that lasts a long time and contains aluminum oxide grains that will provide an even, clean and sharp cut.

Wolverine: If there are industrial-grade grinding requirements, Wolverine grinding wheels are the best buy. These wheels provide the rapid cut rate and consistent performance needed at a good value to keep operating costs low.

Weiler Abrasives
Tel: 0049 9208 65810
www.weilerabrasives.com

New dual-purpose table lapping and wheel preparation machine

The TL1 is the latest addition to Coborn's single crystal and natural diamond processing range of machinery, heralding the approach of its eightieth anniversary in the precision engineering field. What better way to celebrate 80 years in operation than by launching a highly-anticipated new product?

The TL1 has two valuable functions when used in conjunction with the Planetary Grinding (PG) range of machines or indeed with any third party equipment.

To enable the PG machines to produce high-quality SCD tools, new wheels need to be prepared correctly. This process can take up to three days and during that time the premium grinding machines will not be producing tools, or profit. The TL1 is a cost-effective solution to this problem. Wheels can be prepared while the precision machinery continues to produce tools uninterrupted. One TL1 can provide prepared wheels for many grinding machines.

The second function of the TL1 is for table lapping to produce the final cutting edge either for new or repaired SCD tools. This process is a more hands-on operation but still releases the more expensive machinery to enable continued tool production.

By moving these more basic operations to a lower-cost machine, the increase in productivity can pay for the investment in a very short space of time.

The TL1 may be used in conjunction with Coborn's Planetary Grinding Machine ranges, which are illustrated below.

Coborn Planetary Grinding machines are suitable for use on: low and controlled waviness tools; complex profile tools; elliptical, parabolic, hyperbolic and blended radii profiles; faceted, cone and radiused indenters; concave profile tools.

The PG6 is an automatic, ultra-high precision planetary grinding machine for processing natural or synthetic single crystal diamond (SCD) tools. The PG6 features a new closed loop nano-stop for more



accurate finishing of the radius form and acoustic tracing to enable acoustic monitoring of the grinding process.

The PG3B is suitable for low and controlled waviness tools and faceted, cone and radiused indenters. It is a semi-automatic planetary grinding machine for SCD tooling with a programmable pivot. The pivot motion is automatic and controlled via a touchscreen. Pivot angle limits, dwell time at end of stroke and pivot speed can all be preset.

Coborn Engineering Co Ltd
Tel: 01708 744666
Email: sales@coborn.com
www.coborn.com

Iridium SR takes abrasive technology to another level

Mirka expanded its innovative abrasive line-up in January 2022 with the addition of Iridium SR. This new abrasive has been designed to deliver a consistent, uniform cut and scratch pattern that is fast and easy to polish out, making it ideal for the finest finishing stages of automotive refinishing as well as vehicle manufacturing. In addition, it performs consistently on clearcoat, topcoat and lacquers as well as composite processing.

The abrasive offers excellent consistency and an extremely long lifespan due to its tridimensional technology silicon carbide grains. These grains are evenly placed and form new abrasive edges whenever they break down during the sanding process, which prolongs the sharpness of the grain and reduces abrasive wastage. When Iridium SR is combined with Mirka's cordless tools, the Mirka AOS-B and Mirka AROP-B, it provides the user with unparalleled performance in spot repair work and finishing quality control.

Peter Sartain, national sales manager



Industrial for Mirka UK, says: "We are constantly looking to push the boundaries when it comes to abrasive technology and Iridium SR is the next step up. This abrasive's new technology has been developed for use across multiple vehicle refinish applications and provides the ultimate finish."

Mirka (UK) Ltd
Tel: 01908 375533
Email: sales.uk@mirka.com
www.mirka.com



Engis high volume production bore finishing

In the volume production of components containing precision bores, there are the sometimes competing issues of maintaining precision bore geometries, over a long production run, whilst maximising the output rate and consumable cost per component.

Engis Corporation specialises in producing systems that can do this, at its research and development and production facility, outside Chicago in the USA. These systems can be demonstrated at its facilities around the world, including an applications laboratory and technical resource centre for Europe, based in Oxfordshire, in the UK.

The key elements of a high volume production bore finishing system start with the machine tool itself. The concept of single pass bore finishing is to index the component through a number of bore finishing stations, each one imparting a specific stock removal, geometry and surface finish. Typically, Engis machines are based on a rotary indexing table system, where the component is loaded either automatically or manually and is then indexed through the various operations, where the component is machined, checked and unloaded. This cycle will produce a finished component on every index and therefore cycle times can be dramatically reduced versus conventional stroke honing or other finish bore operations. The Engis system optimises a combination of software, in-process sensors and sophisticated engineering to achieve the most efficient cycle times.

Engis Corporation produces both standard and special purpose machining systems. The principal rotary indexing machines have Mitsubishi, full CNC controls, capable of supporting optional advanced features. Siemens, Allen-Bradley and Schneider electric controls can also be specified. Machines are rigidly constructed and incorporate pre-lubricated for life linear slides and ball screws, pneumatic head counterbalance and class 7 duplex spindle bearings. Standard stroke lengths are between 457 mm and 635 mm although extended stroke lengths can be specified as can higher horsepower drive motors.

In addition to these standard machines, Engis Corporation designs and manufactures special purpose machines for a variety of applications. These include



linear track indexing single stroke machines, which can include features like computer aided gauging solutions with multiple graphical output formats, static and dynamic air gauging, for precision bore geometry analysis, complete statistical process control (SPC) and customised data reporting and industrial tool size reporting via custom routines. Reports can be output to machines, cells or a computer network, giving real time data which assures improved process control.

Engis also produces a 3-axis flexible machine, aimed at the producers of large hydraulic valve bodies, where there is the challenge of aligning and finishing bores once the bodies have been stacked. This flexible machine enables bore finishing after stacking of the valves, improving overall cylindricity and roundness. It features a linear bearing vertical slide with ball screw feed and 750 mm stroke, an X- Y-axis linear bearing horizontal slide base and 8-13 tool automatic tool changer. The machine also utilises a wireless probe system for precise bore location.

Another fundamental of high volume bore finishing systems is the design and manufacture of the fixtures that hold the components. Engis design engineers have many years' experience of fixture design and can optimise the component's bore geometry whilst designing-in fast cycle times and fixture flexibility where appropriate. In some circumstances being able to fixture for a family of components.

Diamond plated, expandable tools are another fundamental aspect to successful high volume bore finishing. Starting with the diamond particles themselves, Engis is a



world leader in synthetic diamond particle engineering, controlling all aspects and variables in order to produce extremely consistent results. Engis diamond powders are used in a wide variety of demanding applications in engineering, electronics and the oil and gas industries. There are a wide variety of tool types available, both for through and blind bores and include specialist tools for dual bores.

Engis application engineers have decades of experience working in-house in their laboratories, as well as in the field, to improve customers' part quality and productivity. The range of systems are capable of producing bores, sized down to an accuracy of 1 μm and a roundness of 0.1 μm . Surface finish on most materials can be down to 0.1 μm Ra and can include Special surface finish requirements, such as Rz, Rt, plateau, bearing surfaces (Rvk, Rpk, Rk) and specific cross hatch patterns.

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Latest deep hole drill technology allows Midwest Precision to deliver on its reputation and its name

A collaboration between the Wisconsin-based deep hole boring specialist and Sunnen Products Company resulted in a deep hole drilling system that delivers quick turnarounds, precise parts, and remote diagnostics to reduce downtime and support steady workflow

With a reputation for quick delivery times and the word “precision” in its name, Midwest Precision has a lot to live up to when it comes to deep hole drilling. The Fredonia, WI-based company has specialised in tight-tolerance deep hole bores for almost 30 years, but it was with an eye to the future that Midwest partnered with Sunnen Products Company to develop the next generation of deep hole drilling systems. The collaboration, with upfront voice-of-the-customer design input from the team at Midwest, led to a deep hole boring solution that is versatile, efficient and reliable, producing parts that are straighter and more accurate than the shop’s older drilling machines. The new Sunnen model SHDD-4500 deep hole drill installed at the Midwest facility produces straight,



tight-tolerance parts on a variety of materials, allowing Midwest to meet turnaround times and keep a variety of parts moving through the shop. However, the biggest advantage is the ease of programming and operating the system, so operators are able to turn out precision parts with minimal training.

