GRINDING & SURFACE FINISHING

FEBRUARY 2025

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FEBRUARY 2025 • Volume 23 • Issue 1 • ISSN 1740 -1100

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Published by Roger Barber Publishing

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Print:
Holbrooks Printers Ltd,
Portsmouth, Hampshire

Grinding & Surface Finishing is published five times a year and mailed to a controlled circulation of readers with a legitimate interest in the content.

Master Abrasives launches advanced vitrified CBN range to meet high-precision demands

Master Abrasives has expanded its superabrasive product offering with the launch of a more comprehensive Master Vitrified CBN Abrasives range, complementing its existing high-precision external and internal grinding wheels. This new range is designed to meet the demands of manufacturers grinding high-precision components that have tight geometrical and dimensional tolerances and difficult-to-grind materials, with the added capability to process bore sizes as small as 1 mm.

The range includes high-performance vitrified CBN wheels mounted on precision threaded or tungsten carbide shanks, ideal for the grinding of a variety of challenging materials found in such industries as aerospace, fuel injection, bearing, Formula One and many other high precision applications. This new addition strengthens Master Abrasives' reputation as a trusted supplier of quality abrasives and superabrasive products, offering global support to manufacturers looking to improve productivity.

Paul Batson, managing director of Master Abrasives, comments: "With over 50 years of industry experience, we have the expertise to assess and match the right product to each application, ensuring customers achieve the most efficient and effective processes. This ultimately results in high-quality products, competitive pricing and maximum productivity. Our new CBN range, developed under the Master brand, is already gaining recognition internationally for its quality. We're excited to work with new customers in 2025 to help them reach their grinding and finishing goals and achieve optimum performance from their machinery."

The steps taken to optimise the grinding process taken by Master Abrasives' application support team aim to develop an engineered wheel specification that matches the wheel grade and size to the equipment capabilities. This includes considering factors such as speed available, power, coolant and the dynamic and static stiffness of the machine spindle and the machine tool generally.

Another important consideration is the dressing tool and its parameters, which can significantly impact wheel performance. Master Abrasives now offers vitrified CBN specifications engineered to work well with stationary dressing tools. Master's engineers can provide recommendations to optimise the use of Master wheels by fine-tuning machine settings, coolant, speeds, feeds and dressing parameters.

As part of the launch, Master Abrasives will continue to offer its established range of alternative superabrasive bond systems and auxiliary products, such as precision diamond dresser and grinding quills, to bring a comprehensive package for manufacturers across various industries.

For further details about the superabrasive products Master Abrasives offers, customers can contact Master's technical representatives for expert advice on applications and products.

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Master Abrasives appointed official UK & Ireland machinery agent for Top-Work Industrial Co. Ltd

Midlands-based Master Abrasives has been appointed the authorised agent for Top-Work Industrial Co.Ltd in the UK and Ireland. Top-Work, a leading Taiwanese manufacturer of tool grinders, is renowned for its high-quality machines.

Master Abrasives managing director, Paul Batson, visited Taiwan last year to solidify the partnership, which was officially launched on 1st January 2025.

Top-Work, founded in 1986, is a specialist in tool grinder manufacturing. The company is CE certified and has won research and development awards from Taiwan's Industrial Bureau for three consecutive years. In 2017, Top-Work joined the Palmary Group and introduced the European NUMROTO tool grinding software.

Master Abrasives is initially highlighting two Top-Work grinding machines for the UK and Irish markets: the TP-4 Precision CNC Pinch/Peel Grinding Machine and the TD Series Diamond/CBN Wheel Truing and Dressing Machine.

Master's team is excited to introduce the TD Series by Top-Work, a high-precision machine for truing and dressing superabrasive wheels.

TP-4 Precision CNC Pinch Peel Grinding Machine

The TP-4 is a high-precision CNC cylindrical pinch/peel grinder with smart technology. It features two grinding wheels that operate simultaneously, enabling the grinding of cylindrical materials such as cutting tools and form punches. The TP-4 is used after centreless grinding and before the pre-processing stage on a 5-axis tool grinder. It has been successfully employed in several industries, primarily the high-precision tool industry, mould making, and the electronics and medical parts sectors.

TD Series Diamond/CBN Wheel Truing and Dressing Machine

The TD Series is a high-precision machine for truing and dressing superabrasive wheels, commonly used in the cutting tool industry. The range covers straight, angled and radiused wheels, 50-250 mm in diameter. Dressing wheels on their arbours from multi-axis grinding machines offer the advantages of improved cutting edges and extended wheel life. The TD machines are available in two versions: the TD-3, which features PLC control and open guarding and the TD-5, which is fully enclosed with CNC control for enhanced safety and precision.

Paul Batson and Ian Meredith, Master Abrasives' applications engineering manager, plan to attend TIMTOS in March 2025. They will collaborate further with Top-Work at Taiwan's largest machine and engineering trade show and engage with other partners exhibiting there.

Ian Meredith, who has extensive experience in the tool manufacturing industry, is particularly excited about this new addition to the Master Abrasives range. "This is a great opportunity for Master to offer cutting-edge, high-precision grinding solutions to the UK and Irish markets for tool and cutter," he states. "With my background in the tool manufacturing sector, I'm delighted to be driving this side of the business and believe Top-Work grinders will make a significant impact, bringing advanced technology and performance to our customers."

For more information about the tool and cutter machinery Master Abrasives is bringing to the UK and Irish markets, customers can contact Master's technical representatives for expert advice on products and services. Stay updated by following Master Abrasives on social media or visiting their news page at: ***www.master-abrasives.co.uk***

Master Abrasives is a Daventry-based independently owned company that has built an enviable reputation for quality and service that is as strong today as it has always been. The well-known trademark of 'Master' is on much of the product range and services offered by the company in the UK and worldwide.

Top-Work Industrial Co.Ltd, founded in 1986, is a specialist in tool grinder manufacturing. The company is CE certified and has won research and development awards from Taiwan's Industrial Bureau for three consecutive years. In 2017, Top-Work joined the Palmary Group and introduced the European NUMROTO tool grinding software.

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UNITED GRINDING Group expands product portfolio through strategic acquisition

UNITED GRINDING Group has announced the signing of an agreement with Georg Fischer AG (GF) to acquire its GF Machining Solutions Division (GFMS) with the aim of strengthening its position in the market and serving its global customers with even more comprehensive solutions.

Together, UNITED GRINDING and GFMS will join forces to become a global leader in ultra-precision machining. The transaction is valued between CHF 630 and 650 million and is expected to close in Q1/Q2 2025, subject to regulatory approvals.

UNITED GRINDING Group is one of the world's leading manufacturers of grinding, eroding, laser and measuring machines, as well as machine tools for additive manufacturing.

With roughly 2,000 employees at more than 20 manufacturing, service and sales locations, the group is organised in a customer-oriented and efficient way.

Through its brands, as well as competence centres in America and Asia, UNITED GRINDING offers broad application expertise, a large product portfolio and a full range of services for the production of high-precision components.

The majority shareholder of UNITED GRINDING is Patinex AG, a Swiss holding company wholly owned by Martin and Rosmarie Ebner.

About Georg Fischer AG (GF)

With its four divisions, GF Piping Systems, GF Building Flow Solutions, GF Casting Solutions and GF Machining Solutions, GF offers products and solutions that enable the safe transport of liquids and gases, as well as lightweight casting components and high-precision manufacturing technologies.

As a sustainability and innovation leader, GF has been striving to achieve profitable growth while offering superior value to its customers for more than 200 years.

Founded in 1802, the Corporation is headquartered in Switzerland and present in 45 countries with 187 companies, 76 of which are production companies with 105 facilities. GF's 19,824 employees worldwide generated sales of CHF 4,026 million in 2023.

About GF Machining Solutions

Today, GF Machining Solutions is one of the world's leading providers of complete solutions for manufacturers of precision parts and tools as well as mould and die makers. Its portfolio includes machines for milling, eroding, laser texturing, laser micromachining and additive manufacturing. In addition, GFMS offers spindles and solutions for automation and digitalisation, backed by global customer service and support. The group currently employs around 3,500 people at over 40 global locations.

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WEINIG takes over grinding machine portfolio from Stähle-Hess

Following the technical integration phase, which will begin in the coming weeks, the Rotofinish, Gloria and Saturn machines will be produced in in the WEINIG Group from 2025 and marketed under the WEINIG brand name.

The agreement between the two companies does not constitute a takeover in the traditional sense. WEINIG is acquiring the design drawings and the technical know-how for the construction of the grinding machines from Stähle-Hess and the rights to market them. Warranties and service obligations for delivered machines remain with Stähle-Hess GmbH. Managing director Werner Müller explains the background to the contract with WEINIG: "We have maintained good contacts for over 20 years. There was a regular exchange of employees and mutual support in market development. I myself was often in Tauberbischofsheim to talk to the experts at WEINIG about the further development of planing and grinding machines. This means that the agreement we have now reached is sensible, consistent and the best solution, also with regard to customers."

Werner Müller can look back on five decades of experience as a machine designer and successful entrepreneur. Since 1980, as managing director of Stähle-Hess GmbH, he has developed and marketed manual, semi-automatic and fully automatic tool grinding machines for solid wood processing, primarily in window production. Rotofinish, Gloria and Saturn machines are now in use in many European countries and beyond. "In addition to the highest technical performance, I always wanted to as close as possible to the customer," explains Werner Müller. "I was very often on site during the installation and commissioning of the machines. We often made individual adjustments to the machines in order to integrate them optimally into the respective production processes."

With this agreement, WEINIG is expanding its own product portfolio and can now offer customers in timber window production a complete solution for processing machines from a single source, allowing them to produce perfect surfaces.

Gregor Baumbusch is enthusiastic about

the new opportunities arising from the acquisition agreement: He states: "We are delighted to now be able to offer our customers the Rotofinish technology from WEINIG. This acquisition strengthens our position as a leading provider of woodworking solutions for timber window production and underlines our commitment to innovation and customer satisfaction."

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Soaring into success in the aerospace industry with ANCA's TX Linear

ANCA has a long and successful relationship with the aerospace industry with many of its machines utilised by world-renowned leaders. ANCA has sold numerous TX7 machines for unique and customised solutions within the aerospace industry, including its market-first dual robot automation cell. This innovation has delivered impressive production outcomes, such as automated turbine blade manufacturing, leading to repeat orders from existing customers and attracting new customers with machine envy.

The aerospace market is on the verge of a renaissance era, driven by disruptive technologies, electric passenger flights, e.g. eVTOL, the rise of smallsats and a new space race reminiscent of the Cold War era. Renewed investments in traditional air travel post-COVID are also contributing. In 2021, smallsats accounted for 95 percent of all spacecraft launched, with 108 of the 186 total orbital space launches. As of 2022, approximately 72 countries had space programs, with 16 capable of space launches. Projects like Artemis and the ILRS, China and Russia, aim for a sustainable presence on the moon and ambitions to reach Mars, with numerous private enterprises following suit.

This renaissance era is driving global investments, with billions of dollars slated for spending in the coming years as governments seek a share of the burgeoning market. India, for example, is poised to become the third-largest aviation market globally, valued at close to $30 billion. Air India's record-breaking plane purchase, the largest in aviation history, has boosted India's total order to $50 billion for new aircraft. Globally, 37 new carriers have been introduced, roughly double those that closed last year, with around 2,500 commercial airplanes on order, each requiring up to four million parts (A380).

The future is bright for aerospace, with strong growth expected in tools and primary parts used in the industry over the next five years. It's an opportune time for those considering entering or investing in the aerospace market. The barrier to entry includes dealing with materials with poor machinability, except aluminium and high expectations for quality with tight tolerances.

Due to the poor machinability of superalloys, CNC grinding has become a practical solution for primary part production, especially for finishing operations. ANCA's TX7 Linear has proven capable of producing these primary parts, e.g. turbine blades and root forms, to a high standard with precision finish. Leveraging ANCA's experience, customers can gain entry into the aerospace renaissance.

Why ANCA's TX Linear is a configurable and agile solution

ANCA's TX Linear platform offers a tried and tested solution for customers needing something configurable and agile to tackle trends in various tool and cutter markets. In aerospace, the current trend sees tools with unique and/or complex geometries, reinforced by the use of more exotic materials. This is reflected in market categories with the highest growth in the aerospace tool and cutter market: Composites, CAGR 5.4 percent, Non-ferrous

alloys, e.g. aluminum and Super Alloys, e.g. Inconel and Ti, with CAGRs of 4.5 percent and 3.4 percent, respectively.

Products and tools used in aerospace are the "bread and butter" of ANCA's flexible TX7 platform. Fir tree cutters, for example, used to cut the root form into a turbine disk, are often large cutters with complex profiles. The TX7 Linear has proven efficient at producing such tools with ease due to its ability to handle large tools, significant material removal and meet the industry's low tolerance requirements.

Additionally, the TX platform forms the base for the TapX machine, a crucial and complementary product for ANCA in aerospace. Taps required to thread harder materials like titanium need unique features for chip and tolerance control. The TX7 platform also includes established automation solutions utilising the unique TXcell machine, enabling autonomous production with secondary operations such as polishing, cleaning, laser marking, part scanning and QC using aerospace-specific metrology. The TXcell has been used for volume production of blades and root forms, with dual robot cells enabling simultaneous secondary handling of parts, including serialising, scanning, metrology and cleaning.

The TX7 Linear is one of ANCA's most versatile machines, renowned for its power and stability. Coupled with ANCA's extensive experience in aerospace and automation, the company are prepared to address the challenges faced by new and existing customers, striving to find the most satisfactory solutions.

Is there an aerospace project you have in mind?

Is your current machine up to scratch? Are you looking to improve production times on more complex parts or offer more bespoke solutions? The versatility of the TX7 Linear and TXcell has delivered on these attributes for many customers and will continue to do so. Don't be left wondering or, worse, left behind. Contact ANCA to see how the TX7 can help you.

It started with a mini computer

In 1974, ANCA co-founders Pat Boland and Pat McCluskey bought a mini-computer to turn their passion into a business venture. Considered mini or small for the time, it was in fact as tall as them at a cost of $4,000 which in '74 could buy an inner city apartment. Their basic idea was to replace the hardwired controls of the time with a standard computer. Adding the computer to NC thus CNC resulted in a much more powerful and flexible technology than the hardwired logic designs that were current at the time.

Today ANCA is a thriving business with over 1,000 employees and a leading manufacturer of CNC grinding machines, motion controls and manufacturing solutions. While the global headquarters remain located in Melbourne, Australia, due to the niche market that the company service, it exports 99 percent of its products with customers in over 45 countries and offices in the UK, Germany, China, Thailand, India, Japan, Brazil and the USA as well as a comprehensive network of representatives and agents worldwide.

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Precision surface finishing for aerospace engine compressor blades

Though not the main aim of the book 'Concorde', by former chief pilot Mike Bannister, it gives a fascinating insight into airline boardroom decision making. Profit made at the margins is often what makes a successful airline.

As surface finishing engineers, Fintek, like others, directly contribute to 'profit at the margin' and provide many other benefits. Take the precision surface finishing of aerospace turbine and compressor blades as an example.

Precision finishing reduces surface roughness of blades. This minimises drag and allows better airflow efficiency, directly improving blade aerodynamic performance and reducing energy losses. A major contribution to improving fuel efficiency which can significantly reduce operational costs on-wing.

Surface finishing also helps to eliminate micro-cracks and imperfections that can lead to fatigue, extending blade life. Removing surface imperfections during finishing prevents stress concentration points, increasing the overall structural reliability of the blades.

A properly finished surface also provides better protection against oxidation and corrosion. This is important in harsh operating environments. The polished surfaces improve the thermal resistance of blades, allowing them to perform better under extreme temperatures.

Uniform surfaces reduce imbalance and excessive vibration. Aerospace components operate in critical conditions and precision finishing reduces the risk of blade failure. Quieter and smoother engine operation is good for passengers but even better if it contributes to improving component lifespan. Most important of all, is that precision finishing ensures blades meet stringent aerospace industry specifications and quality standards, maintaining certification and compliance. By preventing premature wear, failure and maintenance issues, precision surface finishing reduces downtime and overall costs over the lifecycle of the blades.

Machines for surface finishing of aerospace components

Aerospace parts differ greatly so OTEC have developed and built different machines to perform optimally for a specific range of components. For turbine and compressor blades, this has been made more accurate

by the development of their stream finishing machines. In terms of surface finishing, they continue to make great strides in both homogenous smoothing and the selective smoothing of specific surfaces. Stream finishing processes are highly automated and scalable, allowing for consistent high-quality results across large production runs.

Stream finishing adapts to complex geometries, delivering precise results in areas that are challenging or impossible to reach with traditional methods. The rounded edges of a turbine blade, for example, must be within necessarily tight tolerances for them to perform optimally. Attempting to do this with powered hand tools, CNC machines and even robot polishing, is extremely difficult, time consuming and prone to wide

inconsistencies at best. When the geometry becomes even more complex, such as blades consisting of guide vane segments, it is virtually impossible.

In an OTEC SF, multiple blades are clamped so that the corners are at the top during the finishing process, almost emerging from the process medium. During the process, the blades are directed toward the stream and swing to and fro at a predefined angle, for example +/- 30°, to achieve a homogeneous surface finish. This is achieved without affecting the important contour of the blade.

The dynamic motion and controlled abrasives in stream finishing achieve superior surface smoothness, reduced roughness and removal of micro-cracks, enhancing blade performance and durability compared to traditional methods. Depending on the process medium used, the surfaces can reach roughness values of up to Ra 0.1µm. Processing times vary but are typically in the range of two to thirty minutes. Process parameters can be stored, recalled and reused to ensure consistent results every time.