Midwest was started by Bob Bublitz in what was basically a garage located in Fredonia back in 1993. Beginning with a single gun drill producing parts for regional customers, Midwest has grown to 30,000 sq.ft. of floor space and 24 employees. The company specialises in tight tolerance drilling services, including deep hole boring, precision gun drilling, and precision honing. Typical workpieces have bores with ID's from .062 to 9.5 inches,

some up to 144 feet in length. The shop has a number of older deep hole drills that handled the bulk of its long cylinder work, but they wanted a system that is easier to program and operate. With two Sunnen hones already in the shop, the two companies were familiar with each other and, in a case of good timing, Sunnen was developing a new deep hole drilling system, having acquired deep hole tooling company BTA Heller in 2018.

“We were looking to add a more reliable, consistent drilling machine and Sunnen approached us with the opportunity to share in the design of an all new system,” says Jason Bublitz, operations manager at Midwest Precision. “From a business perspective, our challenge is maintaining a steady workflow. We’re a contract shop for



Left to right: Chris Braby senior team leader and the machine operator, Tom Huiras general manager and Jason Bublitz operations manager at Midwest Precision



a lot of different industries, so machine downtime has a big impact on overall operations and our ability to meet delivery times."

The Sunnen team consulted with Midwest on all aspects of the new machine design, servo-driven ball screws for tool feed, heavy-duty linear rails and high capacity coolant system, among others, but also developed an advanced control system to simplify time-consuming machine setup and training. The intuitive control makes part-programming easy, and connectivity with Sunnen allows the team at Midwest to keep production moving.

"The advantage of getting real-time assistance remotely, to diagnose an issue or help produce a new part, is a great benefit," adds Jason Bublitz. "We were able to sustain business through the COVID months due to our versatility to produce parts for



a variety of markets and deliver them on time."

For Tom Huiras, general manager of Midwest Precision, the reliability of the new drilling system goes deeper than smooth daily operations: it protects the company's reputation: "We built this business on our ability to turn parts around quickly, sometimes less than a week and our customers depend on us to meet their deadlines." A machine drilling veteran who started at Midwest as a machinist, he is now a part-owner. "The machine must be running, and producing parts to-spec or we're not delivering on our reputation," he adds. "The speeds and feeds of this new drilling system, as well as the accuracy, make it an integral part of our operations. We put mostly Inconel, titanium, 4140 and 8620 alloys through it and achieve the precision demanded by our customers in the time they expect. That means we're pushing

speeds and feeds, but it's accurate at any hole size. We used to easily tell which end of the part was the entrance and which the exit. But, with the new machine we can't tell the difference."

Chris Braby, senior team leader at Midwest, played a large role in design of the new system as he brought the shop-floor perspective to the process: "Older drilling systems require a degree of operator expertise and that takes a lot of training. The ease of set up and programming is important because we're not limited to having just a few qualified operators on staff. We can train a new operator on this system in a matter of hours versus weeks with older systems. The collaboration with Sunnen led to a great design and it continues every time we get a new part challenge."

The Sunnen team welcomed the input from the field. "To paraphrase an old saying, we 'walked a mile in their work boots' to create a drilling system that handles high-capacity production and reduces machine setup and changeover time," says Phil Hanna, machine product manager at Sunnen. "The versatility of a deep hole drilling system that can handle solid drilling up to five inches, and counterboring or trepanning up to seven inches diameter, demonstrates our commitment to develop the best deep-hole system on the market."



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State-of-the art honing solutions from KADIA

New honing centre for multiple bores

KADIA presented a prototype of the X line at EMO 2019 in Hannover. The feedback from visitors to the booth was incredibly positive, so much so that several orders were received in 2020 despite the pandemic.

The X line is a 2-spindle honing centre with a gantry design that combines flexibility and productivity. The machine's speciality is the sequential machining of several bores on one workpiece carrier. Inside the X line, two LH3 honing spindles and pneumatic measuring stations ensure the usual KADIA precision. Deburring stations with automatic brush changers can also be integrated on request.

The bores to be machined are aligned in a highly flexible manner via three NC axes: honing, measuring and deburring station form the X-axis as a traversing slide unit, the workpiece carrier handles the positioning movement in the Y- and Z-directions.

The workpiece transport system, a genuine highlight, has a patent pending. The unit was designed with three workpiece carriers as a pallet circulation transfer. With this solution, the X line differs fundamentally from previous NC honing machines: the two machining stations are not approached one after the other, but work simultaneously. As a result, the X line saves a great deal of cycle time. In addition, loading takes place in parallel with the cycle time, so that no separate loading times are included in the total time, as is otherwise the case. This makes the X line an indisputable productivity champion.

Stand-alone plunge measuring station for match honing

Match honing, the ultimate challenge in honing, is used whenever an exact match between piston and bore is required. First, the plunger is measured pneumatically, then the target diameter of the bore-to-be-honed is calculated individually. The basis for this is a defined match clearance of usually only a few μm . Normally, measurements and plunger handling are carried out fully automatically in a robot loading cell. If complex automation does not pay off, for example in the case of smaller quantities, the plunger measuring station developed by KADIA can be used as a stand-alone system. This is



designed as a compact auxiliary solution and is suitable, for example, for operation with the 2-spindle universal honing machine U line, one of the most successful machines in the KADIA program. A compact auxiliary solution, it is ideally suited for operation with 2-spindle or 3-spindle honing machines and in particular the U line, V line and T line series.

The honing machine in combination with the plunger measuring station is a cost-effective and easy-to-operate solution for the highest quality requirements. The operator inserts the plunger manually, and at the push of a button starts the measuring process and the transfer of the values to the HMC100 control system. The honing machine then machines the bore of the workpiece, which is also inserted manually, exactly to the calculated target diameter. The typical match clearance between bore and piston that can be realized in this

process is in the range of 1 to 10 μm with tolerances of 1 to 3 μm .

The pioneer in the high-precision shape and surface processing of metal components

High-precision bores and burr-free workpiece surfaces are KADIA's profession. With over 50 years of experience, the company sets international standards with its premium technologies. It is a leading expert in honing and mechanical deburring and takes pride in its level of expertise.

Partnership with added value

High tech stands in the foreground of KADIA's three locations in Germany and USA. Its affiliation with Nagel Group enables its global presence. Customers include leading vehicle manufacturers and their suppliers. The company is also a partner to the hydraulic industry and aerospace technology.

Always a step ahead

KADIA's goal is to be the technology leader in the sector and to keep it that way. Therefore, it always pushes technical possibilities to the limit and thinks beyond it. It is continuously driving progress in honing and mechanical deburring technology.

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Finished to perfection

Finishing and superfinishing at GrindingHub

Finishing and superfinishing, lapping, honing and vibratory grinding: an impressive range of manufacturing processes can be used to create a final surface finish. The proverbial "finishing touch" influences the functional behavior of workpieces and components, yielding unique characteristics and competitive advantages. GrindingHub, the new trade fair for grinding technology will provide a platform for finishing and superfinishing.

It took Uli Lars Bögelein "less than ten seconds" to make up his mind to exhibit at GrindingHub. The entire industry is certain to benefit from the trade show, says the managing director of Stähli Läpp-Technik GmbH, based near Stuttgart. Founded over 40 years ago as a sales company for flat honing, lapping and polishing machines produced by the Swiss Stähli Group, Stähli

Läpp-Technik GmbH is now part of the group. Its core competences include engineering, sales and contract processing. The latter represents an ideal way in to superfinishing and to much more besides, as Uli Lars Bögelein makes clear.

He describes the three main groups of users who contact him. These come primarily from the automotive and electrical industries, medical technology, mechanical engineering and the optical industry. The first group of users is not yet concerned about the investment costs for both the 2- and 3-wheel flat honing machines and the 1-wheel lapping and polishing machines, because their production quantities are too low.

Then comes the second group which needs high, if not extremely high, quantities, but which "specifically wants to avoid taking care of these processes, and all they involve, within their own company". Lapping machines in particular bring their own challenges and do not fit into every production operation, Uli Lars Bögelein admits. It is a demanding process which still requires a lot of manual work and specially trained and highly motivated employees.

Finally, there is a third group of users. These run test series at Stähli. Until the series is working smoothly, they would first like to familiarise themselves with the process and the machine and take



advantage of the service and know-how offered by Stähli Läpp-Technik. The company also offers the entire range of consumables and accessories for this, including everything from CBN wheels and diamond suspensions through to testing equipment. Uli Lars Bögelein notes that trade fairs are very important and are often used for making the first contact. Visitors come with drawings and workpieces, but also specific machine inquiries, and to have the technology explained to them. Specific technological know-how is required in cases involving manufacturing tolerances in the submicrometer range and filigree functional surfaces.

Stähli Läpp-Technik GmbH

Tel: 0049 7031 757796

Email: LTS@stahli.com

www.stahli.com

The Science behind

Lapping, Polishing, Grinding and Honing

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New expanded product portfolio

Based in Caerphilly, South Wales, Mastrini MS Ltd is the exclusive UK and Ireland distribution partner for Rocomatic, the Swiss manufacturer of grinding and superfinishing machines for the aerospace, medical, watchmaking and micro-manufacturing sectors.

Recomatic is world-renowned for polishing and finishing the most precise and delicate components. Mastrini MS is presenting an extensive portfolio to UK manufacturers.

The Recomatic range includes the Reco, Bula and Swis machine brands. The Bula range of machines comprises more than eight base model variants, encompassing everything from multi-axis modular automatic transfer finishing machines with rotating tables, smoothing and deburring machines, emery polishing and satin finishing transfer machines and automatic carding machines.

The CT501 is a compact CNC 5-axis finishing centre that meets the requirements for today's complex geometries. From turbine blades and precision tools to hip implants and gearbox shafts, you can grind, mill and surface finish anything you want.



MASTRINI MACHINES & SERVICES

The high rigidity, thermal stability and compact kinematic of the CT501 allow you to overcome many challenges.

Cutting through hard material such as ceramis, sapphires or carbides is easily achieved, with extreme precision and repeatability. The aerospace industry needs material that can sustain extreme temperatures and strength, such as Inconel, nickel super alloys and titanium. The sector demands excellent dimensional accuracy and demands particular surface homogeneity. When it comes to machining difficult material, the CT501 excels and can achieve high productivity rates, thanks to its automatic tool changer, automation options, FANUC 30iB control and spindle speed of 60,000 rpm (option).

The Polgo Bula B2 is a monobloc machine equipped with two CNC work units, each

with five simultaneous axes and a four position indexed rotary table. This enables workpieces to be loaded/unloaded concurrently and, coupled with automation, can achieve high production rates particularly needed in the automotive industry.

The Polgo range of machines are fully modular and the configuration is defined depending on the process requirements and productivity targets.

Whatever your finishing requirements, Mastrini MS has the solution.

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Van Geenen B.V. Metaalfinishing looks to the future with Timesavers

The recent arrival of an 81 series wide belt precision grinding machine at metal polishing and finishing specialist Van Geenen has had an immediate impact. Through improved capacity, productivity and overall capability the Rijssen, Netherlands-based company is opening up new business opportunities

The business began back in 1977 when Arnold van Geenen and his sons Nico and Gerrit joined forces to provide a hand polishing service, with the founders having to sell their cars to buy the vital tools required to get started. Van Geenen B.V. Metaalfinishing is now unrecognisable. Under the guidance of Nico's son Bart van Geenen, the company operates from 5,000 m² premises, housing the latest in polishing and grinding technology. The most recent arrival being the investment in the Timesavers 81 Series grinding machine, which places the business firmly in the 21st century.

From those early days, the company began to specialise, particularly on stainless steel and other exotic materials. The emphasis is firmly on producing sheet and tube material to the highest quality in terms of surface finish (up to Mirror 8 grade), with greater efficiency and consistent technical quality of products. "Hand polishing remains a critical part of our business, but automation has been central to our development since our first investment in a Grindingmaster/Timesavers back in 1984," says managing director, Bart Van Geenen.

"We are always looking to improve efficiency and our investment in automation



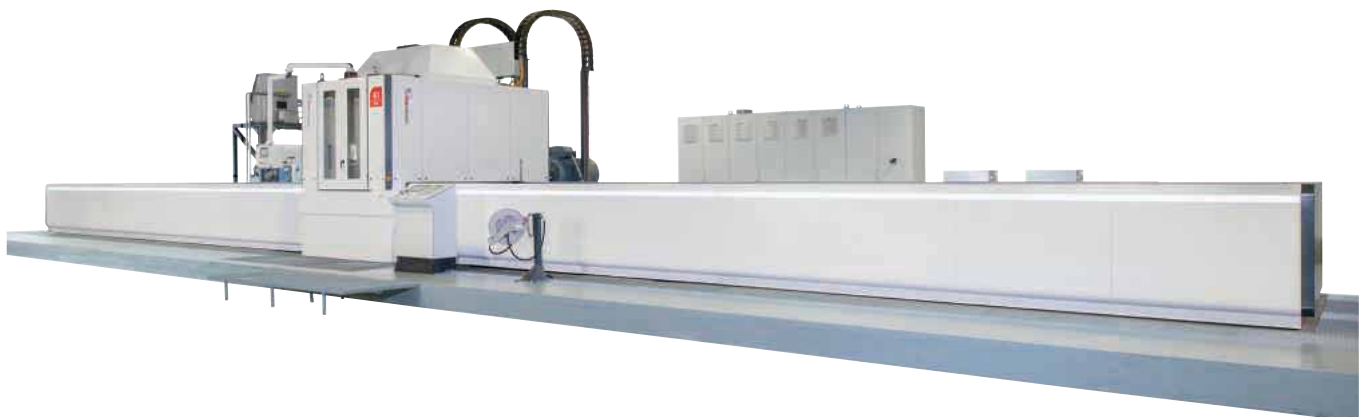
has boosted productivity. As such, our partnership with Timesavers continues with this major investment in the 81 Series machine, an investment that driven both by the heart, with my father's desire for manufacturing technology, and head, with me focused on the commercial potential."

Quality and relationships

Van Geenen prides itself on the quality of its work and the strength of its relationships with customers and this combination has opened up new business opportunities for its polished sheet and tube products across

markets including architectural, tanks, and food processing. "We have always had the ability to do things that our competitors can't do and to continue that we recognized it was time to move into precision grinding." The scale of the 81 series will also future proof production at Van Geenen. At an overall length of 25 m the machine has a capacity to grind sheet or plate from 0.15 mm up to 100 mm, with stock removal rates of up to 0.2 mm/pass achievable with a table size of 2.1 m by 8.5 m to an accuracy of 0.02 mm and less than 0.3 Ra.

The 81 Series is already delivering



significant time savings for van Geenen compared with existing processes. For example, producing a 4 m long 2 m wide by 20 mm thick sheet for a customer in the food processing industry, which required a 0.8 Ra surface finish used to take between 4-5 hours to complete. This is now achieved in one hour on the 81 series. "With the level of investment in the Timesavers 81 series our hourly rate has increased, but this is justified as our throughput is much greater and lead times much shorter and that level of efficiency is vital when putting forward proposals to customers. We are also aware that none of our competitors in Europe have this capability," enthuses Bart van Geenen.

Precision grinding vs milling

Also encouraging has been the enthusiasm from customers for the use of this wide belt grinding technology with the Timesavers 81 Series. The efficiency of the system allows it to replace milling as an operation, reducing the number of processes and improving efficiency. With milling at least two setups may be required for roughing and finishing, whereas with the 81 Series just one operation takes the part to the finished state. This is particularly important on stainless steel parts where the clamping of the material for milling can induce stress in the part. Using the vacuum table of the 81 series eliminates this completely, while achieving improved results in terms of flatness and surface finish. "The 81 Series is a genuine alternative to conventional processes and, it is my role to convince customers that the process is viable and meets their requirements. Thankfully,



customers are open to innovation and are willing to listen and try new processes," says Bart van Geenen. "I recently quoted a customer for some polished titanium plate, within five minutes of delivering the quote I received the order."

Partnership and collaboration with Timesavers

The development of the Timesavers 81 Series came about following conversations with suppliers of sheet material, particularly titanium and other exotics such as zirconium and molybdenum, who were facing challenges processing, accurately and efficiently these materials. The result is a wide belt reciprocating table abrasive machine that eliminates problems found

when milling or grinding using stones or abrasive wheel technology. In collaboration with abrasive belt manufacturers Hermes and 3M the 81 series can process materials much more efficiently, in some cases such as grinding Molybdenum a conventional cycle time of 10 hours was cut to 25 minutes.

A typical Timesavers 81 Series cycle consists of a fast rough grinding cycle followed by up to three spark-out passes, with the sheet, which is positioned on the powerful vacuum table, then rotated and the cycle repeated on the opposite face. The result is a thickness accuracy across the entire sheet of 0.25 µm with the major benefit of the process creating a 'short-scratch' finish.