A higher output can be guaranteed by clamping up to five blades at a time in a

single machine. Adding a robot cell for fully automated loading and unloading can yield even more productivity without compromising quality.

Component size is rarely an issue, as the newer OTEC SF-HP range has been designed specifically for finishing large workpieces of up to 900 mm in diameter and weighing up to 200 kg. Ideal for stream finishing larger blades, complete blisks and disks, or even landing gear components.

OTEC also provides its own digitalisation packages so that customers can take advantage of Industry 4.0 integration. Consequently, the knowledge required to operate the machines and the optimum processes and parameters can now be used on a custom, flexible basis. Machine control, remote maintenance, self-learning and self-testing provide maximum process reliability and use of capacity.

Much more than appearance

Precision surface finishing is not just about appearance, it is critical for the performance, safety and longevity of aerospace turbine and compressor blades. Ultimately helping airlines make profit at the margins through fuel savings, lower maintenance costs and producing components with longer operational life. Stream finishing is a highly efficient process, achieving desired results in significantly less time compared to labour-intensive methods. For manufacturers who prefer to subcontract finishing, then Fintek has users covered. The company operates the latest stream finishing machines from OTEC and its team is always keen to help customers achieve the commercial goals for their components.

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Introducing the new VST 50 from EMAG

A new ball pin leaves the machine every seven seconds

Whether in the steering system or in the chassis, ball joints are indispensable in our cars. They not only act as a kind of pivot point between different elements but are also usually in constant motion and exposed to high physical loads. In this context, ball pins and ball sleeves are among the safety-critical car components that must leave production with a high surface quality and micrometre precision without exception despite high quantities and general cost pressure. How can this task be implemented particularly efficiently and with minimal chip-to-chip times? EMAG now has the answer with a new machine: using the VST 50, a finished ball pin leaves the machine every seven seconds with each component undergoing an exceptionally comprehensive measurement.

It is a new task for the turning specialists from southern Germany. Until now, ball pins were not a typical automotive component that passed through an EMAG machine. So how did this design and development come about? "It has to be said that the task sounds very much like EMAG in many respects. It involves large quantities, special surface requirements and low unit production costs. Frank Haas, development engineer from EMAG says: "We repeatedly ensure these qualities for various components. In this respect, it was obvious that a major customer approached us with this task some time ago. The main question was whether we could exceed the performance values of existing machines in ball pin production. This was the starting point for the development of the VST 50."

The result has now been available for some time and a simple look at this machine makes it clear: the designers have done a particularly good job here. On the one hand, the VST 50 has highly automated processes, including the use of three robots. On the other hand, it is easy to operate using the EDNA apps, which also include various measurements and the robots. For the actual turning of the ball and neck of the ball pin, only these areas are involved here, there are two suspended workpiece spindles that can be moved irrespective of each other. As a result, one spindle is always loaded and unloaded while the other is in use during the machining process. The associated tool compound slides are split in two: the tools on the left-hand side are mounted on a rotary B-axis, which enables the ball to be turned and smoothed with precision. In addition, the ball diameter and shape can be adjusted using a linear U-axis. Special tools for neck machining are mounted on the right-hand side.

High-productivity loading

Loading and unloading are in turn carried out by the three robots, which are arranged in parallel in front of the machine. Each is responsible for a different sub-process: The left-hand robot handles the workpiece between the transfer station and the first workpiece spindle. The middle robot performs the same task on the second workpiece spindle, while the right robot handles the workpiece between the transfer station and the outer automation assemblies. Why not use a robot that performs these three tasks alternately at this point? "That would certainly be possible," confirms Frank Haas. "However, we wouldn't be able to achieve the extremely short cycle times. The various movements are sometimes carried out simultaneously. Our solution ensures that a finished workpiece leaves the machine every seven seconds and the chip-to-chip time is less than two seconds."

Rapid speed and precision, in this context this also explains why the robots mentioned are also used for

component length 50 to 150 mm and long ball pins, ball diameter 22 to 35 mm, component length 150 to 455 mm. It can also be used for machining ball sleeves and all at the enormous speed mentioned above. According to EMAG estimates, the VST 50 is around twice as fast as other production solutions for this component, which of course also reduces unit production costs. A perfectly measured component leaves the machine at breakneck speed. The EDNA apps always enable largely intuitive operation.

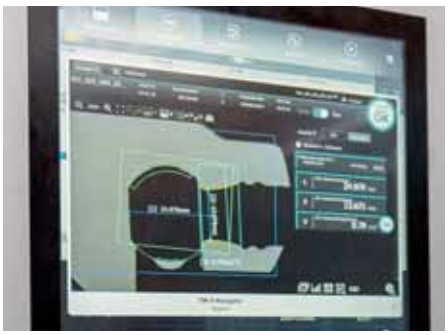
Frank Haas concludes: "We are taking the production of ball pins to a new level. In this context, we are convinced that this machine will be very well received by the market and by other industries too, because ball joints are not only found in cars."

tool changes, whereby EMAG has divided the entire process into two parts. On the one hand there is the operator's task: he always sees a prediction for the tool change on the central control panel. If he wants to change a tool, he simply presses a button and the tool magazine swivels outwards for the change. It is important to note that the production process is not interrupted during this process. After the exchange, the magazine swivels back to its starting position. The manual process is now complete and an automated process follows in the second step. To do this, the left-hand robot first puts down its workpiece gripper and picks up a tool gripper. It then removes the worn tool from the interior of the machine and replaces it with a new one, which it takes from the magazine. To further increase process capability, each tool is coded with an RFID chip so that the tool data can be transferred accordingly. The entire tool change takes less than 90 seconds.

Light band micrometre provides many measured values

Finally, there is the issue of process reliability as a key economic factor for a component that must leave production without any error tolerance. Here, EMAG relies on a 100 percent solution: each component passes through a light-band micrometre, which determines the required measured values in fractions of a second, whereby the result is very comprehensive. The final ball and neck diameter is determined and any chips are detected at the same time. In addition, a high-resolution process camera is located directly in front of the loading hatches. Its live image appears on the panel at the touch of a button. The operator can easily check whether, for example, the chip formation is causing a fault in the process.

Overall, this solution is very flexible, as the VST 50 is basically suitable for both short ball pins, ball diameter 16 to 40 mm,



The EMAG Group is one of the few suppliers of manufacturing systems that cover the whole process chain, from soft to hard machining. Access to a wide range of technologies, turning, drilling, milling, gear cutting, grinding, laser welding, ECM deburring, PECM machining and automations allows EMAG to implement complete process chains not only for the manufacture of gearbox, engine and chassis components but also of components for the non-automotive sector.

A company steeped in tradition with global headquarters in Salach, Germany, the EMAG Group capitalises on the collective knowledge of its technology companies to offer modular and custom innovative manufacturing systems with world-class precision.

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Grinding robot boosts productivity and delivers safer working at Ancofer

Deburring hefty metal components by hand is noisy, hazardous and physically demanding, so steel stockholder Ancofer wanted to automate the process. Developed by ABB Value Provider Teqram, the solution uses an ABB IRB 6700 robot to do the job thanks to a patented machine vision system that can recognise, manipulate and process different items without human intervention.

The challenge

Until recently, the biggest challenge for companies looking to automate the finishing of plasma and oxyfuel cut sheet metal parts was the need to program the robot to handle each different product. The time and complexity involved made it difficult to produce small batches or single pieces cost-effectively. Teqram's EasyGrinder solution solves the problem.

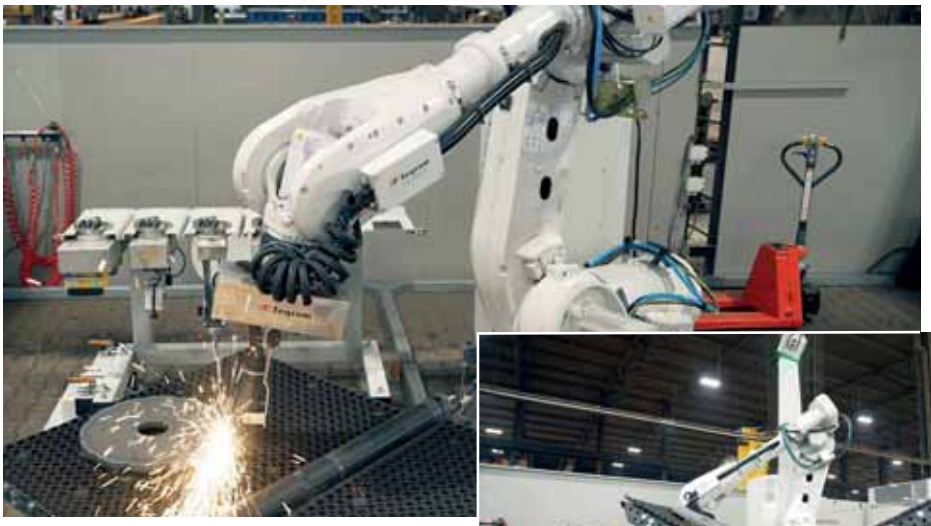
The solution

Teqram's solution uses EasyEye 3D vision sensors and intelligent robot control to enable the robot at the heart of the EasyGrinder system to work autonomously by recognising and manipulating different product geometries as needed. It means that selecting, positioning and changing tools and grippers for picking up and machining different parts is completely autonomous.

The application

The robot collects each item from the pallet, scans it and selects the right process, which typically involves grinding and deburring, as well as removing any layers of slag and oxide. It then flips the part over and stacks it on another pallet.

Ancofer Stahlhandel is a German steel stockholder and service centre for flame-cut sheet metal parts. Like engineering firms around the world, recruiting skilled workers is a challenge and the company realised that there was one area of its operations where people were especially reluctant to work, deburring and finishing. Deburring is hazardous and physically demanding, using noisy grinding equipment that poses short- and long-term risks to health and safety. Automation was the answer and Ancofer turned to Dutch system integrator Teqram for a solution.



Built around an ABB IRB 6700 robot, Teqram's EasyGrinder system not only improves working conditions but also boosts Ancofer's competitiveness by providing added flexibility and consistent, predictable quality. The added power of a robot compared to a human operator also increases processing speed and reduces abrasive consumption, making it a cost-effective option.

"The robot is optimal for our process since it can be programmed to handle both large and small product runs, giving us the ability to easily scale our production according to demand," says Ancofer sales manager Lars Kerlin.

"It no longer requires lengthy programming," confirms machine operator, Christopher Janko. "The robot will scan the products and determine what needs to be done."

EasyGrinder is able to process short runs and even one-off parts without reprogramming thanks to its patented EasyEye 3D vision sensor and intelligent robot control.

The main EasyEye system configures the overall cell and provides the robot with 3D coordinates that describe its surroundings. It is also used to recognise each part. Additional 3D vision is incorporated in the robot's gripper to provide more precise measurements of each part's contours. The next piece of the puzzle is a patented system within the robot's tools to measure the tilt of the tool and provide real time information about how the tool is moving.

This provides more help in monitoring the precise contours of the part as the grinding process proceeds. There is a separate system based on counterweights that helps the robot understand how much pressure needs to be applied.

The first robot started operating at Ancofer in November 2023 and the company has subsequently installed a second.

EasyGrinder is already delivering improved safety and product consistency, but Teqram says the next challenge is to work towards deburring twice as fast as human operators. At the moment, EasyGrinder is quicker than people at processing some parts and slower for others, working around 5 to 10 percent faster on average. The robots must operate in tough, industrial environments where lighting conditions may not be ideal. That makes it a tough challenge for vision systems.

ABB recognised Teqram's innovative EasyGrinder solution at last year's ABB Value Providers Awards and the integrator has now sold more than 10 systems to companies around the world.

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Automated grinding machines

Why should you automate your grinder?

Grinding machines play a vital role in the manufacturing industry. They are used to shape workpieces to the right size. This is done by using the abrasive wheel to cut or remove material from the workpiece to get a smooth and accurate surface. In short, grinding machines are used to reduce the size of different materials that require high surface quality as well as high accuracy of shape and dimension.

In the last few years, automation is rapidly becoming the norm in the grinding machine industry. Automation has many benefits, but one of its major benefits is increased productivity and efficiency. With automation, operators will spend less time setting up, programming the grinding machine or adjusting the depths and the rotation speed. One operator can run up to three to five machines simultaneously.

The best part is, an automated grinding machine, unlike operators, will do all these seamlessly without committing human errors. The end result will be better quality and precise product.

In this fast-paced economy, the best decision any manufacturing unit can make to increase its efficiency and production and better improve quality is to consider automation. Let's talk about automation options and the benefits of grinder automation for manufacturing units.

Automation options for grinders

At GCH Machinery, we offer a number of options to automate machine operation. We will work with you to determine which option best suits your application and your budget and will tailor a plan for your unique grinder needs. Our automation options include:

- Gantry style load/unload systems
- Hoppers and feeders
- Robots from a choice of industry-leading manufacturers
- Infeed conveyors
- Spinning roll feeders
- Vibratory bowl feeders for small workpieces
- Advantages of automated grinding machines

If, at this point, you still haven't decided on automating your grinding operations, these benefits will no doubt make you decide it's high time you consider it.

Increased accuracy and precision

One of the significant reasons why automated grinding machines have become popular in the manufacturing industry today is their increased accuracy and precision. Machines are inherently repeatable. This allows for precise grinding and finishing of a variety of materials uniformly.

Reduced material waste

Grinder automation reduces material waste because it is programmed to grind workpieces to specific sizes and shapes. This will reduce the amount of material that will be wasted through human error if it were done manually.

Improved safety for workers

An automated grinder improves the safety of workers because it handles the dangerous tasks. This translates to fewer accidents due to negligence or human error.

Reduced labour costs

Automated grinding machines significantly reduce the need for human operators. A single operator can monitor up to five machines at a time. In large-scale production, where labour costs can go over the roof, using automated grinders will not only reduce labour costs but also cut down the cost of training operators to handle machines manually.

Increased production capacity

Can your operators work 24/7? You know the answer. Automated grinding machines can work at a constant speed, with higher precision and accuracy, which means you can produce more. This is particularly beneficial to large-scale manufacturing units.

Also read: Benefits of rebuilding and upgrading a centreless grinder

GCH Machinery's successful automated grinding machine projects

GCH Machinery has been committed to helping companies automate their grinding machines for better efficiency and productivity for more than 20 years.

GCH Machinery provides turnkey grinding solutions such as centerless, cylindrical, internal, surface and double disc grinders that are tested and approved with our clients' production parts before installation.

Contact GCH Machinery for grinder automation

With greater accuracy and precision, reduced labor costs and higher productivity, manufacturing industries, big or small, can benefit from the many benefits that automated grinding machines offer.

However, to enjoy these benefits, it is crucial to work with a partner who understands your industry's needs. This is where GCH Machinery comes in. At GCH, our engineering team has worked with different industries over the years, we can offer you the best solution from our numerous automation options to suit your company's needs.

Our work starts from evaluating your old grinding machines to determine the best automation options for your application and budget and doesn't stop until they are tested with your actual production parts on them to ensure a smooth operation. From rebuilding to installation, we've got you covered. To learn more, contact us today.

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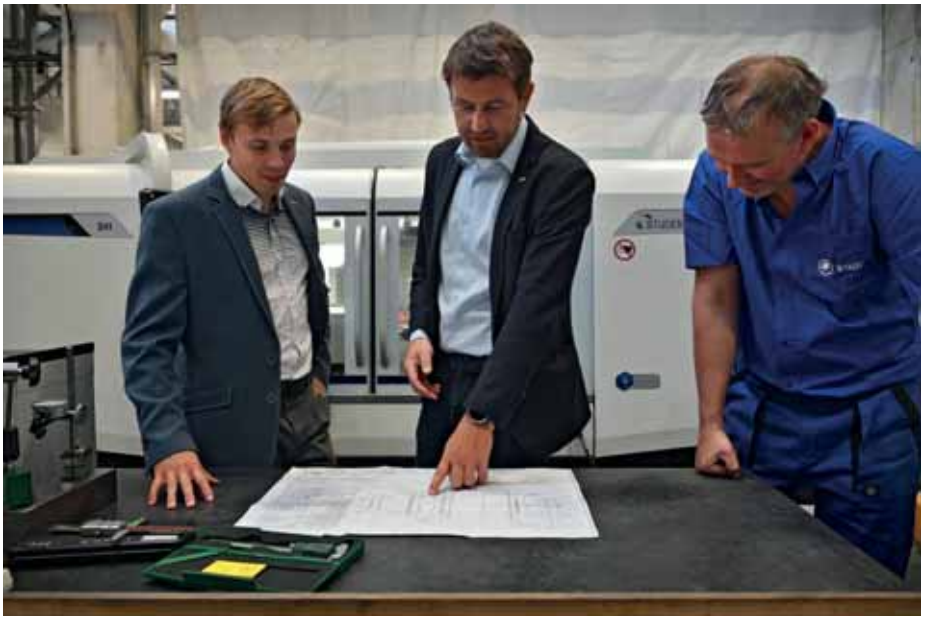
More efficient production

Wikov relies on the S41 from Studer

The long-established Czech company Wikov enjoys an excellent reputation worldwide as a manufacturer of high-quality gears and gear wheels. To meet the increasing demand in the railroad sector, Wikov relies on the S41 CNC universal cylindrical grinding machine from STUDER, increasing its production speed by up to 60 percent.

In the factory's own Wikov Museum in Hronov, Czech Republic, legendary models are lined up one after the other, polished to a mirror finish: a fiery red Wikov 7/28 racing car is just one of the gems. Like all the other classic cars here, it is adorned with the iconic Wikov logo with the hammer-carrying worker. Anyone looking at these impressive engineering achievements from the first third of the 20th century will understand why Wikov is known as the "Czech Rolls-Royce". However, the main business of the company "Wichterle & Kovářík", founded in 1918, was the production of agricultural machinery, making it the largest Czech factory in this field.