Timesavers and Van Geenen are also collaborating with this new investment with Timesavers introducing potential customers, who may not be in a position to justify the purchase of an 81 Series just yet to Van Geenen. The machine being made available to Timesavers as a real-world example for customers to see the potential of this grinding technology. "This investment is backed by our experience of the service provided by Timesavers over many years to our company and both our companies will continue to grow alongside each other as a result of that relationship," concludes Bart van Geenen.



Timesavers International B.V.
Tel: 0031 113 238900
Email: info@timesaversint.com
www.timesaversint.com

Continued investment in high-end machinery shows ambition

West Sussex-based Altech Engineering has been providing sheet metal engineering services and solutions since it was founded by managing director Ian Westley in 1988. With a focus on quality and an ethos of continuous improvement, the company regularly invests in top-of-the-range high end machinery to ensure an excellent and efficient service is provided to all its customers.

It offers a tailored service to suit individual customer and/or project requirements. From start to finish, every step of the process receives the utmost attention. Altech can assist with the initial design or work with existing drawings for production and through to completion. ISO accreditation ensures quality is maintained and controlled throughout the process. The dedicated and skilled team likes to work with its customers collaboratively and be flexible in its approach to suit specific preferences with a commitment to provide the perfect solution.

From start to finish, Altech ensures that every step of the process receives the utmost attention and this is why continued investment in the latest equipment is vital, hence the recent purchase of a Pro-Set F200XL deburring machine and WES 3000 extractor from Q-Fin.

The F200 XL is a three station finishing machine suited for deburring, grinding and/

or edge rounding of flat metal parts. This deburring machine has a grinding belt followed by two stationary brushes. The grinding belt eliminates burrs or can give the product a line grain finish. The brushes ensure the product no longer has sharp edges and provide the surface with a smooth finish. The F200 XL has two counter rotating brushes resulting in a faster processing speed and more edge rounding.

The WES extractor system, completely built out of stainless steel, is a wet-filter system that extracts grinding dust from metals such as stainless steel, steel and aluminium. There is no chance of fire or explosion through its safe way of extracting the dust without loss of pressure. The extracted dust is pulled through the whirling water with great force, encapsulation the metal dust in the water and separating it from the supplied air.

Why buy the machine

Simpson Technology and Q-Fin started a co-operation in 2020 and have been promoting their products across a range of companies for large automatic machines and smaller manual machines. Simpson Technology sales manager Steve Warden has had a relationship with Altech for a number of years since his days with TRUMPF Ltd. Ian Westley explains: "The whole journey of purchasing the machine we knew would be easy because of our relationship with Steve but the way it was handled was professional without complacency. We requested that our parts should be sent for testing on the machine which were duly returned as expected and with a very personalised video showing the machine producing our parts and this really helped us to understand the process and speed of throughput available. We then went to see the machine in action in the field and could see how easy it was to operate with the touchscreen control and lighting of the equipment. The advantages to Altech Engineering over the previous processes are the additional operations and flexibility the machine would give us with the vastly improved output. Now we have the machine and are delighted with the results we are getting. We can see that it is well



engineered and built for longevity and that gives us confidence in what we can offer to our existing and potential new customers.

Simpson Technology was formed in 2015 to bring something new and exciting to the market, bringing value to customers by providing personal advice, offering the best solution and support all the way through to the after sales service. Its experienced engineers take on machines that are solid, reliable, productive and fairly priced in the market. They also go to see the machines in the production phase to the final assembly and test to make sure they fit the bill, as they want to satisfy customers' expectations. Simpson Technology offers machines from start to finish i.e. shearing, profiling, deburring / rounding, bending, welding, laser marking in the sheet metal sector.

Simpson Technology doesn't just sell machines, as there are many large corporate companies already out there that do this and are not so personable to deal with. The team are individuals who are interested in what customers are doing, interacting in a two-way relationship to find the best solutions and grow together with its customers.





The combination of 30 years of experience in grinding and deburring technology and knowledge of machine construction created unique opportunities in the development and construction of the machines. In July 2017, the company moved to a new building in Bergeijk. Currently, the team comprised 30 enthusiastic people and with the increasing awareness of the quality of our machines, so is the team.

Chain integration and the increasing demands that are placed on the optimisation of products have as a consequence meant that companies increasingly devote more time and attention to the finishing of products. Q-Fin machines can relieve production companies in the sheet processing industry from the finishing of their products and ensure that they can deliver sheet components to their clients with a consistent finish in accordance with the specifications. We want to offer production companies an effective and cost-efficient solution to be able to process products in a controllable and safe manner.

Q-Fin likes to do things differently. It develops, builds and sells leading machines for finishing sheet metal parts and extracting grinding dust. It distinguishes itself by incorporating the right proportions of force, abrasive material and speed into its machines. This essential combination is called GrindingPOWER®.

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Email: scott@simpson-tec.co.uk
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The smaller machines have been successful due to the HAVS (Hand, Arm, Vibration at Work Act) as the machine can be operated in grinding / welding preparations all day without the necessity of the operator only being able to use it for a short time. Q-Fin and their partners work closely on machine development to suit the industrial requirements of not just the customer but also the local laws.

Profiles usually have a sharpness to the upper and lower edge and it has therefore become an important part of the finishing process for them to be rounded for smoothness, safety and cosmetic reasons. The Pro-Set gives the opportunity to deburr using the belt and round using the brushes.

The solution for mechanical deburring, grinding and edge rounding

Q-Fin B.V. was founded in 2013 by Anton Bax and Koen de Waard.

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Modern sheet metal processing places more and more demands on the cut parts

Modern mechanical engineering is increasingly designed and manufactured with complex sheet metal components that are hardly or no longer machined. After the cutting follows the bending, then the welding or laser welding. In between, the components are painted using various processes, surface-treated or protected against corrosion. The various production steps are connected to each other and control the machining process. This requires dimensionally perfect cut parts with the appropriate surfaces and edge quality.

Nowadays, behind the term "deburring" hides for example a whole series of other requirements such as breaking cut edges, rounding cut edges, descaling surfaces or attaching a defined radius to the edge.

Today, WEBER has a concept with the TTSC series that can solve all these tasks. With various grinding techniques, the ideal solutions are available for the individual requirements. Parallel to the technical development of sheet metal cutting from auto oxy-fuel cutting and plasma cutting to today's laser cutting technology with more than 10 kW cutting power, WEBER has modified and further developed its grinding processes.

While the conventional grinding technique of the eighties could actually deburr and break only the cross-edges of the cut sheets, WEBER already had a machining system that rounds all edges, longitudinal and transverse, almost equally well. When the laser was used to cut thicker sheets, the problem of descaling the cutting surface arises. WEBER had also developed and used a solution for this purpose.

WEBER now has its own grinding processes for the individual problems, which can be freely combined with each other in the WEBER TTSC series. For surface grinding and deburring, conventional grinding rollers are used. The subsequent edge-breaking or rounding is done with the WEBER planetary head technique. In this grinding process, pot brushes fitted with abrasives are used, which perform a double rotational movement. This patented WEBER technology with closely spaced and rotating tool carriers allows a large overlap of the machining areas, so that the same result is



achieved on the entire working width of the machine.

An additional mechanically complex oscillation movement of the brush station is not necessary. WEBER uses the MRB brush head for descaling the cut surface. Here, round brushes are mounted in pairs on rotating beams, which in turn are arranged side by side. If a defined radius is to be attached, the two methods are combined. Since the machining stations are independent, the tool-related individual wear can be precisely compensated and corrected. As the WEBER brush heads consist of units arranged side by side, they can be combined with each other in a space-saving manner according to the grinding task.

For this reason the TTSC series is built

with up to four grinding stations and working widths of up to 1,600 mm. The machine is controlled entirely via a SIEMENS touch panel. All axles are motorized, all drives are frequency controlled. In this way, individual machine settings can be stored reproducibly and recalled. As often in life the differences are in technical detail. WEBER focuses here on clear and comprehensible technical solutions, tried and tested as well proven technology combined with a goal-oriented and simple operation.

Hans Weber Maschinenfabrik GmbH
Tel: 0049 9261 409 184
Email: info@hansweber.de
www.hansweber.de

Kemet offers reduced cost of deburring, surface polishing and cutter mark removal

Market leader in precision surface finishing technology, Kemet International has been supplying Xebec ceramic abrasive stones for many years from its Precision Engineering Tooling Division.

Kemet has now announced the introduction of the latest deburring polishing brushes from Xebec, used for polishing ferrous and non-ferrous materials, effectively removing cutter marks, and improving surface roughness on top surfaces, side, inner diameters, and channels.