This proud history is still part of the Wikov Group, including other traditional Czech brands. Today, with over 1,000 employees and several locations, Wikov is a leading manufacturer of high-quality mechanical gearboxes and gears for the industry. The plant here in Hronov mainly produces gearboxes for the railroad sector and is the Group's largest production site with around 400 employees.



From left to right: Dominik Sádlo, head of technology department (Wikov), Pavel Branda, area sales manager Czech Republic (STUDER) and Jaromir Hornych - grinder (Wikov).

S41 makes production at Wikov up to 60 percent faster

One of these employees is grinder Jaromir Hornych. His blue work suit is also adorned with the Wikov logo and he is standing just a few dozen steps from the automobile museum in a state-of-the-art production hall. Behind him stands a powerful CNC universal cylindrical grinding machine of the latest generation from Switzerland: the S41 from Studer. He has used it to machine a pinion gear for a railroad gear shaft and is now inspecting the shiny piece of metal. "The precision and surface quality is outstanding and in such a short machining time," says Jaromir Hornych as he checks important production data on the large 24-inch touchscreen. Thanks to the revolutionary C.O.R.E. hardware and software architecture and Studer's own software, the operation of the S41 is modern and intuitive.

Jaromir Hornych - grinder, on the STUDER CNC universal cylindrical grinding machine S41.

Efficiency, precision, flexibility and future viability through proven quality and modern technologies were the main reasons why Wikov decided to invest in a new S41 from Studer. "By using the S41, we were able to significantly speed up the grinding process with high process stability, in some cases by over 60 percent per component," explains Dominik Sádlo, who heads the technology department at Wikov. In addition, many machining processes can now be carried out in a single operation instead of in several individual steps as was previously the case.

With centre distances of 1,000/1,600 mm, 39.4/63 inches, centre heights of 225/275 mm, 8.85/10.8 inches and a maximum workpiece weight of 250 kgs, 550 lbs, the S41 is one of the largest machines in the Studer portfolio. However, Wikov uses it for the production of its smaller components. It is used for gearboxes for large railroad vehicles. "Our order situation has increased significantly in recent years and we were looking for a more flexible and productive

grinding machine, especially for the production of smaller gear components in large quantities. The S41 was the best choice due to its high universality, quality and short setup times," says Dominik Sádlo.

Proven quality components and innovative grinding technology

The many advantages of the S41 are the result of Studer's extensive know-how. Like Wikov, the Swiss manufacturer of quality grinding machines is a traditional international company with over 111 years of history. Many components in the S41 have been developed and continuously optimised in-house. These include the high-precision, wear-resistant StuderGuide® guide system in the cross and longitudinal slides, the configurable wheelhead with integrated B-axis with up to four grinding wheels for complete machining in the same setup and the patented Granitan® mineral cast machine bed with its excellent thermal and damping properties. Studer is also one of the world's leading innovators in grinding machine technology for even more efficient, precise and resource-saving production. The leading innovation technologies available for the S41 include, for example, SmartJet® cooling for up to 50 percent less energy and water consumption or the WireDress® process for more precise and economical dressing of metal-bonded grinding wheels at full working speed.

Studer also has a special development focus on automation. "Automation capability was an important factor for us when selecting machines, because this

Wikov has its roots in automotive.

topic will be even more relevant for us in the future," emphasises Dominik Sádlo. As in many industrialised countries, the shortage of skilled workers is becoming more acute in the Czech Republic and night shifts are already difficult to fill due to a lack of personnel. Intelligent automation is the only way to maintain or even increase production in the long term without compromising quality. With easyLoad, Studer offers a particularly cost-effective standardised automation solution for the S41. This gantry loader system with a V-gripper can handle a wide range of parts and makes workpieces easily available. It is operated via the machine control system and no robot programming knowledge is required. Customer-specific automation solutions are also possible.

Competent customer care in the local language

"Despite all the technology, one thing should not be forgotten: The focus for us is always on people," says Pavel Branda, Studer area sales manager for the Czech Republic, Slovakia and Hungary. He is responsible for technical sales in the region. Pavel Branda provided Wikov with expert advice when he purchased the S41


Gear assembly.


Gear shafts.


Gears.

and is still in regular contact with his customer for all kinds of questions. "The excellent customer care in our local language is a major advantage of Studer. This aspect is particularly important in the initial phase of technology introduction," Dominik Sádlo explains. After all, modern cylindrical grinding differs from other production processes. He continues: "At Studer, we were able to learn from competent experts how to achieve the desired results with the S41 for our specific components. Cylindrical grinding at Wikov is now on a whole new level."

"In addition to the optimal configuration and installation of the S41, it was very important for us to train the operators so that they can use all of the machine's capabilities efficiently and achieve optimal grinding results," confirms Pavel Branda. Wikov grinder Jaromir Hornych also traveled to the Studer training center in Thun, Switzerland, specifically for this purpose. Later, an in-depth follow-up training session was also held at Wikov in Hronov. Dominik Sádlo concludes: "We were pleasantly surprised at how quickly our people at Studer learned how to operate the S41 and achieve high-quality grinding results. The S41 and the cooperation with Studer have brought our production to a better level and this is making a significant contribution to Wikov's continued success."

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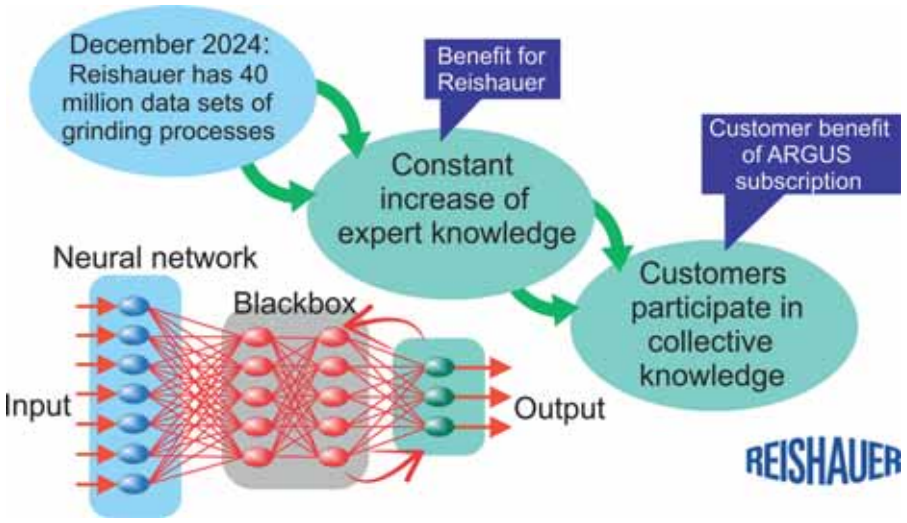
Forty million gear grinding processes in Reishauer's ARGUS Cloud

By Walter Graf, Reishauer AG, Switzerland

Just in time for the year's end and ready for the future, Reishauer's digital team hit a remarkable milestone: Over 40 million gear grinding processes have now been anonymously recorded in the ARGUS Cloud database, maintaining the highest global quality standards in gear grinding. Data from hundreds of Reishauer gear grinders worldwide continues to grow this invaluable resource. It uses AI and big data-based analytics to help subscribers continuously optimise their processes.

The ARGUS system monitors 100 percent of components in real-time, ensuring seamless quality control. Any suspect parts are ejected during machining, preventing costly downstream issues and enhancing overall process reliability. This granular level of control also empowers process planners to respond instantly to challenges like frequency excitations, by providing full visibility into machine conditions and how each part is ground.

Reishauer's forward-looking strategy, fully supported by senior management, is spearheaded by Dr Christian Dietz in R&D (first person from left) and bolstered by Frank Kressel's (second person from left) customer service team, together driving continued innovation in ARGUS products. Reishauer thanks the ARGUS team and its customers for their unwavering trust.



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PTG Holroyd Precision launches ultra-high-performance, ultra-versatile, large-capacity helical profile grinding machine

UK-based PTG Holroyd Precision has launched what it believes to be the world's most versatile, ultra-high-performance machine for precision grinding the helical profiles that are used across the air and refrigeration compressor industry.

Called the HG500, the machine has been developed to meet the needs of manufacturers with varying production requirements, including some of the largest helical rotors used in refrigeration and air-compressor manufacturing. The HG500 will rough- and finish-grind rotors of as little as 50 mm in diameter, right up to a maximum 510 mm in diameter, 130 mm profile depth and 1,500 kg in weight.

"Talking to customers following the recent upgrade to our highly successful TG Series of thread grinding machines, we realised that a very real demand also existed for a new large-capacity helical rotor grinding machine," says PTG Holroyd's sales director, Mark Curran. "Through the HG500, we have not only built a machine that is able to produce a wide variety of rotor sizes but, more importantly, one that can also accommodate the largest, most energy efficient helical profiles."

Maximum flexibility in production strategies

When specified in standard form, the HG500 can utilise either a 500 mm vitrified dressable aluminium oxide grinding wheel for maximum flexibility in production strategies and product development or use plated CBN roughing and finishing wheels for cost-effective volume production. Alternatively, for manufacturers who precision-grind the largest of helical components, a 600 mm vitrified dressable aluminium oxide grinding wheel option is also available for maximum wheel life.

As well as ensuring considerable flexibility in the HG500's rotor production capability, providing powerful, intuitive programming was also a key objective of PTG Holroyd's design team, something that was achieved through the use of Siemens SINUMERIK ONE CNC. PTG Holroyd was the first machine tool manufacturer in the UK to embrace the features of the new Siemens CNC, having integrated it into its HG350 machines and, more recently, into its well-established TG Series of rotor and thread grinding machines.

CNC tailored to precise needs

"Being first to use SINUMERIK ONE also gave us the unrivalled opportunity to work in close collaboration with Siemens to tailor the CNC's capability to our precise needs," adds Mark Curran. "The result is class-leading integrated safety and failsafe features, enhanced reporting of machine health and performance data and uncompromising levels of industrial security. Enhanced connectivity and performance are provided via additional PROFINET interfaces and OPC/UA interfaces, all made possible thanks to a PLC that is up to 10x faster than earlier Siemens controls.

To enable maximum probing strategies on even the longest of components from the onboard Renishaw OSP60 scanning probe with SPRINT™ technology, the HG500 uses a travelling grinding head instead of a conventional grinding table. Variable-frequency cooling from a high-pressure unit with wheel scrub ensures highly efficient coolant usage, while intelligent, programmable eco modes minimise energy consumption between manufacturing cycles.

"In addition to developing what we believe is the most flexible, highly efficient machine for ultra-precise large and small rotor production, in keeping with the Holroyd mantra of 'making the complex simple', we have also ensured that the HG500 is extremely intuitive to setup and run," says Mark Curran. "Rapid setup of same component batches is delivered via the HG500's data and program files, while the machine's CNC-controlled dressing system provides automatic wheel profile correction for each dress cycle, along with programmable dressing feed rates for roughing and finishing."

Holroyd Profile Management System (HPMS)

Integrated as standard with the HG500, PTG Holroyd's leading profile development tool, the Holroyd Profile Management System (HPMS), comprises a suite of advanced programs that enable the straightforward manipulation and analysis of profiles. HPMS is used in the development and control of a wide range of helical profiles for screw rotors, vacuum and pump screws. HPMS can also be used to assist the control of a profile during production and provides automatic, in-cycle profile updates and dresser path corrections, in-process lead and profile measurement and CBN wheel adjustment and correction.

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Redefining the precision manufacturing of larger diameter cutting tools

Rollomatic, represented in the UK and Ireland by Advanced Grinding Solutions Ltd, offers the widest range of 5- and 6-axis tool grinding machines. Indeed, today, more rotary cutting tools are manufactured here on Rollomatic grinding machines than on all others combined.

Sitting at the top of the Rollomatic range is the 6-axis Rollomatic 830XW machine, which remains unique among tool grinders in that it integrates and combines cutting-edge hydrostatic guideway technology and linear motors to deliver unparalleled precision and efficiency in CNC tool grinding. The use of the same coolant oil for the hydrostatic guides and for cooling the grinding spindle, which is the same coolant used during grinding, ensures that the machine is kept at a constant working temperature and provides a remarkably high level of thermal stability during setup and during production grinding.

Rollomatic's vision of "Smart Autonomous Grinding" is to provide end-users with a fully autonomous machine capable of managing the production by itself with very little human intervention. A part of this ambitious project is the ability of the GrindSmart® 830XW machine to manage the offsets to get the first parts manufactured within specification. Further items are included to be able to achieve unattended production over several days within very tight tolerances as the machine interacts with optional external robotic and automation systems. The Smart Autonomous Grinding program also includes machine connectivity and communication exchange systems with other equipment such as measuring machines, laser etching, etc. One of the standout features of the GrindSmart 830XW is its Smart Autonomous Grinding capability. This innovative function enables long-term, unattended production with minimal human intervention. Rollomatics RMonitor software allows for the fully remote management of production on the machine with the monitoring software available to be linked to smartphones.

The GrindSmart 830XW boasts a 6-axis kinematic system, providing exceptional freedom of movement during machining. This advanced design allows for the tilting of the grinding wheels to suit various operations, ensuring form accuracy within very tight tolerances. The arrangement of the grinding spindle axis on this machine enables extreme freedom of movement on both sides via a total rotation angle of 240°. This means that both right-hand and left-hand tools can be ground with the same wheel pack.

The hydrostatic system offers a high damping effect, resulting in superior surface finishes and extended grinding wheel life. The mirror-like surface finish, whereby this is especially important for the flutes of cutting tools, is improved by around 20 percent on the GrindSmart 830XW machine as compared with machines that do not employ hydrostatic technology. The 6-axis arrangement, also unique to Rollomatic, allows for the grinding point to remain constant during the grinding operation on tools such as ball nose cutters, those with full radii and also special form tools. This guarantees superior cutting tool geometry is achieved, including a radius shape accuracy of under 0.003 mm, over machines that only grind with five CNC axes.

The machine can manage offsets, achieve tight tolerances, and interacts with its own internally mounted FANUC-based robotic automation system, which has a capacity of 10 workpiece pallets with an auto-load capacity of up to 4,500 cutting tools.

The GrindSmart 830XW also includes a Smart Setup Assistant; the Smart Setup Assistant Function was developed with the aim of achieving the first ground tool within all tolerances. The program generates a grinding path for each operation to be performed on the blank; these grinding operations are carried out and then measured by the touch probe measuring system, which defines the grinding wheel corrections before the first tool is made. The blank is then ground to the geometry programmed by the operator, taking into account the corrections required to ensure production according to specifications from the first tool. In-process measurement functions are then made periodically by either the probe or laser measuring system to further guarantee that tools remain within defined tolerances throughout production.

With its ultra-compact 15-station wheel and nozzle changer, that has a capacity for holding up to 60 grinding wheels, the GrindSmart 830XW offers an arbour-to-arbour change time of only five seconds which significantly reduces cycle times and boosts productivity.

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New development in a class of its own

JUNKER opens up far-reaching options for the future and, very importantly, investment security with the new development of Platform 3. JUNKER's grinding technologies are constantly further developed to meet the challenges of the market. With ever more productive grinding concepts, JUNKER offers the perfect solution for permanently increasing demands on cost-effectiveness and precision. The Platform 3 was developed and designed precisely for this purpose.

Intention

The modular grinding machines of Platform 3 were developed based on the latest market requirements: small lot sizes and increasing part variety. Both combined the need for flexibility of a high-performance grinding machine.

The new JUNICOR covers all conventional corundum grinding requirements in addition to the high-speed grinding machines with CBN and diamond grinding wheels, such as the JUMAT, JUCAM, QUICKPOINT and JUCRANK. Flexibility and precision provide the balance and the high-performance grinding machines are suitable for producing individual parts in small batches and larger workpiece series.

Development

Significant objectives of the new development are increased flexibility and cost-effectiveness through optimising our modular system. Customers will benefit from shorter lead times archived through quicker production through puts. Included in the modular system is a uniform machine bed for all machine models of the new Platform 3, an extension of the base machine is possible by a wide range of configuration options, such as individual table assemblies and grinding spindle heads.

The configurations range from standard to custom-made solutions and achieve the best efficiency, flexibility and economic results.

Platform 3 is versatile and ideally suited to the needs of a wide range of industries, whether small or large series production at Tier 1, 2 or 3 suppliers or one-piece requirements in a research and development environment.

Highlights

- Cost effectiveness thanks to modular design
- Short delivery and through-put times for single machines and whole concepts
- Guaranteed spare part availability
- Optimised uptime due to reduced service and repair times
- Future oriented investment thanks to flexibility of machine components that allow easy changeovers for second and third product cycle
- Highest precision thanks to perfect thermal stability
- Highest rigidity due to robust construction
- Quick startup due to integrated peripherals
- Pioneering operating and software concept
- Operator and maintenance-friendly machine platform
- Optimised machine layout that requires less floor space

The grinding processes

The new and economical Platform 3 enables a wide range of grinding processes such as cylindrical and non-cylindrical applications of OD and ID, regular plunge and angular grinding, more complex operations such as profile, face, surface, and groove grinding, as well as the traditional JUNKER QUICKPOINT grinding process.

The machines

The design of Platform 3 allows a high degree of flexibility in machine configurations for specific projects. At the same time, it provides for individual customer requirements with a convincing price-performance ratio.

For different accuracy requirements in both main axes, X and Y, you can choose between different guide systems and drive variants. JUNKER offers the right solution depending on the to be ground requirements.