Xebec Technology's ceramic fibre products utilise a unique, patented process to produce brushes, sticks and stones that greatly outperform traditional deburring methods. One Xebec ceramic bristle consists of 500–1,000 ceramic fibres that work as cutting edges, the cutting fibre being the world's only brush made by continuous ceramic fibre.

This unique material allows for higher

grinding power, consistent performance and superior surface finish, the fibres being formed into bristles for brushes or bound into stones. The self-sharpening tips offer vastly superior grinding capability, while end-to-end solid abrasive rod material assures consistent performance. Unlike brass wire, steel wire and abrasive impregnated nylon brush filaments, the unique design of the Xebec fibre rod allows it to maintain its shape with no deformation even after repeated use. This leads to consistent performance time after time, achieving a beautiful, finely finished surface without tool marks or residues.

Across a wide number of sectors: aerospace, automotive, energy, medical, production manufacturing, introducing Xebec deburring products into the fabrication process can significantly increase productivity, decrease cycle times, and offer repeatable dimensional component accuracy.



A close-up of a machine: the Xebec ceramic fibre offers unsurpassed grinding power, consistent cutting performance and zero deformation and these three features enable a quantum step forward in CNC deburring and polishing

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Walther Trowal AM post process creates perfect surface finishes, even on components with complex shapes

At the recent Formnext, Walther Trowal presented the tub vibrator TRT 83/87 for finishing the surface of 3D printed components. Especially for smaller manufacturing batches this mass finishing machine creates very smooth and shiny surface finishes.

The AM Post Process mass finishing machines were explicitly developed for the post processing of 3D printed components. They are specifically adapted to the surface roughness conditions created by the additive manufacturing process. For example, stair casting, support structure remnants and sintered-on powder residues.

Contrary to electro-chemical treatment systems, the AM Post Process creates smooth and shiny finishes on the surface of components with complex, often bionic, shapes in just one or two process stages.

The TRT 83/37 tub vibrator, shown at the Formnext exhibition, was specifically developed for relatively small manufacturing batches. Generally, one or several workpieces are placed into the processing bowl filled with suitable grinding or polishing media. The vibratory energy induced into the bowl causes not only an



A 3D printed gimbal frame before (top) and after the "Trowalizing" process

intensive rubbing motion, but also creates a considerable pressure between the media and workpieces. Within relatively short cycle times this produces very smooth, homogeneous surface finishes.

Christoph Cruse, sales director at Walther Trowal GmbH, considers the TRT 83/87 as an entry-level machine for companies undertaking first steps in the field of additive manufacturing: "Initially, we developed this compact, easy-to-operate machine for cleaning metallic workpieces and are manufacturing it today in relatively large volumes. This allows us offering the machine at a very competitive price. For larger work piece batches that cannot be processed by freely tumbling in the processing media, we offer the rotary vibrator AM 2."

In the AM 2, specially developed for finishing 3D printed components, the workpieces are mounted to the bottom of the processing bowl. This creates a particularly intensive motion between media and workpieces. Another major benefit of this processing mode is that the firmly mounted workpieces cannot get scratched or nicked by touching each other during the finishing process.

The vibrators of the AM series are equipped with three vibratory motors creating an overlapping motion of the media/workpiece mix. This results in a highly homogeneous and gentle grinding/polishing effect of the media on the work pieces. Delicate, thin work piece contours are not breaking off or warping but remain intact. Moreover, the processing media is also finishing difficult-to-reach internal passages and undercuts typical for 3D printed components.

Surface finishing technologies from the inventor of the "Trowalizing" process

Since 1931, Walther Trowal has been developing and producing systems for the refinement of surfaces. Initially focusing exclusively on mass finishing (the term "Trowalizing" originated from the company's cable address "Trommel Walther"), Walther Trowal has continuously expanded its product portfolio.

Over time the company has developed a broad range of machinery and systems for mass finishing, shot blasting and coating of mass produced small components.

With the invention of new systems like, for



The AM 2 rotary vibrator was specifically developed for finishing the surface of 3D printed components



A 3D printed blisk segment (top) and after the "Trowalizing" process

example, drag finishing and the development of special finishing methods for 3D printed components, the company has proven its innovative capabilities again and again.

Walther Trowal develops and implements complete surface treatment solutions that can be seamlessly integrated into linked production systems existing at the customers. This includes the entire process technology, perfectly adapted to the specific surface finishing requirements of the workpieces: Equipment and the respective consumables always complement each other in a perfect manner.

Each individual workpiece and each manufacturing process must meet special technical requirements. That is why the experienced process engineers in the test lab, in close cooperation with the customers, develop the optimal process technology for the finishing task at hand. The result: workpiece surfaces that meet exactly the required specifications, with short processing times and a high degree of consistent, repeatable results.

Walther Trowal is one of the few manufacturers that develop and produce all machines and mass finishing consumables in-house, including ceramic and plastic grinding and polishing media as well as compounds.

The company's equipment range also includes all kinds of peripheral equipment for handling the workpieces like lift and tip loaders, conveyor belts and roller conveyors, plus special driers for mass finishing applications as well as systems for cleaning and recycling of the process water.

With its exchange program for wear items like work bowls, which are part of a continuous recycling program, Walther Trowal conserves valuable resources and thus makes a significant contribution towards sustainability in the field of industrial production. Quick technical support and the global repair and maintenance service ensure high uptimes for our equipment.

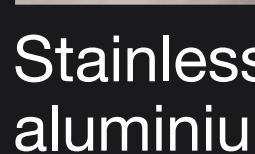
Walther Trowal serves customers in a wide range of different industries all over the world, for example, automotive, aerospace, medical engineering and wind power.

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Vollmer Offers 2 in 1 Solution

Cutting tool manufacturers have always had the inconvenience of producing solid carbide and PCD cutting tools on two separate machines; that was until VOLLMER introduced its VHybrid concept. VOLLMER has now eradicated this issue for cutting tool manufacturers with its flexible new VHybrid 260 solution that can grind carbide tools and erode PCD tools, all in one machine.

The stunning new VOLLMER VHybrid 260 combines the technologies of an innovative grinding machine and a powerful erosion machine, making it possible to switch between erosion and grinding functions in next to no time. Utilising VOLLMER's unique multi-layered machining technology that was first proven in the Vgrind series of machines, the vertical alignment of two spindles is a groundbreaking arrangement that allows the grinding and electrode wheelsets to precisely pivot the C-axis to ensure operators always achieve optimal results. This configuration allows users to combine both processes. If the tool requires both grinding and erosion, the VHybrid 260 can create one complete and highly efficient machining process for all tool production requirements.

The multi-layered spindle configuration allows the efficient grinding of carbide tools with diameters of up to 150mm on the top spindle whereas the bottom spindle can accommodate both grinding and erosion. This enables the efficient machining of carbide or PCD tools up to a diameter of 150 mm, thanks to the high-performance and finely tuned Vpulse EDM erosion generator that maximises productivity and performance whilst reducing production costs. This ultra-precise erosion generator delivers surface finishes to a roughness of 0.1 μ Ra for the best possible cutting tool quality whilst electrode calibration and wear control that combines with a dressing device provide fully automated processing with unwavering quality levels.

Quality is built into every facet of the VHybrid 260 and VOLLMER demonstrates this with its innovative 'wall concept' that provides the highest possible rigidity and vibration damping through its concrete polymer foundation. This is complemented by the effective spindle and motor cooling technology that creates greater thermal stability for unparalleled precision and power whilst the vertical spindle configuration eradicates issues related to fixing and floating bearings.

Automation and ease-of-use are factored into every element of the new VHybrid 260 and this includes the tool loading and unloading facilities. Here, VOLLMER offers several options with its HC4 chain magazine that has space for 39 HSK-63A tools or up to 158 shank-type tools with a maximum weight of 5 kg. Alternately, for manufacturers producing larger tools, VOLLMER offers the HC4 Plus, which provides space for 160 shank type tools or 40 HSK-63A tool holders with a tool diameter of 80 mm. With larger tool diameters of up to 150 mm, there is space for 20 HSK-63A tool holders with a maximum weight for individual tools up to 10 kg.

Further demonstrating that VOLLMER has factored ease-of-use and automation into all areas of the 5-axis VHybrid 260, the automation options also extend to the 8-tool grinding wheel changer that ensures the right grinding wheel for the right tool is always supplied to the work envelope with no manual intervention. As an option, coolant nozzles can be automatically exchanged with the wheelsets on both spindles.