Another highlight of the new Platform 3 is the integrated automation concept. The machine can be loaded manually or fully automated. The internal gantry loading system can quickly adapt to new part configurations, with little effort and ensures smooth part handling. Easy access to all components on the outside and inside of the machine, combined with optimised setup capability, is the foundation of the entire system.

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Centreless grinding rethought

Innovative machining concept for thin-walled round workpieces

When bearing manufacturers are looking for a machining solution that delivers maximum precision with repeat accuracy and is also economical, all roads lead to Switzerland. One of the companies based there is the grinding specialist Kellenberger, whose production concept on a VOUMARD 1000 has completely won over leading companies in the bearing industry.

When it comes to precision machining of thin-walled sleeves or rings that are to be ground internally and externally in a single clamping operation, an intelligent clamping solution is required above all. This is because thin-walled workpieces, such as roller bearing rings, must not be deformed during clamping. At the same time, the clamping system must ensure absolute concentricity of the outer diameter to the inner diameter during machining.

The most obvious clamping solution is of course a magnetic chuck, which serves to fix the workpiece on the face side and generates the workpiece speed. However, especially with thin-walled rings with a very small contact surface to the magnet, it can be difficult to build up the necessary static friction so that the workpiece is not pushed out of position by the grinding forces. The workpiece must also be centred on the chuck, which takes quite some time and requires operator intervention.

To counter this, two adjustable support shoe devices are used to keep the workpiece centred in rotation during the grinding process. They also counteract the grinding force exerted by the grinding wheel and the force of gravity. This variant of centreless grinding is known as "shoe-type centreless grinding", but is casually called "shoe grinding".

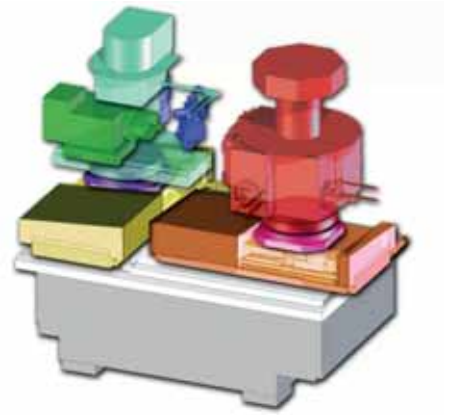
Shoe-type centreless grinding is a special variant of centreless grinding. It enables, for example, precise machining of the outer and inner form surfaces of bearing rings in a single clamping operation. In this process, the magnet forms the stop for the workpiece in the axial direction, as in normal work with the magnetic chuck. In the radial direction, the workpiece is supported by the shoe fixtures, which enable very precise positioning and support. The workpiece can therefore be inserted without alignment. The rotation of the workpiece during machining results in a stable position.

Like the Kellenberger machines, the VOUMARD 1000 has hydrostatic guides in all axes. These highly dynamic linear axes are backlash-free for positioning accuracies in the nano range. This means that workpieces can be ground extremely precisely with maximum repeat accuracy and machine availability over the entire service life of the machine. Minimal maintenance costs, improved machine availability and greater contour accuracy and process reliability are further advantages."

Exemplary clamping device for bearing production: magnetic chuck and support shoe device.

High flexibility due to two B axes and grinding spindle head

Unique machine concept: The patented B2 axis with table turret of the VOUMARD 1000.



The special features of the VOUMARD 1000 are the two high-precision hydrostatic B-axes: B1 axis with spindle turret, B2 axis with table turret. The two swivelling B axes also carry out all the necessary movements of the dressing and measuring devices. The spindle turret on the B1 axis is equipped with a uniquely compact grinding spindle head with a flexible grinding spindle arrangement. Spindles and measuring sensors can thus be optimally positioned and allow the machining of almost any workpiece shape as well as the execution of several internal and external grinding processes in a single clamping. When grinding roller bearings, the grinding head is equipped with an external grinding wheel, an internal grinding spindle and a measuring device.

The high-precision hydrostatic B-axes and the exceptional stability of the machine were ultimately decisive and completely won over the customer. During the factory visit in Goldach, Switzerland, the requirements for the grinding process for the bearing rings were specified once again and the dimensional accuracy, roundness and cylindricity were defined.

The required dimensional accuracy in the outer diameter is D100 ± 2 µm/D40 ± 1.5 µm, in the inner diameter D100 ± 2.5 µm/D40 ± 2 µm. Required roundness inside and outside <0.7 µm and cylindricities of <1 µm. Another requirement was the ability to measure during grinding, in-process measurement. This was also fulfilled with the innovative design of the spindle head and clamping device.

The tests at Kellenberger resulted in form accuracies during dressing, without radius dresser of <1.5 µm, form accuracies of the bearing running surfaces of <2 µm, with forming roller, <1.5 µm, with radius dresser and a coaxiality of <2.3 µm, thus fully meeting the requirements for the geometry.

"Our customers had already had very good experiences with the special grinding machine manufacturer USACH, which is part of our group and also with the Voumard machines that were already in operation at the factory," Kellenberger CSO Marcel Hollenstein explains. "From a technical point of view, the flexibility and collision-free nature of the kinematics concept and the two hydrostatic B-axes were particularly impressive. And, of course, the accuracy of the process. Satisfaction was also very high in terms of sales, engineering support and service." He concludes: "Although we were at the upper price limit with the VOUMARD 1000 and our innovative clamping device design, we were awarded the contract for several machines. Our concept was convincing right down the line."

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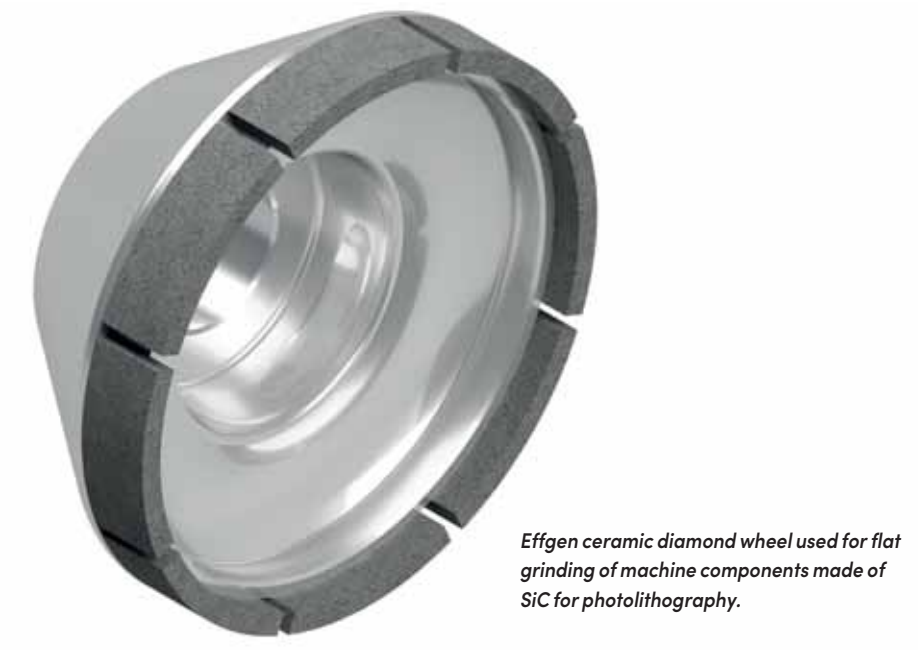
Innovative Ceramic (Vitrified) Diamond grinding tools for machining brittle-hard materials

Machining brittle-hard materials such as ceramics and glass represent a significant challenge in modern manufacturing technology. These materials are characterised by high hardness and brittleness, which makes them both resistant and difficult to machine. The use of ceramic diamond grinding tools offers a promising solution. These tools combine the hardness of diamond with the temperature and abrasion resistance of ceramics and open up new possibilities in machining technology.

Brittle-hard refers to materials that are difficult to machine due to their low ductility and high hardness. These materials include technical ceramics, e.g. aluminium oxide, silicon carbide, zirconium oxide, silicon nitride, glasses, e.g. optical glass, quartz glass, or composite materials, e.g. carbon fibre-reinforced ceramics. These materials are known for their exceptional mechanical properties, which make them indispensable in applications such as electronics, the automotive industry and medical technology. However, machining them requires specialised tools that can withstand the extreme requirements and enable ductile machining.

Ductile machining of brittle materials during grinding is a highly developed process that makes it possible to machine brittle materials such as ceramics, glass and some semiconductors under conditions that lead to ductile material removal. This is in contrast to conventional fracture-based material removal, which is often associated with microscopic cracks and surface damage. With ductile material removal, however, the material is processed in a way that allows it to behave like a ductile material. This is achieved by controlling the material removal rate and load so that the material is removed under plastic deformation rather than breaking.

The key to ductile machining lies in controlling the cutting conditions, in particular the depth of cut and the cutting speed. At very small cutting depths, typically in the range of nanometres to a few micrometres, the material can be plastically deformed before cracking occurs. The maximum cutting depth at which the material can still be machined ductilely is referred to as the critical cutting depth. This depends on the material and can be determined experimentally. High cutting speeds can increase the heating of the material and thus the ductility, which also contributes to ductile machining. The specification of the grinding tool, in particular the grit size and distribution, also plays a decisive role. Finer grains enable smaller cutting depths and promote ductile machining.



Effgen ceramic diamond wheel used for flat grinding of machine components made of SiC for photolithography.

Ductile machining of brittle materials offers several significant advantages. The surface produced is much smoother and free of micro-cracks, which minimises the need for reworking. As the material is removed by plastic deformation, less structural damage occurs in the machined workpiece. This process also enables high-precision material removal, which is particularly important in micro and nanofabrication.

Despite the advantages, there are also challenges in ductile machining of brittle materials. Precise control of the grinding conditions is technically demanding and requires highly developed machines and sensor technology. In addition, different brittle materials have different critical cutting depths and processing conditions, which requires the processes to be adapted. Furthermore, the extreme conditions can lead to rapid tool wear, which is why special diamond tools must be used.

Ceramic diamond grinding tools consist of a matrix of ceramic binders in which diamond particles are embedded. This structure offers a number of advantages:

- **High hardness and abrasion resistance:** Diamond is the hardest known material. The embedded diamond grains retain their sharpness over long periods of time, resulting in longer tool life and greater efficiency.
- **Thermal stability**: Ceramic binders are able to withstand the high temperatures generated when machining hard materials. This reduces the risk of tool failure due to thermal stress.
- **Precision and surface finish**: The homogeneous distribution of very fine diamond grains enables high-precision machining and ensures an excellent surface finish. This is particularly important in the optics and electronics industry, where maximum precision is required.
- **Chemical resistance**: Both ceramic and diamond are resistant to chemical attack, making the tools ideal for use in corrosive environments.

The production of ceramic diamond grinding tools requires highly developed technologies. First, the diamond grains and the ceramic bonding agents are mixed. This mixture is then pressed and fired at high temperatures. Specialised processes are used to produce highly wear-resistant grinding tools with a homogeneous distribution of diamond particles, which maximises the performance of the tools.

These ceramic diamond grinding tools from Effgen Schleiftechnik are used in numerous industries:

- **Automotive industry**: for machining engine parts, transmission components and brake disks that are exposed to high mechanical loads.
  - Internal cylindrical grinding of bearing bushes made of aluminium oxide/ zirconium oxide.
  - External cylindrical and face grinding of SiSic rollers for roller bearings.
  - Surface grinding of hard-coated brake disks
- **Semiconductor industry**: In the machining of silicon and other semiconductor materials for the manufacture of microelectronics and components for photolithography.
  - Flat grinding of mating surfaces on SiSic components for photolithography
  - Surface grinding of machine components made of Zerodur for photolithography.
- **Medical technology**: For the precise machining of biocompatible materials used in implants, surgical instruments and dental applications.
  - Hip and knee joints made of aluminium oxide/zirconium oxide.
- **Optics**: For the production of optical components such as lenses and mirrors that require an extremely high surface quality.
  - Flat and profile grinding of rod lenses made of BK-7, N-SSK20 or K-VC89
  - Flat grinding of quartz glass plates

The development of ceramic diamond grinding tools has made significant progress in recent years. New materials and manufacturing processes are continuously improving the performance of these tools. For example, nanotechnologies enable the production of ceramics with improved mechanical properties and fewer defects. The optimisation of bonding technologies is also helping to further increase the service life and efficiency of the tools.

Future developments will focus on improving tool materials, optimising process parameters and integrating advanced sensor technologies to improve process control. The development of grinding machines with greater precision and stability is also being driven forward. Another crucial point is research into new material combinations for grinding tools.

Innovative ceramic diamond grinding tools from Effgen Schleiftechnik are ideal for cutting brittlehard materials. Their exceptional wear resistance, thermal stability and chemical resistance make them indispensable tools in many high-tech industries. Continuous technological advances and innovations in materials science and manufacturing technologies will make these tools even more versatile and powerful in the future, further underlining their importance in modern manufacturing. In addition, the increasing demand for sustainable and environmentally-friendly production methods will promote the development of new, resource-saving materials and processes. Ceramic diamond grinding tools could play a key role in this by enabling more efficient and precise machining and thus reducing material losses and energy consumption.

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High performance over a long period

3M Cubitron 3 high-performance abrasives

The introduction of 3M™ Cubitron™ 3 high-performance abrasives marks a significant step forward in the manufacturing industry. The technology, a result of extensive research and development, will fundamentally change the way companies worldwide conduct grinding operations.

In a time of change and increasing demands in the manufacturing landscape, the pursuit of excellence is crucial. The introduction of 3M Cubitron 3 fibre discs, grinding wheels and cloth belts makes grinding processes faster, more efficient and safer. Through patented breakthroughs in abrasive grain shape and molecular bonding technology, this new product line delivers exceptional performance levels.

High performance over a long period

Thanks to a significantly higher cutting speed, companies can process more parts with fewer resources, leading to increased productivity. For example, 3M Cubitron 3 fibre disc 1182C delivers up to 61 percent faster cut rate compared to previous generation 3M Cubitron II fibre disc 982C. Also, the disc lasts longer than conventional competitor products. With the 3M Cubitron 3 fibre disc 1182C, up to 34 percent more material can be removed compared to a conventional fibre disc. 3M Cubitron 3 cut-off wheels last up to 3X longer compared to previous generation 3M Cubitron II cut-off wheels. This means more parts can be processed with fewer disc changeouts needed and less downtime.

Less noise, less vibration

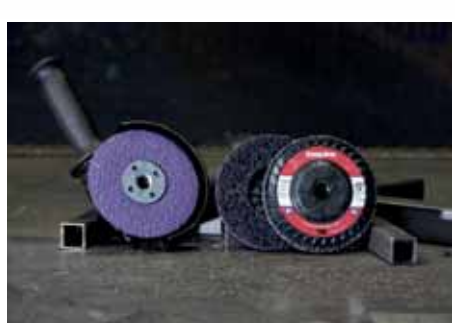
Reducing hand-arm vibration and noise contributes to employee well-being and supports employers in creating safer working environments. The 3M Cubitron 3 fibre discs can help reduce hand-arm vibration up to 88 percent and reduce noise levels by up to 70 percent compared to high-quality competitive grinding wheels.

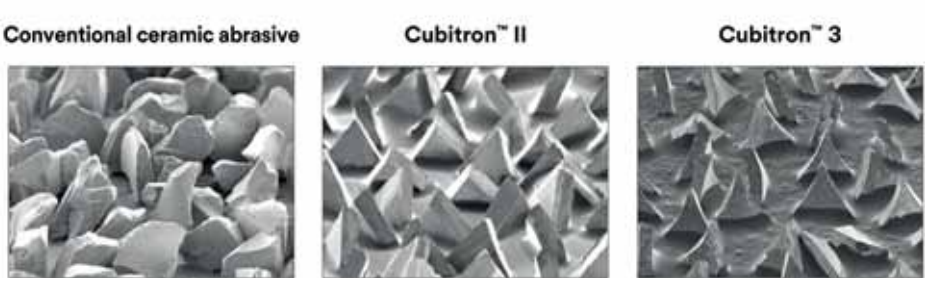
Durable and sustainable

The development of 3M Cubitron 3 high-performance abrasives also took into account the increasing automation, which helps to maximise the efficiency of automated manufacturing processes. The durable abrasives and packaging with recycled materials meet the industry's sustainability goals and help reduce the ecological footprint.

Winning abrasive combinations

Winning abrasive combinations bring together engineered excellence of Cubitron and Scotch-Brite™ abrasives, to help unlock the full potential of industrial process. While Cubitron Performance Abrasives help deliver outstanding performance in grinding and cutting, Scotch-Brite abrasives enhance safety and productivity across cleaning, preparation and refining. Scotch-Brite abrasives, made with non-woven fibres provide a quality finish faster, reducing rework. The Clean & Strip XT-PRO disc is designed to efficiently remove rust, paint, or mill scale without altering surface geometry and easily delivering quality finish. It also helps reduce hand-arm vibration by up to





90 percent compared to wire brushes, typically used in cleaning applications.

By combining engineered abrasives, processes can be streamlined faster and easier across all steps involved. With breadth of solutions, Winning Combinations can involve any abrasive pairing tailored for specific process requirements to deliver superior results, reduce process times and improve overall productivity.

Further information can be found at: ***https://engage.3m.com/ASD-Winning-Combinations-en***

About 3M

3M was founded in Minnesota, USA, in 1902 and is now one of the most innovative companies in the world. With 63,000 employees, the multi-technology company is represented in many countries around the world. Its innovative strength is based on the diverse use of 49 proprietary technology platforms. Today, the portfolio comprises around 60,000 different products for almost every area of life, and 3M can proudly look back on over 132,000 patents in the course of its corporate history. The company has research and development facilities in 29 countries around the world.

3M
Tel: 01344 858000
www.3m.co.uk

Weiler Abrasives introduces gear grinding technology and precision express service program

Process helps significantly reduce lead time and improve quality for customers

Weiler Abrasives, a leading provider of abrasives, power brushes and maintenance products for surface conditioning, has launched its new Precision Express program that cuts lead times for gear grinding wheels from months to days. The program is designed to help gear manufacturers in industries such as automotive, energy and aerospace improve quality, increase consistency and deliver on time to their customers for added peace of mind.

"We know not having the right gear grinding wheel can lead to extensive lead times, quality issues and idle machines. Precision Express is our answer to the industry challenge of customers waiting months for a gear grinding wheel," says Kyle Thompson, sector manager for industrial production Americas, Weiler Abrasives. "We prioritise on-time delivery of our precision gear grinding wheels so our customers no longer have to wait months for a grinding wheel, which could delay their operations."

Precision Express matches an in-house profiling cell with a broad range of on-hand stock, cutting wheel manufacturing and delivery lead times from months to days. Even when gear manufacturers see a spike in demand or need a custom profile at a moment's notice, Weiler Abrasives can provide consistent availability and delivery.

In addition, Weiler Abrasives' high performance gear grinding wheels feature leading, proprietary V59 bond technology that ensures exceptional results and addresses customers' unique needs with flexibility and precision. The advanced formulation of V59 bond technology provides superior grain retention, improving wheel life and grinding efficiency. Dynamic porosity lowers grinding temperatures through increased coolant efficiency and greatly reduces part surface damage from heat distortion while aiding in exceptional material removal rates, allowing for a reduction in grinding cycle times. The extended wheel life delivered with V59 bond technology also improves profile retention and reduces dressing frequency. The V59-MAX performance bond combines high-performance ceramic and aluminium oxide abrasive grains with superior V59 bond technology to deliver the maximum cut rate, longest wheel life and superior form holding ability.

With a sizable stock inventory of over 120-wheel blank sizes and specifications at Weiler Abrasives' North American headquarters in Pennsylvania, custom wheels can be produced within two weeks. Available sizes range from as small as six inches up to 24 inches in diameter and from 1/2 inch to 9 and 1/2 inches thick. These are among the most common wheel styles and sizes used in the industry. The state-of-the-art Precision Express wheel profiling cell allows for wheel speed testing to ANSI B7.1 safety standards, which is 1.5 times the maximum operating speed labelled on the wheels, ensuring the ultimate safety of the product for the consumer. Elevating industry standards, Weiler's premium manufacturing quality of precision grinding wheels feature tighter dimensional and imbalance tolerances,

resulting in less vibration and very little dressing required when they are mounted on a customer's machine.

The combination of leading product technology, technical expertise and customer service makes Weiler Abrasives an ideal partner to help customers realise continuous improvement in gear grinding operations now and in the future.

Learn more about how Weiler Precision Express can unlock the full potential of gear grinding operations at: ***www.weilerabrasives.com/Precision-Express***

Weiler Abrasives
Tel: 001 570 5957495
www.weilerabrasives.com

Providing a complete range of solutions for the construction industry

Following Tyrolit's recent launch of a new floor grinding and preparation range earlier in the year, existing Tyrolit customer Core Cut Ltd were keen to learn more about the product benefits.

Having seen the new range on display at the UK Concrete Expo, Core Cut's managing director Finlay Crocker got in touch with Tyrolit to request more information and to see how this new product range would benefit his business.

Following discussions around Core Cut's requirements, Tyrolit arranged to demonstrate the new range so that Core Cut could trial and understand the product benefits first hand.

Core Cut were at a point where its existing equipment, a combination of multiple different brands, was in need of upgrading. Having to source products from different suppliers meant there was a lack of consistency across its product range. Tyrolit's new extensive range of floor grinding & preparation equipment & consumables enables customers to purchase a complete range of products from a single source.

Tyrolit's floor preparation experts assisted with trials of various different products, including: FGE780R3 radio remote floor grinder, FPE320 electric scarifier and diamond groover, FBE560 twin motor shot blaster and a variety of single and three phase vacuums to suit the machinery.

Impressed by the extensive new range and following its business model of ensuring that it always has the most up to date, efficient and productive equipment available from a supplier with after sales support that can be relied upon, Core Cut decided to replace its entire fleet of floor preparation equipment with Tyrolit products, investing in excess of £100k.

An exciting time for Tyrolit and a testament to the quality of its range. Tyrolit is a leading manufacturer of grinding, abrasives and dressing tools, as well as being a system provider for the construction industry.

Since 1919, its innovative tools have been making an important contribution to technological development in numerous industries. Tyrolit offers tailored grinding solutions for a varied range of applications and a comprehensive assortment of standard tools for customers all over the world.

The family-owned company based in Schwaz, Austria, combines the dynamic strengths of the Swarovski Group with over a hundred years of commercial and technological experience.

Tyrolit UK Ltd
Tel: 01788 823738
www.tyrolit.com

A Practical Guide to Precision Grinding

This book has been written for the people who, figuratively speaking, put their noses to the grindstone every day. The book distills what the author, Walter Graf, learned during over 40 years in the abrasive industry: Travelling the industrialized world, optimising customers' grinding processes, and giving grinding seminars.

372 pages, divided into some 20 chapters covering, among others, OD & ID cylindrical grinding, centreless grinding, surface and creep-feed grinding, gear grinding, how to run grinding tests, diamond dressing, giving practical advice on effectively running these processes. Excessive wordiness was consciously avoided and counterbalanced by graphics and simple formulas to make the contents understandable, digestible and actionable.

Anyone wishing a summary of the contents, with the first page of each chapter, please send a request to **info@adgrind.com**

Costs per copy: £71.00 with free delivery

The book is now on stock in the UK at:
Unit 16, Stanley Court
Waterwells Business Park
Gloucester, GL2 2A
Tel: +44 (0)1452 725191

Understanding honing

Solving common machining problems with precision

Honing is an advanced machining process that fine-tunes a variety of components to achieve exceptional precision. It is widely used to improve surface finishes, correct geometric errors, enhance dimensional accuracy and reduce friction and wear in a range of industries, including aerospace, automotive and medical device manufacturing.

In this article, we'll consider the benefits and applications of honing and how the process can significantly improve the performance and longevity of machined parts.

Improving surface finish

An important advantage of honing is its ability to achieve a fine surface finish on a range of complex components. The fine surface texture produced by honing not only improves the aesthetic appearance of the component but also plays a vital role in enhancing its functionality. A smoother surface, for example, ensures better sealing, reduced friction and improved retention of lubricants, critical in engine cylinders and hydraulic systems. By refining the surface finish, honing can significantly boost the overall efficiency and reliability of a component, reducing performance problems.

Correcting geometric errors

Imperfections can easily arise during earlier machining processes, such as drilling or boring. Honing is therefore invaluable in correcting geometric errors, including taper, out-of-roundness and barrel shape in cylindrical parts, inaccuracies that may contribute to poor performance, premature wear and even complete failure of the component. By using abrasive stones that conform to the shape of the bore, honing gradually removes excess material and ensures the part achieves the desired geometry. By correcting geometric errors, honing ensures the component meets the exacting standards required for high-performance applications.

Enhancing dimensional accuracy

As well as improving surface finish and correcting geometric errors, honing is crucial to enhance dimensional accuracy. Machined parts often require precise bore diameters and perfect alignment to correctly function. Honing allows for the fine-tuning of bore diameters within tight tolerances, ensuring that components seamlessly fit together. This level of precision is especially important in industries such as aerospace, automotive and hydraulic cylinder manufacture, in which minor deviations can cause significant performance issues.

Reducing friction and wear

Honing also plays a vital role in reducing friction and wear in mechanical components. Should it be requested, the crosshatch finish produced during honing creates small pockets on the surface that retain lubrication, reducing metal-to-metal contact and minimising wear. This results in longer-lasting components and improved efficiency, particularly in high-stress environments in which consistent and reliable performance is critical.

Find out more

Hone-All's experienced team of engineers possesses the skills and knowledge to ensure its CNC honing delivers the highest quality standards for projects of any size and complexity. By choosing it for your honing needs, you will receive a bespoke approach to your engineering project and an unwavering commitment to excellence, safety and reliability.

The company specialises in manufacturing high precision, tubular components by utilising the latest in deep hole boring, gun drilling, turning and honing technology.

It provides a wide variety of industries with a complete service from sourcing raw materials to producing finished components up to three metres long.

All procedures are carried out within its own facilities ensuring it continuously improves controls over cost, quality and lead times giving you the most competitive rates and a faster, more efficient service.

Its culture is one of a family business with the emphasis on approachability, teamwork, communication and cooperation, with an open policy on management and business strategy that invites the support of every member of the Hone-All team.

Expertise continues to be enhanced through its investment in the latest CNC technology enabling much higher stock removal, while maintaining the outstanding quality standards on which its reputation has been built. Decades of honing expertise continues to be enhanced through its investment in the latest CNC technology enabling much higher stock removal, while maintaining quality standards of surface finish and geometry.

Hone-All Precision Ltd
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Homing in on the benefits of Delapena honing oil

In precision engineering, where even the slightest imperfections can have significant consequences, the choice of honing oil is critical. Delapena honing oil stands out due to its exceptional performance, contributing to superior results and enhanced efficiency across various industrial applications.

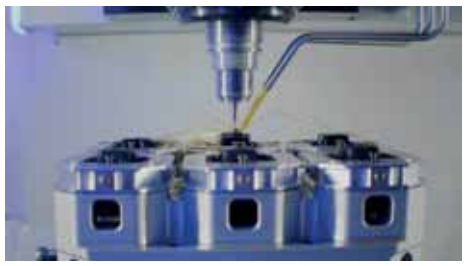
A key advantage of Delapena honing oil lies in its cooling and lubricating properties. During the honing process, friction generates heat, potentially leading to tool wear and dimensional instability. Delapena oil effectively dissipates this heat, maintaining optimal operating temperatures and preventing premature tool failure. Simultaneously, its lubricating properties minimise friction between the honing tool and the workpiece, reducing wear on both components.

Furthermore, Delapena honing oil flushes away excess particles and debris generated during the honing process. This ensures a clean working environment and prevents the accumulation of particles that can interfere with the honing process and

compromise the quality of the finished surface. The oil's effective flushing action also maintains consistent honing performance and extends the life of honing stones.

Delapena honing oil provides rust and corrosion protection. This is crucial in environments where moisture or other corrosive elements may be present. By forming a protective film on the workpiece, the oil safeguards against rust and corrosion, ensuring the longevity and integrity of the finished product.

Beyond its technical benefits, Delapena honing oil is formulated using the latest



additives and technology, minimising its odour compared to other products using heavy sulphurised and chlorinated additives.

By choosing Delapena honing oil, manufacturers can achieve optimal results, and elevate the quality of their products Delapena Extra Honing Oil, Light and Heavy-duty Honing Oil are available in 20L and 205L drums from:
www.delapenaonline.com

Delapena Honing Equipment Ltd
Tel: 01242 516341
Email: sales@delapena.co.uk
www.delapena.co.uk

Setting new standards in the machining of long and heavy workpieces

Vertical long-stroke honing machine type VL15 / VL30.

Nagel has introduced the high-performance vertical honing machines VL 15 and VL 30, designed specifically for machining long steel tubes, piston rods and other heavy workpieces with standard lengths of up to 3,800 mm and diameters of up to 350 mm. Custom stroke lengths are also available upon thorough evaluation. These machines establish new benchmarks in precision and machining efficiency.

The Nagel VL series combines user-friendly operation, powerful drives and a stable, robust design. Installed over a working trench, the machines enable work-pieces to be accessed both above and below floor level. This ensures ground-level accessibility to the working areas, enhancing workshop flexibility.

With the VL 15 and VL 30, high material removal rates can be achieved in short cycle times while maintaining tight dimensional tolerances and geometrically precise bore shapes. These machines also deliver exceptional surface finishes, even on workpieces with rough pre-machining, meeting the stringent quality demands of various industries.

The VL series is also suitable for external machining, where the workpiece is mounted on the honing spindle, which performs both vertical and radial honing movements. This significantly extends the lifespan of sleeves and sealing elements, as the machining marks are oriented axially.

Equipped with an advanced automatic measurement system, the machines achieve shut-off accuracy of 0.01 mm, even when machining long tubes with material allowances of up to 1 mm. This ensures consistently high manufacturing quality while minimising operator effort.

Nagel honing machines are indispensable for companies prioritising top precision and efficiency. The compact design of the VL series saves valuable floor space while delivering the stability required for machining large and heavy workpieces. They are the perfect solution for industries relying on cutting-edge technology in heavy machining.

2-station swivel table, including honing fixture and safety enclosure.

Workpiece centering and clamping, integrated within the honing fixture.

With the VL 15 and VL 30 vertical honing machines, Nagel offers a forward-thinking solution that not only enhances production quality but also reduces production costs, a clear competitive advantage in an increasingly demanding market.

MS-U honing control, latest generation with touch operation panel.

2-station swivel table, including honing fixture and safety enclosure.

NAGEL Maschinen- und Werkzeugfabrik GmbH is a worldwide specialist in the field of honing and superfinishing technology. Its innovative solutions have given customers a valuable technological edge for more than half a century.

Its machines, tools and service in the field of honing and superfinishing enable the highest level of quality, productivity and process reliability on the production lines of its customers.

Nagel Maschinen-und Werkzeugfabrik GmbH
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Gear honing with high-performance tools from Tyrolit

Over 30 years of experience in gear honing make Tyrolit a market and technology leader in this segment. Rely on top-quality, powerful honing wheels for a wide range of applications.

Gear honing is the most widely used machining method for optimising gear surfaces. Tyrolit is one of the world's leading manufacturers of honing wheels used to carry out this demanding fine machining process precisely and efficiently. Its products are implemented in many precision industries, for example in the manufacture of gear components in the automotive industry, where gear wheels are finalised after hardening by gear honing or tooth flank honing. Thanks to its many years of experience and expertise in tools for the high-precision machining of engine and gearbox components, manufacturers rely on Tyrolit products worldwide.

Efficient honing wheels with innovative technology

Its passion for technology, high level of innovation and many years of experience distinguish each one of its grinding tools. An example for this are its vitrified-bonded honing wheels for tooth flank honing, which enable performance honing at the highest level. The continuous and consistent development of the specifications with regard to hardness and cutting ability guarantee maximum performance and long dressing cycles. The grinding-active internal ring is designed in a vitrified bond, while the outer ring consists of a PU bond without abrasive grain.

Precise honing with tools from Tyrolit

Honing tools from Tyrolit are perfect for transferring smoothest surface effects to the workpiece in the desired manner. Its tools are used wherever precision down to the smallest µ-range is of critical importance for success. Long-standing customers include companies from the cutlery, ski, automotive and watchmaking industries as well as from the medical technology sector. This broad spectrum of customers benefit from Tyrolit's extensive product range, which it offers for honing and finishing at the highest precision level. Another aspect of success that has led to its position in these markets is its dynamic innovation work with regard to quality criteria and processes. As a result, its partners are ideally equipped to meet every industry challenge that lies ahead.

The best honing tools for a wide range of industries

Tyrolit's broad assortment of tools for honing and finishing offers the optimum solution for any application.

Tyrolit UK Ltd
Tel: 01788 823738
www.tyrolit.com

Compressor plate repair, maintenance or reconditioning

Lapping compressor plates with Kemet lapping plates and diamond finishes is a meticulous process that yields superior flatness and surface quality. By following a controlled procedure and utilising the appropriate equipment and materials, it is possible to achieve consistent and high-quality results. The benefits of this process include enhanced performance, increased durability, and cost savings, making it an invaluable technique in the maintenance and manufacturing of compressor plates.

Lapping compressor plates using the Kemet lapping plates and diamond finishes provides numerous advantages:

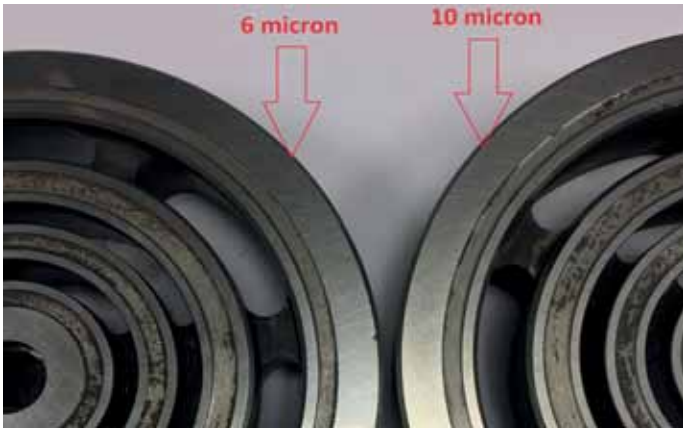
- Lapping ensures that the compressor plates achieve a high degree of flatness, which is crucial for the efficient operation of compressors. This results in better sealing and reduced leakage.
- The use of different grades of diamond slurries allows for a range of surface finishes, from coarse to ultra-fine, improving the overall surface quality of the plates.
- The controlled process ensures that each plate is uniformly lapped, resulting in consistent quality across all plates.
- By achieving a smoother surface, lapping reduces the friction between moving parts, thereby extending the life of the compressor plates and the compressor itself.
- Improved efficiency and longevity of the compressor plates lead to lower maintenance costs and reduced downtime, providing economic benefits over time.