VOLLMER once again excels with its multi-function handwheel for easy axis adjustment, simple touchscreen control, optimal machine access and height-adjustable tilting control platform. This ease-of-use extends to the modularly designed ExLevel PRO software that allows efficient, fast and easy machining of a wide range of tools in both grinding and eroding operations. This simplicity extends to tool simulation that can be set up directly at the machine or remotely.

To further enhance performance, precision and quality, VOLLMER provides a multitude of optional extras. These include linear scales on all axes for even greater precision levels and performance plus a steady rest to optimise grinding results when processing longer cutting tools that have the potential to deflect. Furthermore, VOLLMER also offers automated gripper compensation as an in-process solution. This provides maximum precision when loading and unloading tools and reduction sleeves and it also reduces wear and maximises stability.

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ANCA's newest LaserUltra Smart Factory tool measures tools 70 percent faster

LaserUltra dramatically increases capacity and reduces waste through highly accurate and fast in-process measurement and compensation, enabling unmanned shifts

ANCA is a market leader in inventing, developing and offering its customers the latest technology to realise the benefits of automation and lights out manufacturing. LaserUltra is the next generation of the highly popular LaserPlus, an in-process measurement technology only available with ANCA that gives customers the power to operate unmanned overnight with the confidence they can retrieve their finished tools the next day within specification. LaserPlus is a game changer for the industry and is significantly faster than external tool measurement processes.

ANCA's LaserUltra allows the measurement of tool geometries to tolerances of 0.002 mm without removing the tool from the grinder, saving time in the manufacturing process and ensuring that maximum accuracy in measurement is maintained over large batch grinding. The Swiss manufacturer of key cutters F.O. Select is one of the users that have been relying on the LaserPlus solution for quite some time: "We produce all our products in-house, so we have a control over the whole production process and can cope with the increasing demands on complexity and precision. For us, LaserPlus is the key to converting our manufacturing to 24/7 without compromising quality," says Loïc Jacot, fifth generation family member of F.O. Select.

LaserUltra was introduced at EMO 2021 with some significant innovations. New analog measurement achieves a 70 percent reduction in measuring time compared to LaserPlus. The analog measurement is a continuous edge scan instead of number of digital points along the cutting edge. This process also eliminates variations caused by machine standing idle, errors due to manual wheel corrections and the requirement of skilled operators. LaserUltra has increased accuracy, productivity, and reduction of scrap.

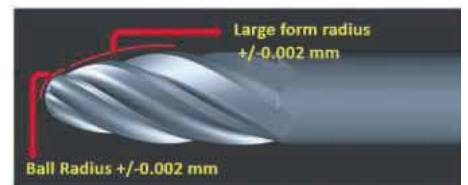
Edmund Boland, managing director at ANCA Europe, says: "The intersection of 5-axis milling machines, advanced CAD/CAM software and advanced profile



The components of the LaserUltra system are permanently installed in the machine and are therefore always ready for use without restricting daily work

geometry cutting tools is revolutionising the die and mould and aerospace machining industries. ANCA's Laser Ultra tool measurement system together with RN34 software gives tool manufacturers all they need to manufacture complex profile endmills productively to outstanding accuracy. In our showrooms in Coventry and Weinheim, tool manufacturers can get a live impression of the possibilities they can open up with LaserUltra live on their machines. The Coventry showroom has just been equipped with a MX7 machine, presenting the LaserUltra, along with a CPX blank preparation machine from January."

LaserUltra offers customers: a cycle time that is approximately 70 percent faster than LaserPlus in normal tool measurements which directly relates to increased productivity; greater accuracy due to the continuous edge scan rather than a number of points; several new ToolTypes like barrel shape cutters and lens shapes are included with LaserUltra measurement cycles; new operations like runout compensation and enhanced functions; a larger working envelope means larger diameters and length of tools can be measured; the measurement reports have been modified to suit customers' requirements; eliminates



The range of tools that can be measured with LaserUltra has been further expanded compared to its predecessor LaserPlus

errors caused by manual compensation process.

Thomson Mathew, ANCA Software product manager says: "Gone are the days of manual or external measurement and compensation for critical dimensions or profile forms due to wheel wear or other grinding factors as LaserUltra can measure and compensate within a couple of microns. All this is done in process without taking the tools out of the machine with complete control of process stability and capability. These measurements are displayed at various locations to give our customers complete visibility and trust in their grinding process."

LaserUltra is an automatic OD, profile measurement and compensating system for ANCA's FX, MX and TX machines. It is ideal for measuring and compensating tools to

maintain tight tolerances (0.002 mm) in unmanned production grinding. The in-process measurement is available in both digital and analog for fast and accurate measurements to enable productivity and performance improvements. It is permanently mounted inside the machine and will not interfere with typical grinding processes and accessories. Using the laser, the operator can perform accurate in-process measurement and compensation without removing tools from the machine.

Thomson Mathew continues: "It gives customers flexibility to service multiple markets, supporting a large range of cutting tool applications, for example all types of endmills or step tools, including profile, compression routers, threadmills and several more. Furthermore, different versions of LaserUltra can cover large diameter ranges and various lengths depending on user cases. Finally, LaserUltra can generate reports which can be configured to customers' requirements."

ANCA is a market leading manufacturer of CNC grinding machines. It was founded in 1974 in Melbourne, Australia where the company still has its global headquarters. ANCA Europe has its main technology centre in Weinheim, Germany and a smaller facility in Coventry, UK with expert teams covering service and sales, applications, customer training, operations, engineering, finance and administration. Regular customer demonstrations and events are conducted at the Weinheim technology centre. To offer customers a local experience ANCA has sales and service teams in Poland, France, Italy and Turkey as well as sales partners in Spain, Russia, Switzerland, Israel and other key European locations.

ANCA CNC grinders are used for manufacturing precision cutting



High precision is also guaranteed in the automated production of larger batches

tools and components across a diverse range of competitive industries including cutting tool manufacturers, power generation, woodworking, automotive, aerospace, electronics and medical.

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Allied Tooling and Walter are perfect allies for “game changing” tool grinding and erosion

Online audio and web conferencing technology has played a crucial role in business discussions and decisions during the past 18 months or so, but Walter Ewag UK and customer Allied Tooling Ltd took the concept to a new level by staging a remote demonstration of a Walter Helitronic Power Diamond 400 two-in-one tool grinding and erosion machine for processing both carbide and PCD tools.

“The demonstration finally convinced me that this was the perfect machine for our needs,” says Wes Hacker, managing director of the Poole, Dorset-based tool operation, one of the largest privately-owned saw and cutter servicing and tooling suppliers in the UK.

“It is an incredible machine; a real game changer,” he adds. With a 26 kW spindle producing 10,500 revs/min combined with axes traverse rates of 15,000 mm/min in X, Y and Z, Mr Hacker says the machine’s power and speed “is complemented by its ease of use, and the effective and efficient tool and grinding wheel loading.

“Importantly, too, programming is very straightforward and the machine can process a diverse range of tools. All these attributes and its attractive price tag meant that this was the machine we just had to have to enable us to continue to grow the business.”

While Wes Hacker reflects that the Helitronic Power Diamond 400 initially caught his eye at an exhibition “and was clearly way ahead of competitor models”, he knew that output levels would be further improved by enhancing the machine’s exceptional performance in single setup tool grinding and erosion with the use of an automatic wheel changer as well as with Walter’s Robot Loader 25 tool handling magazine.

“The combined processing of carbide grinding and PCD erosion will enable us to meet all expectations in terms of customers’ tooling needs, especially PCD-tipped tools for the increasing composites machining market,” he explains. “Now, with integrated wheel changing and a loader able to



accommodate up to 80 tools, we are also in a position to automatically and cost-effectively process large batches of tools of varying designs, including operating the machine in a lights-out mode.”

Established over 40 years ago, Allied Tooling Ltd is renowned for its comprehensive range of products and services, supplying shank and block tooling for woodworking, metalworking, engineering and composite applications, including abrasives, TCT saw and bandsaw blades, HSS, carbide and PCD spindle block tooling, as well as routers, Euro knives, plus HSS and TCT serrated back knives.

Much of the tooling processed is in relation to its exclusive UK agency for AKE, a Germany-based saw and tooling manufacturer, though bespoke designs are also manufactured in-house for an extensive customer base that extends from kitchen manufacturers through to Formula One teams.