Process breakdown

To achieve optimal results in lapping compressor plates, the following equipment and materials were employed:

- Kemet 36" lapping/polishing machine: A robust and precise machine designed for high-performance lapping and polishing.
- Kemet Copper SP2 lapping plate: A specialised plate used for fine lapping applications.
- Kemet Iron lapping plate: A durable and versatile plate suitable for various lapping tasks.
- Kemet flatness gauge: An essential tool for measuring the flatness of the lapped surfaces.
- Diamond slurries: Different grades of diamond slurries were used to achieve the desired finish: 3, 6, 14 and 25 micron type K std.
- Dycem faced hand weight: A tool used to apply consistent pressure during the lapping process.
- C042 cleaning fluid: A cleaning agent used to remove residues after lapping.

Compressor plate before after processing.

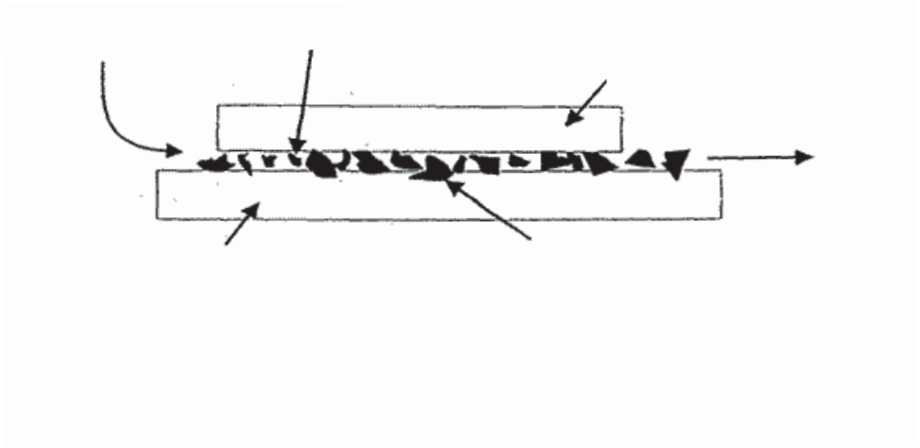


Compressor plate lapping with diamond.

The process of lapping compressor plates involves several carefully controlled steps to ensure precision and consistency. Each compressor plate was placed inside a control ring on a flat Kemet composite plate. The lapping machine was cycled for a duration of 5-15 minutes, depending on the size of the compressor plate. Diamond slurry was applied using a diamond dispenser at a ratio of two seconds of spray every 45 seconds until the surface was cleaned up. The compressor plate was then flipped over and the process was repeated to ensure both sides were evenly lapped, when applicable. The parts were cleaned with C042 cleaning fluid and inspected for flatness using the Kemet Flatness Gauge.

Kemet International Ltd Tel: 01622 755287
Email: sales@kemet.co.uk www.kemet.co.uk

What is spherical lapping?



The term "lapping" is used to describe a number of various surface finishing operations where loose abrasive powders are used as the grinding agent at normally low speeds. It is a process reserved for products that demand very tight tolerances of flatness, parallelism, thickness or finish.

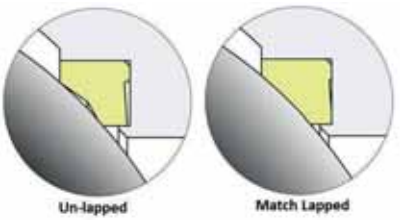
One or more parts are machined at the same time in a batch process. The abrasive is usually mixed with a liquid vehicle, either oil or water based. The pieces being lapped are captured in retaining rings.

Workholders also called "carriers" may be used to keep the parts separated to prevent damage to their edges. The parts are dragged across the lap plate surface on to which the abrasive is being fed.

Lapping is an averaging process where the greatest material removal occurs where the high points of the surface of the part contact the flat lap plate. The object is to produce parts with a uniformly smooth and usually flat surface. A surface that has been lapped exhibits a dull, non-reflective and multi-directional appearance. This condition is referred to as "matte" finish. There may be slight reflectivity on materials lapped with very small micron size aluminum oxide abrasive. This is especially true if the material is relatively hard and the surface roughness measurement is perhaps 5 (.127 micron) micro-inch and below.

Very light "micro-scratches" may be viewed on lapped surfaces. Abrasive of larger micron size and harder compound will generate more micro-scratches in addition to deeper scratches. Most micro-scratches produced with small micron aluminum oxide abrasive will be less than .000001" (.025 micron) deep and can't usually be measured with a profilometer. Micro-scratches should not be confused with deeper scratches produced by particles of contamination or other causes.

Lapmaster spherical lapping machines and systems offer a complete line of products for all spherical lapping requirements. The company can offer fully integrated systems and machines for high volume spherical lapping and industrial production applications and equipment for low volume job shop applications. Lapmaster also offers used spherical lapping, rebuilt and refurbished and upgrade services for existing spherical lapping machines. It provides customers with fully engineered complete custom solutions and offers a full line of accessories and consumables in addition to comprehensive training and repair services.



Its extensive line of spherical lapping machines and systems for both medium to large-scale serial production as well as small batch production can be made to be manually operated or fully automated. With innovation and customer service as its main objectives, Lapmaster is continuously researching and developing new technology and spherical lapping machinery. By consistently staying on top of the latest developments on the market, it ensures that its customers are provided with the most state-of-the-art production and control.

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South Tyrolean company chooses Swabian ultrasonic deburring technology

Intercable Tools GmbH has been firmly rooted in Bruneck in the Italian province of South Tyrol since it was founded in 1972. Since then, the family-owned company has been one of the leading manufacturers of connection technology and tools for professionals and the industry. Since May 2024, Intercable Tools has been using ultrasonic deburring technology from Swabian company ultraTEC Innovation GmbH to remove burrs from hydraulic units in a contact-free manner automatically.

With Intercable Tec, a developer and manufacturer of automotive components, Intercable Tools forms a management-led family business with branches and over 600 employees worldwide. For some time, Intercable Tools had been looking for an automated solution to replace manually deburring hydraulic units of battery-powered hydraulic cutting tools made of aluminium and steel. Such hydraulic units are used in battery-powered perforators, which the company manufactures and distributes. These sheet metal punches are suitable for punching round, square and rectangular holes up to 3 mm thick. The complex task for the ultraTEC was to remove all detachable burrs from the inside and outside of the components.

"We were looking for an innovative alternative to manual deburring. It's also important for us to produce our variants without setup time," says Heinz Pramstaller, team leader of metal production at Intercable Tools.

"The deburring process should also be optimally integrated into the process and the components should be cleaned using the same product carrier as the parts cleaning system."

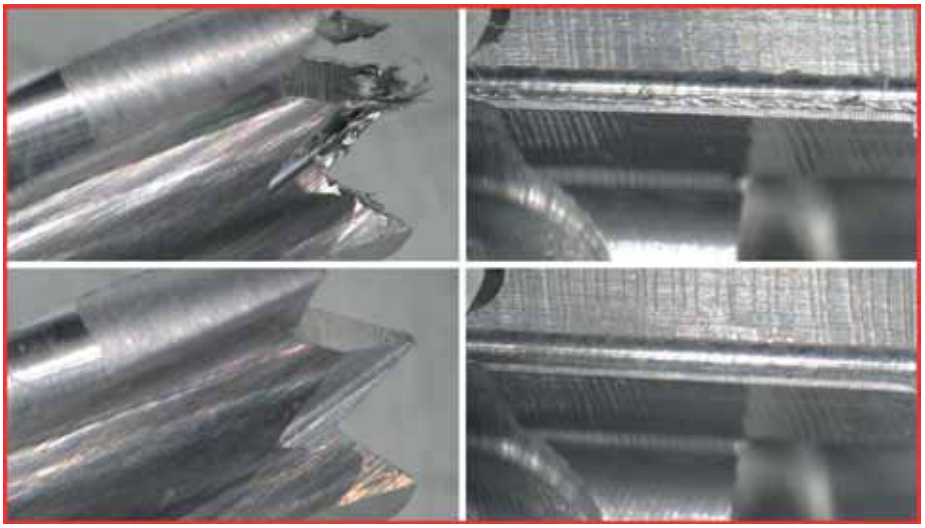
The new ultraTEC A25 S system automates the manual process. The companies first contacted each other at the DeburringEXPO trade fair in Karlsruhe, Germany, in October 2023. Heinz

Pramstaller brought along the component to be deburred, so an initial deburring test was carried out on the trade show machine. The component was manually guided to the sonotrode, with a positive result. The advantages of this method over the previous manual deburring process quickly became apparent to Intercable Tools. Ultrasonic deburring means that the results remain the same, there is no damage to the drill holes, and uncontrolled material removal is generally avoided. It also guarantees that no holes are forgotten, which can happen with manual deburring. The ultrasonic deburring process also has the advantage of cross bores being deburred and rinsed out simultaneously. The initial tests for Intercable Tools were, therefore, very promising.

Product carriers with hydraulic blocks that Intercable Tools will be able to deburr automatically in future using ultrasonic deburring technology.

Non-contact ultrasonic deburring with the patented sonotrode forms the foundation of ultra technology. Components to be deburred are guided in a process water basin along the tip of an ultrasonic sonotrode, whose generated vibrations cause the burrs and chamfers to break off in an automated and energy-efficient manner. Stimulated by a generator, the sonotrode oscillates back and forth 20,000 times per second over 0.1 mms. These generated vibrations move burrs and chamfers back and forth until they are broken off with sharp edges in a process-safe manner. Similarly, ultrasonic deburring does not apply temperature to sensitive components, which can lead to deformation and discolouration. In addition to deburring common metals, ultraTEC systems can be used with components made from various titanium and nickel alloys and fibre-reinforced plastics.

From the deburring tests in Laupheim to commissioning in South Tyrol, numerous automated deburring tests were carried out



The before and after images show the ultraTEC innovation system achieve optimal results.

with components from Intercable Tools at ultraTEC's premises in Laupheim. Detailed documentation was provided for each test so that the specialists from Intercable Tools could assess each one accordingly. Regular coordination meetings and a visit from South Tyroleans in Laupheim led to them placing an order for the A25 S ultrasonic deburring system in late March 2024. Two months later, the A25 S was showcased for the first time as an innovation at the GrindingHub trade fair in Stuttgart,

Commissioning the A25 S ultrasonic deburring system at Intercable Tools with Fabian Sendelbach (right) and Markus Hoch (left) with Lukas Huber from Intercable.

Germany, before preliminary acceptance was already carried out at ultraTEC in mid-June 2024. Four weeks later, the A25 S was operated at Intercable Tools in Bruneck in South Tyrol.

"We're delighted that we could implement the project quickly and that Intercable Tools chose ultraTEC to automate the deburring process," says Thomas Benzing, sales manager at ultraTEC Innovation GmbH. "Maintaining a sense of partnership and trust when working with our customers is very important."

With its comprehensive range of machinery, the VOLLMER Group, which has sites in Germany, Austria, Great Britain, France, Italy, Poland, Spain, Sweden, the USA, Brazil, Japan, China, South Korea, India and Russia, enjoys global success as a tool machining specialist in terms of both production and service. The technological leader's range of products contains the most advanced grinding, eroding and machine tools for rotary tools, circular saws and band saws in the wood- and metalworking industries. In offering this, VOLLMER relies heavily on the company's tradition and strengths: Local contacts for efficient communication channels, quick

The process of ultrasonic deburring of the hydraulic blocks uses ultraTEC technology with an ultrasonic sonotrode.

decisions and rapid action by a family-run company.

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Stetec demands efficiency in finishing precision sheet metal work

Last year, 600,000 products passed through the Timesavers machine at Stetec in Maarheeze. No wonder efficiency is paramount at the maker of precision sheet metal made from aluminium, steel and stainless steel in thicknesses from 0.3 to 5 mm. Commercial director Sebastiaan Vriesema says: "We can choose very specifically for each product to be finished which treatment fits best."

Commercial director Sebastiaan Vriesema, Stetec.

Stetec's customer base is very diverse. For example, the company produces thin precision sheet metal for laboratories and hospitals, but also for car parks and amusement parks. Or a 19" rack used at film studios for camera footage. "Mainly in the Benelux, but we can also take care of their branches in the rest of Europe," assures Sebastiaan Vriesema, who has been a board member at the Maarheeze-based company since this year. He shows one of the punch laser combination machines linked to an automatic warehouse. In addition, Stetec has a bending department, a pressing department, automatic or manualand space for smaller operations, such as stud welding and spot welding. He continues: "Very importantly, we also take care of the logistics process and the posttreatments that a customer needs from us."

Reliable

What is striking about the production hall is that there are almost only A-brand machines. Sebastiaan Vriesema explains: "It's not that we consciously only choose A-brands. We are constantly looking for machines that fit our requirements and that are necessary for successful production. Crucial in this is that the supplier is reliable: good maintenance, good service and a good point of contact. We don't buy a machine purely by name; we buy by quality, service and functionality of a machine."

Deburring

Reliability is thus another reason why Stetec purchased a Timesavers 42 series with eight rotary brushes. This 42 RB series can evenly deburr and round the edges of metal with its multi-rotating brush assembly. This makes it possible to achieve a radius of 2 mm on mild steel and even more on softer material such as aluminium. One of the big advantages of the Timesavers is its wide belt of 1,350 mm. This allows many small products to pass through the machine at the same time. Sebastiaan Vriesema says: "Last year, we had 600,000 products finished by the Timesavers. You can imagine how important efficiency is then."

Flexible

The machine is equipped with a proper sticky conveyor and vacuum as standard. It is available in different configurations for combining deburring, edge rounding, laser oxide removal, finishing and even slag removal. Each aggregate can be used separately. Sebastiaan Vriesema adds: "An important reason was the ability to combine the techniques of grinding with the abrasive belt and rounding with the rotary brushes. We can choose very specifically for each product to be finished and which treatment fits best: only grinding, only brushes, or combining both techniques."

An AMI return feed table is connected to the Timesavers. The return table makes it possible for one person to put the products on and also take them off, without walking back and forth all the time. Sebastiaan

Vriesema states: "It's an efficiency gain. This is very important for us; we are constantly improving our process, we have to."

Durable

For deburring, the minimum thickness is 0.3 mm and the maximum thickness 5 mm. Sebastiaan Vriesema knows it is no problem for the Timesavers. "Before we bought this machine, we had another Timesavers. That was a wet finisher. We were satisfied with it. The introduction of the new brushes and grinding was an additional reason for us to choose Timesavers again. The move to a dry process was an important development for us and the machine seems very durable. We only had to replace the first brush set after four years, when the R+ brushes came on the market."

Simple machine

Bert, an operator at Stetec, confirms Sebastiaan Vriesema's story. The machine operator mainly works with the punch laser combination machine and also operates the Timesavers. "An easy machine," he says. "A big advantage is the width, connected to the return table. We process a lot of products and then you need to be able to easily set the deburring machine and know that there is little downtime for maintenance. The mechanic has rarely visited in the years I've been working here, so that speaks for itself."

Predictable

For Bert, consistent quality is very important. He concludes: "Some want to have a small radius to the sheet, but others prefer to see a real rounding to the product. We can simply control the conveyor speed to a lower setting. As a result, there are no sharp edges to the product at all. Equally important is the predictability of the result. In other words: does the product meet expectations? I set up the machine and examine the first product. If that's good, I want the rest of the series to come out the same way, giving you a consistent end result. Predictable production is what I want to offer."

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Q-Fin wins EuroBLECH award with the F250: Innovation in surface finishing for small parts

Q-Fin believes in innovation and its machines speak for themselves. The new F250 has set the standard for finishing small sheet metal parts. At the EuroBLECH trade fair in Hanover, the F250 was awarded the prestigious EuroBLECH Award in the Surface Technology category, an award that confirms the company's vision and commitment to high-quality, customer-focused solutions.

The F250, the successor to the highly regarded F200, translates the advanced technology of its larger machines into a compact and versatile format, specially designed for deburring, edge rounding and finishing small metal parts. This compact powerhouse impressed both the jury and the public with its high level of automation and ease-of-use. In a public vote, the F250 was chosen as the winner in the Surface Technology category out of more than 70 entries for the EuroBLECH Award, acknowledging the machine's innovative technology and practical benefits.

Power, precision and control in a compact format

The F250 is designed with the user in mind. With a belt width of 250 mm and a maximum product height of 100 mm, this machine offers extensive possibilities for deburring, edge rounding and finishing small sheet metal parts. Each processing station is fully software-controlled, giving users complete control. The innovative vacuum system ensures that even the smallest parts, starting from 20 x 20 mm, stay securely in place, while the alternative magnet system allows safe processing of products as small as 10 x 10 mm. A fixed table height and a movable inner frame add to the stability and make it easy to integrate the F250 into automation solutions.

The innovation doesn't stop there. Thanks to the Qonnect+ software, the F250 can be connected to ERP systems for extensive process monitoring. Additionally, the automatic height adjustment of the grinding belt optimises the process by preventing scratches on products when this station is idle and the electronic brush compensation extends the machine's lifespan by ensuring that brushes do not brush into the belt. A modern 10-inch HMI-touchscreen provides intuitive and clear operation.

A new standard in surface technology

With the EuroBLECH Award, the F250 shows that top quality and innovative technology go hand in hand with customer-focused thinking. "The F250 proves that a compact machine can excel in every area," says Joost Kouwenbergh, business officer at Q-Fin. "We have listened closely to our customers and this machine perfectly meets their needs for a versatile, efficient and easy-to-use solution for smaller sheet metal parts." The award is a recognition of Q-Fins vision and commitment to advanced technologies.

As the winner of the EuroBLECH Award, the F250 demonstrates that it is possible to combine functionality, speed and precision in a compact machine that is ready for the future. With this achievement, Q-Fin sets a new standard in the world of deburring, edge rounding, and finishing metal sheet parts. Whether it's efficiently processing small parts or seamlessly integrating into automated production lines, the F250 is the solution that looks beyond today's demands.