The company continually invests in the latest manufacturing technologies to constantly improve efficiency and quality

levels, and the Helitronic Power Diamond 400 is the latest addition to a CNC-focused machine shop that also includes a Walter Helitronic Power tool grinder and a Walter Helicheck tool measurement machine.

Able to process tools of 3 mm to 380 mm diameter and up to 520 mm long, the Helitronic Power Diamond 400 includes Walter’s renowned Tool Studio software that has integrated wizard technology for fast tool production simulation, parameter changes and machine operation, for instance, as well as an erosion function option for the fast and easy programming of ‘what you see you can grind and erode’.

Combined with the machine’s physical attributes, Tool Studio’s ease of use is also particularly highlighted by Wes Hacker, who comments that “its genius is its simplicity.”

Walter Ewag UK Ltd

Tel: 01926 485047

Email: neil.whittingham@walter-machines.de

www.walter-machines.com

Powerful new off the shelf solution for manufacturers of CNC grinding machines

Powerful new software from NUM provides manufacturers of CNC cylindrical grinding machines with an innovative means of adding non-circular grinding capabilities to their products without incurring significant development time and cost.

Non-circular grinding is used in a wide variety of automated manufacturing applications, such as the production of camshafts, crankshafts, cams and eccentric shafts. However, it is an extremely complex task, because the non-circular contour leads to constantly changing engagement and movement conditions between the grinding wheel and the workpiece.

NUM has now added non-circular grinding functionality to its NUMgrind cylindrical grinding software, which forms an application-specific element of the company's renowned Flexium+ CNC platform. It is fully compatible with other Flexium software, from release 4.1.20.00 onwards.

NUMgrind is specifically designed to simplify the creation of G code programs for CNC grinding machines through the use of a highly intuitive graphical human machine interface (HMI), conversational-style 'fill in the blanks' type dialogues or a combination of the two.



Unlike conventional CAD/CAM workstation tools for generating CNC machine tool control programs, NUMgrind is intended for use in the production environment. It enables shop floor personnel to handle everyday machining tasks very quickly and efficiently, plus the work can be easily shared amongst several people and several machines. The NUMgrind HMI can of course also be run on an office PC.

Application-dependent projects, and the corresponding ISO part programs, can be created, tested with NUM's Flexium 3D

simulation software and transferred to the targeted machine. The operator simply determines the sequence of the grinding process via the HMI and enters the necessary data for the grinding operations, grinding wheels and dressing operations in the dialogue pages. Programming is further simplified by the fact that the HMI is supported by a comprehensive library of predefined shapes, which includes eccentric circles, hexagons, pentagons, polygons, Reuleaux triangles and rhombi. The CNC program is then created completely automatically and stored in an executable form.

The closed shape of the workpiece is defined in the XY plane. However, grinding is performed by interpolating or synchronising the X-axis with the C-axis (workpiece spindle). Axial movement in the Z-axis can also be accommodated, by means of oscillation or 'multi-plunge'. The Flexium+ CNC system's NCK transforms the contour from the XY plane into an XC plane, and calculates the corresponding compensation and in-feed movements, taking the grinding wheel diameter into account. The speed profile is also transformed, so that the speed and acceleration are automatically adapted to suit the physical attributes of the machine.



NUM (UK) Ltd
Tel: 024 76301259
Email: sales.uk@num.com
www.num.com

SuperCORR A helps to reduce fretting corrosion on gas turbine connectors



LP Gas Turbines are used throughout the world by extraction industries and manufacturing plants in remote and hostile locations for essential power production. Dusty and wet environments in deserts, mines, grinding mills, pulp and paper mills and on land or sea drilling rigs for gas and oil production. Turbines powering aircraft services while stationary connect and disconnect many times a day in extreme conditions. These applications and locations test connector sealing continuously allowing dust or water to penetrate. This with the flexing of the connecting cables allows sufficient movement between the metal surfaces of the connecting pins to produce fretting corrosion which reduces, interrupts or produces failures in supply. Regular maintenance of electrical connectors is essential to be certain of uninterrupted supply.

"Rub test" results

SuperCORR A is an aerosol lubricant containing corrosion preventive compounds. A manufacturer of connectors

tested SuperCORR A to see what the "life" of the lubricant was in a "rub test". The typical test is 20,000 cycles, i.e. unplug, plug in is one cycle. The test results demonstrated that after 20,000 cycles there were no failures. It was decided to take it one more step and run the same tests for 200,000 cycles. The results again showed no indications of galling or scoring on the connectors at all. The connector looked and tested as good as new. This test was run under clean conditions in a laboratory but demonstrates the effectiveness SuperCORR A.

As it meets Mil MIL-DTL-87177B (revised MIL-L-87177A) specifications, it is used by the U.S. Air Force to protect the intricate workings of the F-16 and F-15 fighter jets and by the U.S. Navy on the P 3 Orion electronic surveillance aircraft. Savings for the U.S. government is estimated at \$50 million per year. Commercial Aviation aircraft manufacturers recommend it for avionics and electrical switches and connectors and close mechanical application, especially where flights are in salt fog or high humidity.



Containing extremely long-lasting, proprietary anti-corrosive inhibitors SuperCORR A provides a superior lubrication coefficient and protects components against moisture, wear, general and fretting corrosion, surface static electricity, corona, and other electromigration problems. The super thin non-flammable lubricant film is only 7 µm (0.007 mm) thick and is formulated without sulphates, chlorides or halogens to meet the RoHS directive. It is unexcelled in preventing deterioration and contamination on all surfaces of electronic equipment.

Very fast drying, environmentally acceptable solvents are used as carriers and propellants which will not affect most plastics, substrates, metals or other materials used in connector manufacture. The aerosols are supplied with probes which allow access to pins and connector tubes where the low surface tension repels water, dirt dust and metal particles from blind holes and surfaces to produce thoroughly clean holes and surfaces before a second application applies the lubricant film. Reconnection to the supply with cleaned sections of the connector ensures reliable operation even in the most testing of environments. One can of SuperCORR A allows this essential task to be carried out in any conditions quickly, easily and securely.

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Tel: 020 8281 6370
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www.envirotech-europe.com



Steel mill tumble blast machine

The AGTOS standard program of steel mill tumble blast machines (Model MR) offers filling volumes ranging from 180 to 1,550 litres.

The choice of machine depends on the volume and the batch weight of the workpieces to be blasted. In addition, other parameters such as a workpiece's geometry, material and temperature should be considered when selecting a tumble blast machine.

In the event that a standard model does not meet your surface preparation needs, the experts at AGTOS will develop a tailor-made blast machine concept for you.

On the Model MR, the loading device loads workpieces directly into the blast machine from containers, pallets or so-called charging baskets. The workpieces slide through the open loading door and onto the advancing caterpillar tread. The loader subsequently returns to its initial position. The blasting process begins after the loading door is automatically closed and locked. After the blasting period ends, the

door opens automatically. The freshly blasted workpieces are removed in sequence by a take-off conveyor, or by emptying them directly into containers provided by the customer.

The blasting abrasive is continuously cleaned, recirculated and reused. An abrasive metering device feeds the cleaned abrasive from the abrasive storage bunker to the high-performance turbines. A fan unit creates the partial vacuum necessary to maintain dust-free operation of the blasting unit. Extracted air is cleaned in a special filter unit.

The tumble blast principle has been recognised for decades as the most effective blasting process for removing sand, scale and burrs from heavy or sharp-edged mass production parts that require the robust steel mill design found in the Model MR tumble blast machines. Mounting screws secure the machine's steel plates to links in the caterpillar tread. These links are then joined together with appropriate connecting elements. The



tumbling motion of the mill ensures that workpieces are exposed to the abrasive stream during the entire blasting period.

Machines of this kind can be filled and emptied in a variety of ways: with an automated loading device and take-off conveyor, or with other equipment already integrated in the rest of the production line.

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Automated blast system for high productivity metal finishing

Guyson International, a UK leading industrial finishing equipment manufacturer, has recently added the Guyson Multiblast® RXS1400 automated blast system to its portfolio of Rotating indexing Spindle systems. Ideally suited for the complete surface treatment of components that can be blast finished or shot-peened whilst rotating about one axis. Guyson's largest standard indexing system can handle components with a maximum component size of 400 mm height x 400 mm diameter and a weight of 25 kg. The blast system is perfect for medium to high volumes of automotive transmissions, aerospace and land-based turbine components, railway, wind and construction equipment and substrate materials in metal, composite or exotic alloys.