Q-Fin develops, builds and supplies solutions for deburring, edge rounding and finishing metal sheet parts. Additionally, it ensures efficient handling, insights in performance and high reliability. Whatever it takes to get the maximum result.

The company offers innovative machines for efficient deburring of metal components, including steel, aluminium and stainless-steel sheets, after cutting processes like laser, plasma and waterjet cutting. Its machines are cost-effective, high-speed and user-friendly, ensuring a perfect burr removal and compatibility with various manufacturing processes.

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Manual versus automated deburring: Pros and cons

A range of deburring methods and technologies can be used to achieve the desired results. While some components may be effectively deburred using manual methods of deburring, others will require high-precision automated techniques.

Manual deburring methods requires skill and care to effectively remove burrs. Hand tools, such as files, sandpaper, or brushes are used to remove burrs, particularly from smaller and more specialist components with one-off, or short production runs. Because of its flexibility, it can be used with a wide range of different materials, including those whose integrity might be at risk from automated techniques.

Manual deburring is a highly versatile technique and can be used to handle a wide range of components, regardless of the type of materials or its size. Manual deburring is particularly effective for one-off, unique, and custom parts in decorative or specialist applications.

One advantage of manual deburring techniques is that skilled technicians are able to assess a component and tackle burrs individually. It doesn't require significant upfront investment in machinery, making it accessible for small-scale operations, low-volume production and craft applications.

While manual methods of deburring can be useful, they are labour intensive and not always consistent. While the initial costs are low, labour costs for skilled technicians can be substantially more expensive over the longer term. Scaling up production with manual deburring methods is often unrealistic due to its reliance on human effort.

For anything other than small production runs, automated deburring methods are likely to be the most practical.

Automated deburring methods use a range of different techniques and technologies to achieve the desired results. Automated methods of deburring deliver uniform results, ensuring that every part meets preset specifications. This degree of uniformity and precision is essential in industries such as vehicle manufacturing and aerospace.

Machines are also able to process components much faster than humans, increasing productivity and enabling high production volumes. Once installed and programmed, automated systems are able to cooperate with minimal human supervision. This reduces labour expenses, freeing up people to concentrate on other tasks.

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Midland Deburr & Finish reflects on 25th anniversary and looks ahead to a bright future

Midland Deburr & Finish, based in Lye, Stourbridge, is entering 2025 with renewed energy and a clear focus on meeting the metal degreasing and deburring needs of UK industry. Following a highly successful 2024 that marked the company's 25th anniversary, managing director Chris Arrowsmith is reflecting on the firm's achievements and looking forward to building on its legacy.

He explains: "Last year was a milestone for us. Celebrating 25 years in business was a moment to reflect on where we've been and an opportunity to look at where we're going. It's a testament to the loyalty of our fantastic customers and the hard work and dedication of our team. As we step into 2025, we're back, stronger than ever and ready to continue delivering the exceptional service that's defined us for a quarter of a century."

For Chris Arrowsmith, Midland Deburr & Finish is more than just a business; it's a symbol of his passion for British manufacturing. The company's expertise in metal degreasing and deburring has made it an indispensable partner for industries including aerospace, automotive, and precision engineering. He is deeply committed to supporting UK manufacturers, from small firms to major industry leaders.

Chris Arrowsmith continues: "I've always believed in the strength and resilience of UK manufacturing. There's something incredibly fulfilling about playing a part in the supply chain that keeps our industries moving. Our passion lies in ensuring our customers can rely on us to meet their exacting standards, no matter how challenging the task."

Looking back on the company's anniversary year, Chris Arrowsmith highlights the progress made in 2024:
"It was a remarkable year. ''We saw growth in new and existing contracts, expanded our capabilities and made significant investments in both our people and our processes. The trust and support of our customers have been instrumental and we couldn't have achieved this without the incredible team here at Midland Deburr & Finish."

With the celebrations behind them, the company is now firmly focused on the future. "This year, our goal is to further enhance our services to meet the evolving needs of UK manufacturing," Chris Arrowsmith states. "We're investing in advanced equipment, refining our processes and ensuring we stay at the forefront of our industry. More than ever, we're committed to being a dependable partner for our customers and helping them achieve their goals with confidence."

Chris Arrowsmith's optimism for the future of UK manufacturing is evident in his vision for the company: "British manufacturing has always been a cornerstone of our economy and I believe it will continue to thrive. We're proud to contribute to that success. Our role is to be an integral part of a wider legacy of craftsmanship, innovation and excellence in the manufacturing community."

Outsourcing a strategic solution to rising costs and skills gap

The UK's manufacturing sector, a £270 billion industry providing 2.6 million jobs, faces mounting challenges, including soaring energy costs, rising employment expenses and a growing skills gap. For many businesses, these pressures are compounded by the need to remain competitive while pursuing sustainability goals. As these burdens increase, outsourcing critical but resource-intensive processes such as metal degreasing and deburring is emerging as a strategic solution.

Chris Arrowsmith believes outsourcing these specialised tasks can significantly benefit manufacturers. "By outsourcing processes like degreasing and deburring, companies are not only reducing their operational energy demands but also eliminating the need to hire and train additional staff for these time-intensive roles."

For many manufacturers, outsourcing also contributes to sustainability goals. Processes like degreasing and deburring often involve high energy consumption and hazardous materials, requiring careful handling and disposal. Specialist firms can optimise these operations to minimise environmental impact, reducing carbon footprints and ensuring compliance with increasingly stringent regulations.

As energy and employment costs continue to rise, and sustainability becomes a critical business imperative, the case for outsourcing specialised processes has never been stronger. For UK manufacturers, partnering with experts like Midland Deburr and Finish offers a clear path to cost efficiency, regulatory compliance and operational focus.

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Looking for excellent value deburring machinery? FINAIDS are here to help...

In the world of manufacturing, where every second and penny counts, there has never been a greater need for high-performance machinery. VG Machines' Edge Master offers an uncomplicated solution to all these demands without charging the earth. FINAIDS has now introduced multiple companies in the UK to excellent value grinding and deburring with the Edge Master and are keen to solve more manufacturing problems in 2025.

The Edge Master is a machine that brings together speed, precision, and versatility-features that no manufacturer can afford to overlook when striving to meet deadlines or handle complex projects. With a processing width of 1,065 mm the machine also boasts a remarkably small footprint, even when twinned with VG's Mistral Aqua wet dust extraction units.

When it comes to grinding and deburring, consistency is key. The Edge Master excels at delivering the smooth, even finishes that manufacturers need, job after job. Its solid construction reduces vibration, which ensures an elevated level of precision and makes a noticeable difference in the final product quality. Operators can trust that each piece will meet strict quality standards without spending extra time on adjusting machine parameters.

Another reason the machine is so effective is because of its advanced control system. It's easy for operators to adjust speeds, pressure, and angle to achieve just the right finish. That kind of control means each job will be given the attention it requires, and manufacturers can be assured that results will be consistent and quality, time after time.

If all that is not enough, maintenance is also a breeze. VG Machines has made sure that routine maintenance can be as smooth as possible to minimise business downtime. And with exceptionally good customer support always at hand, a manufacturer can sleep well, knowing any arising issues will be dealt with swiftly and effectively.

FINAIDS' Senior Machine Engineer, Kris Rex, has been fully accredited by VG Machines to perform servicing and repairs on all of their products and remains committed to solving any problems customers might encounter.

For further information, quotations or general enquiries please contact sales@finaids.com or call 01480 216060.

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FRAISA streamlines regrinding process with Anca-Zoller data exchange, cutting idle time by 20 percent

It's the same old story every day and the pressure is constantly increasing, the first tool must be to quality and rework must be avoided. Scrap must be minimised at all costs, because it is one of the major cost drivers. This applies to both the production of new tools and to regrinding.

To achieve this, it is essential to have a perfect grinding programme as well as valid information about grinding wheels and wheel packs. Anca provides a standardised interface for this in the WheelEditor of Anca"s own ToolRoom grinding software, which enables both the export of wheel information and the import of measurement results. These measurement results are the basis for all calculations that lead to a perfect tool in the first run. It does not matter whether the wheel data is managed locally or across multiple machines using Anca WheelServer. This interface can be used to exchange all wheel information, such as diameter, wheel radius, wheel angle, flange size and other relevant information. The interface also offers the option of exchanging only individual parameters, such as flange size or diameter, for wear control. In this case, only this data is transferred via the network and measured. The results are also provided and transferred via the network.

At the Fraisa location in Willich, Germany, 350,000 tools are reground every year. By applying grinding wheel data exchange between ANCA grinding machines and ZOLLER measuring machines, the company has reduced idle times by 20 percent.

FRAISA, a precision tool company based in Willich, Germany, uses the Zoller »venturion« to measure its grinding wheel packages. The data is sent directly to the Anca WheelServer, which assigns the actual data of the physical package to the virtual package and in turn provides this to the grinding machine.

"The transfer of actual data from Zoller to the Anca software is a game changer for us. It saves us an enormous amount of time and effort," says Stefan Schaefers, head of technology at FRAISA. Here, each package is measured before use, ensuring that only real data is used. Since its introduction in 2018, the system has been implemented on all Zoller devices and the 20 Anca machines on site. "We are talking about 10 grinding wheel packages per day that are dressed by our external partners and then measured directly by the machine operators in our company," explains Stefan Schaefers. The results are impressive: "Particularly with regard to machine availability, external measurement and automated data transfer have brought huge improvements. We were quite amazed ourselves when we did the first evaluations in this regard and realised that we could save 20 percent in non-productive time and reduce the rework rate by 10 percent."

FRAISA GmbH in Willich is the main location for tool reconditioning at FRAISA. Around 350,000 tools are reground here every year. The ReTool® concept uses the latest production control and automation solutions to offer customers cost savings of up to 70 percent compared to new tools, while also reducing CO_2 emissions by 50 percent. This is possible, among other things, due to a very high level of plant efficiency, which in turn is partly due to grinding wheel management.

"Our motto is "first tool = good tool"," says Stefan Schaefers. "This only works if we do our homework in terms of data storage, measurement and handling. Thanks to the data transfer between Zoller and Anca, we always have a ready-to-grind wheel package at hand. The error rate is practically zero due to the guaranteed repeatability and operator-independent measurement. If the wheel pack fits, the tool is as good as in the simulation after the first regrind."

Steffen Kluth, product manager for digital manufacturing at Anca, adds: "The measurement on the Zoller and the data transfer to the Anca machine can be carried out by the machine operators. These are value-adding tasks that have a significant influence on quality and thus also increase the value of daily work. In addition, data transfer eliminates the risk of typing errors."

Since the introduction of its own modular automation system AIMS 2022, Anca has developed its own portfolio for digital, automated tool production further and is also contributing to various standardisation projects, such as the GDX interface or umati.

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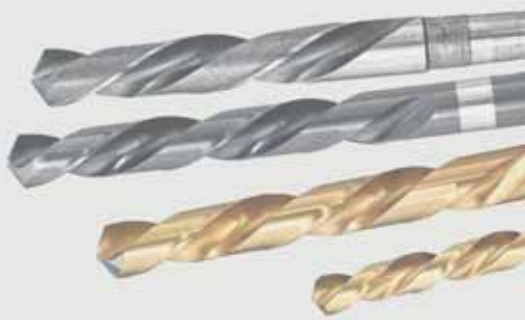

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Drill sharpener pays for itself in five months

Anyone who has spoken with Danielle Toner, production manager of site drilling equipment manufacturer Archway Engineering about the company's use of a drill sharpener would wonder why every factory does not use one. When the savings are understood and bearing in mind that drilling is the most common machining process, the investment becomes compelling.

A US-made Darex XT-3000 for repeatedly regrinding carbide and High-Speed Steel (HSS) drill bits to as-new condition was delivered by sole UK sales agent 1st Machine Tool Accessories to Archway Engineering's Elland factory in July 2023. By November 2023 it had already paid for itself, as Danielle Toner had not purchased a single new carbide drill in all that time to replace broken or damaged bits. The saving was between £700 and £1,500 per month, according to the work going through the factory.

Danielle Toner says: "We did not previously send drills out for resharpening, so worn bits were discarded. The cost was significant, especially in the case of solid carbide drills.

"One component we regularly machine involves using a 160 mm long, single-flute carbide drill and we previously needed four of them to complete the part. If we ran out of the bits, we couldn't finish the job until the next drill delivery, which delayed assembly of our products.

Michael Toner preparing a 6 mm diameter HSS twist drill in a finger chuck for alignment in the Darex XT-3000 at Archway Engineering's Elland factory.

"Now we simply resharpen a bit four times and we are certain that the component will be finished on time. New carbide drills cost around £165 each, so the saving is considerable and contributes to lowering the cost of production."

This example is by no means exceptional. Another job requires three new carbide drills to make two parts. In a different process, an HSS taper-shank twist drill is put through 30 mm thick EN19 high-tensile steel. A so-called TC shoe made from S355 hot finish, stainless steel tube is drilled in up to 16 places using a split-point, single-flute carbide drill that has to be repeatedly resharpened before the component comes off completely machined.

Danielle Toner explains that some bits can be resharpened a dozen times or more, depending on their length, with no loss of tip quality. It takes about one minute to sharpen the point, or maybe a little longer if it is necessary to grind past a chip on a cutting-edge. It happens quite often due to the toughness of the materials being machined and also because of a frequent need to drill cross holes at various angles into the wall of tubular components. This has a tendency to damage the cutting edges of a drill as it breaks through.

HSS jobber drills from the assembly department are also regularly sharpened, which Danielle Toner describes as "a massive saving." It requires the 220-grit diamond wheel used for sharpening carbide drills to be exchanged for a 180-grit CBN grinding wheel. The process takes about five minutes, so batches of around 20 HSS bits are set aside and resharpened at the same time.

1st MTA demonstrated the XT-3000 in the Elland factory before Archway Engineering purchased the unit, together with an attachment to enable bits up to 30 mm diameter to be sharpened. Left- as well as right-hand drills can be processed and attachments are available for sharpening

Once the length of protrusion is set at the alignment station, carbide fingers determine the rotational orientation of the drill, after which it is clamped in position in the chuck.

Grinding of the drill takes place at the second station, with the operator manually oscillating the drill tip from side to side as it is fed forward. This process is automated if a Darex XT-3000iA is purchased.

step drills, countersink and spot drills and others with a 90-degree point. Standard sizes of carbide drill used regularly by the site drilling machine manufacturer are 8, 10, 12 and 14 mm diameter and up to six times diameter in length, although bits from 3 to 21 mm diameter can be accommodated by the Darex machine in normal use.

It resharpens bits in a three-step process. A drill is placed in a finger chuck and the length of protrusion is set at an alignment station. Carbide fingers enter the flute to fix the rotational orientation and the drill is tightened in that position by rotating the chuck clockwise. The grind motor is then started and, at a second station, the drill is sharpened on both sides while clamped in the same chuck. In an optional last operation, the chuck holding the sharpened drill is presented to a third station for point splitting to shorten the chisel line and lessen the force required for drilling components.

Danielle Toner concludes: "The savings that the Darex XT-3000 brings makes it an obvious investment, once you realise the benefits. We just wish we had done it much earlier.

In an optional third operation the drill undergoes point splitting, whereby the central web is ground away on either side. It minimises the non-cutting part of the drill profile and lessens the down force required when machining.

Larger drills up to 30 mm in diameter may be similarly sharpened using an extra attachment. In this case, a 22 mm diameter twist drill is about to be reground.

"The sharpener paid for itself in less than half a year, after which the ongoing monthly savings are continuing to add to the profit margin on all jobs that require drilling operations, which is most of them.

"The sales arguments that 1st MTA make are difficult to ignore. We also purchase Chick workholding products from them, which have doubled productivity on one of our machining centres and the supplier has also provided us with a new chuck for one of our lathes."

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Revolutionising LEV design and addressing metalworking fluid hazards

In recent years, the Health and Safety Executive (HSE) has intensified its campaign addressing the use of Metalworking Fluids (MWF). This initiative stems from alarming findings of poor practices in the industry and the harrowing fact that MWF are the third-largest contributor to occupational cancer in the UK. Vent-Tech is committed to tackling these challenges by providing cutting-edge solutions for Local Exhaust Ventilation (LEV) systems and fostering safer workplaces.

The challenges of metalworking fluids

Metalworking fluids play a crucial role in machining processes, but their mist and vapour can pose significant health risks if not adequately controlled. Prolonged exposure to these substances has been linked to occupational diseases and, when airborne in the form mist, include respiratory issues such as COPD and cancer.

Unfortunately, many businesses face difficulties and confusion after their LEV systems fail a Thorough Examination and Test (TExT). While theses test reports often provide a list of recommended actions, the companies conducting the examinations are not always equipped to carry out the necessary remedial work. This gap leaves businesses grappling with unresolved issues.

Holistic LEV system solutions

Addressing these challenges requires more than periodic testing. It involves a comprehensive approach that integrates system design, proper training for operators and ongoing maintenance. Vent-Tech has spent over two decades refining this process, offering end-to-end services that help businesses protect their workforce and ensure regulatory compliance. In short, it takes the headaches out of LEV so you can concentrate on your day-to-day activities.

Vent-Tech often gets enquires from companies who know they may have issues but don't know where to turn or how best to tackle these problems. In this situation, it always recommends its consultancy service. It sends a senior engineer to your site to assess current systems, understand your processes and discuss your requirements.

Following the visit, Vent-Tech provides a detailed report that highlights the current state of your LEV systems, suggest necessary remedial actions and outlines potential improvements and most importantly, the team are fully qualified to action the recommendations it gives. This service offers businesses a clear baseline for their LEV systems, paving the way for enhanced control to enable you to meet you H&S obligations and reduced downtime.