The Guyson Multiblast RXS1400 machine is a six spindle rotating indexing blast system that can process multiple parts simultaneously; having two blast stations, making it extremely suitable for high volume manufacturing. The six work spindles are equally spaced around the perimeter of the rotary indexing table and arranged so that at all times two of the spindles are outside the blast machine during the blasting operation for loading and unloading. Due to the rapid table indexing of the RXS1400, the load/unload environment is generally protected with a light-guard failsafe safety device.

Guyson International sales manager, Ian Rayner states: "The RXS1400 blast system is a great new addition to our already extensive range of automated blast solutions, which also includes the smaller RXS400 and 900 options, RSB rotary table machines, T40 & T50 tumble basket and in-line tunnel blast machines. This new equipment can be specified as either suction fed or pressure fed with the choice being directed by the application and throughput requirements."

Parts are loaded onto the left-hand spindle and enter the blast chamber via pneumatic sliding doors. These open and close automatically, to allow components to enter and exit the machine; and are interfaced with the table indexing mechanism. The doors also create a seal during the blast operation to prevent media and noise from escaping to the work environment.

Inside the blast chamber, the dual blast station design can feature fixed or vertically traversing guns to provide optimum blast coverage and reduced TAKT times compared to manual blasting. The two rotating spindles present the components, in sequence, in front of the blast nozzles at each of the two blast stations. This ensures uniform coverage for a superior, repeatable, controlled finish required by industries such as aerospace, automotive and medical.

After blasting, components enter a post-blast airwash chamber where compressed air is directed at them to remove any residual dust or blast media and are ready for the next stage of production.

Blasting can be either suction or pressure fed, as on all Guyson automated blast equipment. If pressure fed, with high component volumes, blasting is delivered through a pressure pot, often a 300 litre twin-chamber pot, allowing for a continuous flow for prolonged blast periods. Blast media being fed from the base of the pressure pot into the cabinet via a heavy-duty hose to the blast nozzles.



Guyson Multiblast RXS1400 automated blast cabinet with cyclone and dust collector

High/low media-level sensors monitor the level of blast media within the pressure pot and a media reservoir above the pot keeps the pressure pot replenished with media when required without interruption.

After blasting, the used blast media is extracted via a Guyson cyclone reclaimator which separates the re-usable blast media from dust, blast debris and undersized media. In some applications, when using a dense metallic blast media, the cyclone reclaimator is replaced by an auger screw and bucket elevator.

Options also exist for media conditioning and monitoring, which include vibrating sieve media size control, media roundness classifiers, and electronic shot flow control. These are often essential for applications with demanding quality standards such as the aerospace shot peening standard AMS 2432. The extraction system is completed with a selection of cartridge dust collection units matched to the machine and media volumes.

The entire blast system is controlled via a PLC/ 'Graphic Operator Terminal' (GOT), with a full-colour display screen, which facilitates repeatable blast settings to be simply stored and retrieved in quick access menu systems.

The prospective user of Guyson automated blast systems is encouraged to submit sample components for free feasibility testing to the company's extensive 'Component Finishing Centre' in Skipton, England.

Guyson International Ltd
Tel: 01756 799911
Email info@guyson.co.uk
www.guyson.co.uk

The 2-in-1 packaging solution for rust prevention

Export shipping is a critical time for metals and those who manufacture them. Without adequate protection, vulnerable metal components can corrode as they journey through unpredictable environments exposed to fluctuating temperatures, humidity, condensation and salt spray. While many rust preventative strategies exist, not all are equal. In particular, Cortec's VpCI®-126 Blue stands out as a trusted packaging solution that has simplified the rust prevention process around the globe for decades.



The power of VpCI-126 Blue

Cortec's VpCI-126 Blue Film is well-known in the VCI film market for superiority, reliability, and convenience. VpCI-126 Blue contains vapour phase corrosion inhibitors that vaporise and condense on metal parts packaged inside the bag or film, forming an invisible protective molecular layer that does not need to be cleaned off before the part can be used.

VpCI-126 Blue provides ongoing protection against salt, excessive humidity, condensation, moisture, aggressive industrial atmospheres and dissimilar metal corrosion. The end result is to help manufacturers eliminate rust claims and the unnecessary costs, wasted time, headaches, and complaints that accompany them.

While it is possible that some applications or customer preferences may require an integrated solution of multiple rust

preventative products, the fact is that, often, just one VpCI-126 Blue Bag will do the job.

For example, ISO 17025 certified Cortec Laboratories recently performed testing for a customer that wanted to compare their current rust prevention method with VpCI-126 film for export shipments to Asia. Three carbon steel clutch parts were coated with an oil-based rust preventative and wrapped in plain plastic film. The other three clutch parts were wrapped in VpCI-126 Blue Film.

The parts were placed in ASTM D-1735 humidity testing for 168 hours (one week). Upon inspection, two of the three parts protected with the oil-based rust preventative and plain plastic had corrosion on the underside. There was also more water accumulation inside the plain plastic bags. Clutch parts wrapped in VpCI-126 Blue film had no corrosion or discolouration on relevant surfaces.

Advantages: one product vs. two

These test results are just one example of how VpCI-126 Blue can provide the necessary corrosion protection with one product instead of two. This streamlines and simplifies the packaging process substantially, eliminating the need to apply a greasy rust preventative. All that is needed is to place the clean metal parts in the bag and close. Best of all, the end user receiving the parts will not have to clean and degrease them upon arrival. This saves



Clutch parts packaged in VpCI-126 Blue Film

significant time, mess, and hassle for both the manufacturer and the customer. It also builds a positive relationship with the end user who receives the parts clean, dry, and ready to use with no rust on them.

Clutch parts are packaged in plain plastic (PE) film with oil-based rust preventative.

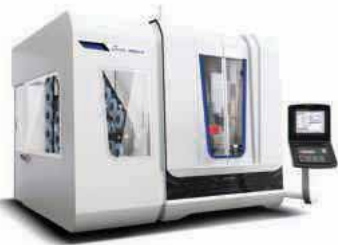
One material, many uses



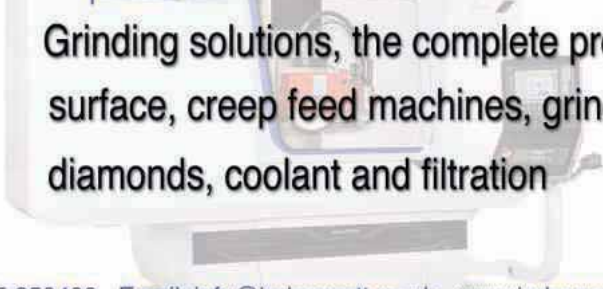
VpCI-126 Blue Film is available in roll stock, tubing, heat seal bags, top-seal bags (zipper closure), gusseted bags, and custom sheeting. It can be used to protect multiple metal types and can be applied in countless applications, whether short-term storage or long-term layup, overland shipment or export packaging. Contact Cortec to discuss this two-in-one corrosion solution for your packaging needs:

Cortec Corporation is the global leader in innovative, environmentally responsible VpCI® and MCI® corrosion control technologies for packaging, metalworking, construction, electronics, water treatment, oil & gas and other industries. Its relentless dedication to sustainability, quality, service, and support is unmatched in the industry. Headquartered in St. Paul, Minnesota, Cortec manufactures over 400 products distributed worldwide and is ISO 9001, ISO 14001:2004, & ISO 17025 certified.

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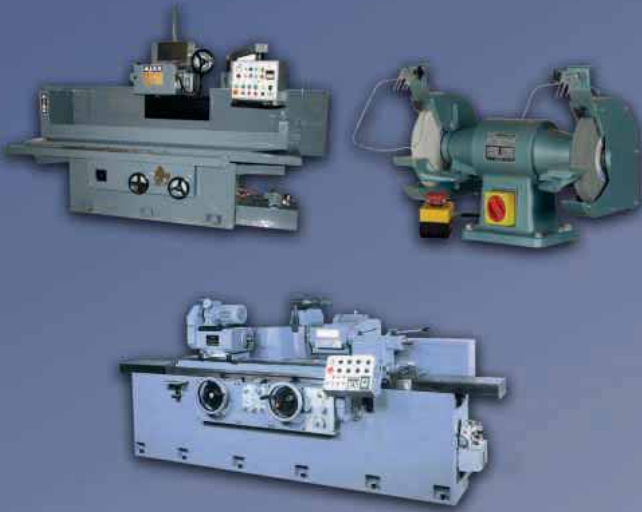


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