Leveraging advanced technology for custom solutions in LEV design

Vent-Tech takes pride in being at the forefront of LEV technology. It understands that no two workplaces are the same, which is why its systems are tailored to each client's unique needs. During a design visit, it uses a 3D scanner to capture precise site measurements, enabling accurate modelling of workspaces. This technology ensures that new systems integrate seamlessly with existing infrastructure, avoiding conflicts with pipework, machinery, and access points. It also minimises time on site and any potential downtime for your systems.

The captured data is imported into CAD software, where designers collaborate to address logistical challenges early. Clients can visualise proposed systems with realistic 3D models, including virtual walkthroughs, providing confidence in the final design. Airflow simulations further validate the system's effectiveness in controlling contaminants, ensuring compliance with COSHH and HSG258.

Detailed reporting for transparency and compliance

After the design phase, clients receive a comprehensive report detailing every aspect of the proposed system. These reports include:

- 3D drawings of system layouts, including hoods, ductwork, and equipment placement.
- Analysis of hazardous substances and appropriate control measures.
- Key performance metrics, such as capture and discharge velocities.
- Specifications for fans, filters and other critical components.

This documentation not only demonstrates regulatory compliance but also empowers businesses to make informed decisions about their LEV systems.

Expertise in Metalworking Fluid Control

Addressing the specific challenges posed by MWFs is a key focus. Vent-Tech's Adrian Sims recently shared insights at a Safety and Health Engineering Partnership (SHEP) event, highlighting best practices in LEV design for MWF control. The presentation can be viewed at:
https://app.getcontrast.io/register/besa-design-of-lev-for-mwf

Raising industry standards

Vent-Techs award-winning team are passionate about raising standards in the LEV industry. Its investment in training, equipment and technology reflects its commitment to providing the best possible service. From the initial design to final implementation, its team ensures that every system is fit-for-purpose, user-friendly and compliant with all regulations.

By addressing the critical issues associated with metalworking fluids and offering innovative LEV solutions, it helps businesses create safer, healthier workplaces. Whether you need a new system or support with an existing one, Vent-Tech is available to provide the expertise and service you can trust.

To learn more about how Vent-Tech can help with your MWF control, get in touch with the company today.

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Cleaner air and safer workspaces

The AirBench Story

Established in 1993, AirBench is one of the UK's leading manufacturers of fume, mist and dust extraction equipment. With a reputation for reliability and excellence; to date it has supplied more than 10,000 AirBench downdraught benches to customers in the UK and worldwide, building its own dust and fume extraction systems and filtration products to order at its East of England factory.

Founded by John Cook, managing director Simon Cook's father, it was originally set up as a general dust and fume extraction company. Then, a couple of years later, in 1995, it introduced AirBench.

Its ethos has always been to do whatever's required to solve the client's dust issue, whether that's a £150 mini arm or a £500,000 fixed system. Key innovations have included taking an existing known solution and turning it into a standard product. This enables it to offer standard sizes and filter specifications, so clients can purchase a known solution to a known problem, rather than relying on someone to design a system specifically for them.

The company offers the widest range of solutions, so it can solve almost any dust or fume issue with what is effectively an off-the-shelf product. Clients requiring a dust extraction system, fume extraction system or wet extraction systems can choose a solution that meets their exact requirements.

Meet the MD

Managing director Simon Cook joined the business in 2006, a move he described as "slightly unexpected", as he worked in IT at the time: "Both my dad and I decided to change our lives around at the same time and I have run the business since then," he explains. "I had previously worked here during summer holidays while at university, my first AirBench job was creating the cutting list spreadsheet that ran the production of the first few hundred AirBench machines."

In 2006, there were five staff, including Simon's parents, but since then, the company has grown significantly, with 25 people working across two sites. "We've shipped tens of thousands of units across the UK and worldwide in that time," Simon Cook adds. "AirBench remains a family business, with my partner Diane taking an active role in the decision-making process and even my teenage boys occasionally helping out."

Wider choice of products

With the growth has come a wider selection of products including downdraught benches, VertEx cross-draught systems, coolant mist filters and air cleaning systems.

Describing his role as MD, Simon Cook explains: "At its heart, I'm dealing with customers and solving problems, whether that's a complex dust issue that involves research into filtration techniques or handling the occasional issues that arise in any customer facing business. "In the end, it all stops with me. I work on product development, sales, marketing and improving our web presence, but it's all focused on delivering to customers."

Meet the team

The AirBench management team are all key to the business, with Ryan Yates, sales manager, leading the sales team and working across the UK and Europe to develop new business; Richard Herbert, operations manager, runs the daily functions of the business including manufacturing, installation and servicing while Peter West, office manager, ensures customers receive properly processed orders and prompt deliveries.

With 31 years' experience, AirBench specialises in high air volume, low velocity extraction systems, providing a working extraction solution to a wide range of dust and fume issues. In 2014, it purchased the OMF range from Air Cleaning Systems of Cardiff, broadening its coolant mist filtration range. It also distributes the AOF range of mist filtration units and provides dust and fume extraction systems for specific workplace problems, offering rapid delivery Demonstrating its extraction systems onsite prior to purchase when possible, it is committed to ensuring clients are reassured they are purchasing the correct solution.

AirBench insists on service excellence, supporting every customer to ensure they are satisfied with the quality of its products and services.

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Mirka introduces the all-new Mirka DEXOS 1217 M AFC dust extractor

The Mirka® DEXOS 1217 M AFC represents a leap forward in dust extraction technology. Engineered with a compact and ergonomic design, this flagship model seamlessly integrates with Mirka's next generation of power tools. It features numerous enhancements to optimise the sanding process for operators, ensuring greater ease and efficiency.

The Mirka DEXOS 1217 M AFC is a powerful and durable dust extractor with a brushless electric motor. This advanced motor not only delivers impressive power but also ensures extended operational life and enhanced reliability, making the DEXOS an indispensable companion for professional craftsmen. Power levels can be easily adjusted from the backlit control panel on the front of the dust extractor, which also includes hose diameter adjustment. The DEXOS 1217 M AFC offers autostart capabilities on two sockets, Bluetooth pairing and a customisable multifunction button for added versatility.

Additionally, the Mirka DEXOS 1217 M AFC boasts automatic filter cleaning capabilities, ensuring consistent suction performance throughout prolonged use. An integrated airflow sensor provides real-time feedback, alerting operators to any deviations from optimal flow rates.

The Mirka DEXOS 1217 M AFC is available as an M-class dust extractor and can be fitted with a HEPA filter. For a complete dust-free sanding process, simply connect a powerful Mirka sander to the dust extractor using the supplied hose and begin sanding with Mirka's effective abrasives, including the groundbreaking Mirka Abranet net abrasive.

Handling the new Mirka DEXOS 1217 M AFC is effortless. This easily manoeuvrable and cleanable 13-kg unit includes space for storing the included 4 m hose and cables during transport. It is compatible with the Mirka Case, Toolbox and existing Mirka hoses. The dust extractor features two power outlets for tools and is suitable for both wet and dry use. The dust bag in the 17-litre container can be changed or removed without unclipping storage boxes fastened on top of the dust extractor. For secure transport, the Mirka DEXOS 1217 M AFC can be stabilised with a foot-operated brake pedal.

Moreover, the wearable Remote-Control bracelet enhances convenience by allowing users to start the DEXOS directly from the suction hose. The DEXOS model features an autostart mode, making it ideal for occasional cleaning tasks and use with multiple tools. The Bluetooth-enabled remote control, strapped around the dust hose, senses tool vibrations to start the extractor and offers two operating modes: auto sense and manual. Additionally, the rubber strap is optimised for Mirka's hoses and the device includes an LED indicator for suction flow, a Bluetooth range of up to 20 metres and eliminates the need for a pneumatic box.

The Mirka DEXOS 1217 M AFC completes the lineup of Mirka's next-generation power tools with its instantly recognisable, space-efficient design and countless clever features to make sanding an even smoother experience.

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Second MecWash MWX400 system transforms parts washing capabilities at Vixen CNC

After purchasing a MWX400 system in 2020, Vixen CNC experienced such an improvement in cleaning efficiency that the team ordered another system for their factory in Snowdonia. Vixen CNC has seen a significant increase in demand for their services over recent years and needed the additional machine due their use of both ferrous and non-ferrous metals and the different process requirements of the two applications.

Repeat business is key to the global success of MecWash Systems over the past three decades. Designing and building the highest standard of component washing systems is the initial part of the customer experience, but providing long term support is just as important in cementing the relationship and keeping the customer happy with their purchase and ongoing use.

Jake Wood, managing director of Vixen CNC, comments: "The MWX400 systems have transformed the washing capability and overall productivity at the factory. The communication and servicing from MecWash have been excellent, which combined with the effectiveness of the cleaning, made the decision of investing in a second machine a simple one.

"We replaced a tunnel wash system with two MecWash MWX400 machines. Each machine uses a specific cleaning process, one for ferrous metal and the other for non-ferrous metals. The initial MecWash MWX400 system in 2020 considerably decreased the amount of manual drying that had been both costly and time consuming. Overall, the MecWash systems have provided superior cleaning results, in faster time, all with reduced manpower," explains Jake Wood.

The MWX400 system is a state-of-the-art industrial parts washer, manufactured at the MecWash factory and lab in Tewkesbury, Gloucestershire. The systems created by MecWash are popular with machining companies due to the incredibly high standards in surface finish and cleanliness.

Alan Atkinson, sales manager, says: "Having recently revisited Jake and his team, I fully understood the situation and the requirements at Vixen CNC. After deep discussions, we knew Vixen CNC would benefit from another MWX400 system. The initial MWX400 system was specifically designed for cleaning ferrous parts, using an inhibited rinse. The second MWX400 was designed specifically for non-ferrous parts, with a clean water rinse.

"The process starts with powerful ultrasonics, which are essential to carefully clean the intricate shapes and blind holes, contaminated by oil, swarf and fine particles. The MWX systems boasts four ultrasonic rod transducers with single or mixed frequency, 25 kHz and 40 kHz. The ultrasonics create large amounts of localised cleaning energy, dislodging any contamination.

"The rigorous wash stage of the MWX400 includes ultrasonic, flood and spray processes. After the wash stage, the components are rinsed, firstly with an ultrasonics stage, followed by the flood and spray rinses, resulting in a polished finish," says Alan Atkinson.

John Pattison, managing director of MecWash, says: "We were delighted to receive the follow up MWX400 order from Vixen CNC. The MWX series represents the pinnacle of the parts washing and degreasing systems available. The original system had a sizable effect on the component cleaning capacity. This second order in such a relatively short period of time shows how confident Vixen CNC are with MecWash.

"The machines purchased by Vixen CNC will last for many, many years and we will support them throughout. We believe the 'MecWash Approach', our commitment to our customers over the entire lifecycle of the system, is greatly valued and is a key factor in winning repeat business."

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A legacy of precision and innovation

For over 55 years, Fraser Technologies has been at the forefront of precision cleaning and soldering solutions, providing unparalleled expertise and innovation to some of the world's most demanding sectors. From its early days as a trusted partner for component cleaning to its current status as a leader in advanced equipment and chemical solutions, Fraser Technologies has continually pushed the boundaries of excellence.

In 2024, the company further solidified its reputation through major strides in technology, strategic partnerships and enhanced support services, reflecting a commitment not only to meet industry standards but to set them. This year's milestones demonstrate a dedication to evolving alongside customer needs while maintaining the meticulous standards that have defined Fraser Technologies' long legacy.

Partnerships that drive excellence

A critical pillar of Fraser Technologies' success lies in its strong and enduring partnerships with industry leaders like Koki, Miele and Chemours TM. These collaborations empower Fraser Technologies to offer highly specialised solutions that align with the evolving needs of their clients in sectors such as aerospace, automotive and medical.

Next generation cleaning technology

A major highlight of 2024 for Fraser Technologies was the launch of its newest addition to its cleaning equipment suite: The Newborn. This next-generation sealed cleaning system exemplifies Fraser Technologies' commitment to advancing precision cleaning technology through environmentally responsible solutions.

The Newborn is designed with *near-zero emissions, setting a new benchmark for sustainability in the industry. Featuring upgraded and reimagined technology, this system provides exceptional cleaning performance while minimising environmental impact and operator exposure. Its sealed design ensures greater process control, reduces the risk of contamination and enhances the safety and quality of the cleaning process.

Fraser Technologies' introduction of The Newborn showcases its forward-thinking approach to meeting industry demands for efficiency and sustainability. As regulations become stricter and customer expectations evolve, this innovative solution demonstrates Fraser Technologies' ability to remain at the cutting edge of precision cleaning technology, providing clients with cleaner, greener and more reliable options for their critical cleaning needs.

Enhanced support and services

Fraser Technologies' commitment to delivering exceptional customer experiences extends far beyond the products themselves. In 2024, the company expanded its staff welcoming its commercial manager Jack Smith to the team. With a strong background in engineering through both education and career, his expertise aligns seamlessly with Fraser Technologies' unique selling proposition of being an expert partner. His role brings a fresh perspective, emphasising the evaluation of growth opportunities from a technical standpoint rather than as his title indicates, focusing solely on the bottom line, further strengthening the company's commitment to delivering innovative and tailored solutions and bolstering its equipment support and servicing offerings.

By investing in its team of experts, Fraser Technologies has further strengthened its capacity to offer specialised, hands-on support tailored to individual client needs. Whether providing technical assistance, maintenance services, or bespoke consultation, its dedicated staff brings deep industry knowledge and a client-first mindset that drives results.

This expansion also reflects a commitment to continuous improvement in service capabilities, providing clients with the confidence that systems will operate at peak performance, reducing downtime and meet stringent regulatory and operational standards. For Fraser Technologies' diverse clientele, from aerospace and defence to engineering, automotive, medical and optical industries, the assurance of comprehensive, responsive service is a testament to the company's holistic approach to customer care.

Looking ahead with confidence

As Fraser Technologies reflects on over 55 years of leadership in the precision cleaning and soldering industries, it does so with pride in its achievements and enthusiasm for the future. By blending tradition with innovation, the company remains committed to delivering world-class solutions that exceed customer expectations across diverse sectors.

Its recent strides, marked by strategic partnerships, cutting-edge product launches like the Miele Slimline Aqueous Cleaner, The Newborn and its expanded service capabilities, underscore a commitment to continuous improvement and adaptation in a rapidly evolving industry. Fraser Technologies' expertise, paired with a client-centric approach, positions it for sustained success and continued contributions to the industries that it serves.

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Advancing aviation MRO excellence

Skipton-based blast finishing and ultrasonic cleaning equipment manufacturer Guyson International Limited recently attended the MRO Middle East & Aircraft Interiors Middle East 2025 event at the Dubai World Trade Centre. This event provided the perfect platform for Guyson to strengthen its relationships with aviation MRO companies and partners across the Middle East.

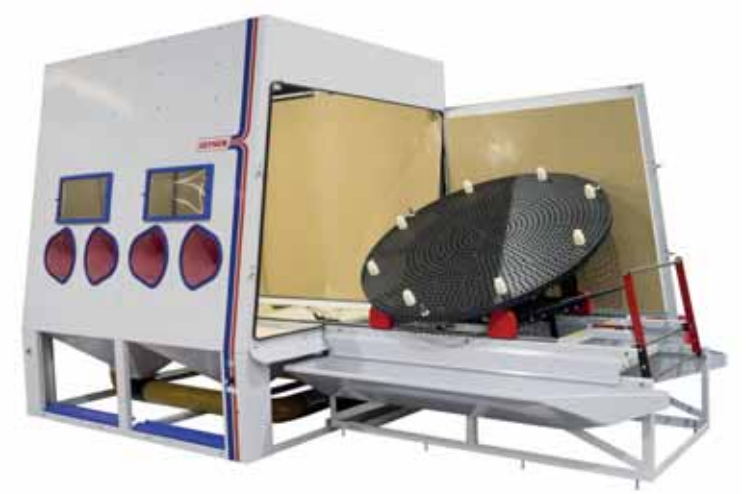
Reflecting on the event, Mark Viner, managing director of Guyson Blast & Wash Division, states: "Guyson has historically maintained a strong presence in the Middle East, partnering with renowned operators across key industries. With the event's focus being on the rapidly growing aviation MRO sector, we showcased our innovative surface finishing solutions and reinforced our commitment to growing our market share in the GCC."

Guyson was joined at the event by its partner, Inventec Performance Chemicals, a leader in solvent technology. Inventec's solvent solutions complement Guyson's range of precision ultrasonic cleaners, offering the ideal combination for companies seeking sustainable cleaning solutions post 3M phase out. This positive collaboration has facilitated Guyson in showcasing its ultrasonic cleaning capabilities to prospective customers.

A key focus of the visit was to advance Guyson's ever-evolving distributor network and appoint a new distributor for the GCC region. These strategic appointments underscores Guysons commitment to enhancing service and support globally through value added partnerships.

"We also had the opportunity to meet with the British Department for Business & Trade in Dubai and discuss the work they do fostering trade between British companies and the Middle East. With our comprehensive range of innovative solutions across a wide range of industry sectors including MRO companies, Guyson exemplifies British manufacturing at its best with excellent opportunities to build on existing business across the GCC," explains Mark Viner.

A cornerstone of Guyson's offering for aviation MRO is the Euroblast range of manual blast cabinets. These systems, available in various sizes, provide a highly efficient alternative to labour intensive operations. Common applications include paint stripping from landing gear components using plastic blast media, grit blasting aerospace parts made from materials like aluminium and titanium and general workshop component renovation. The versatility and effectiveness of the Euroblast range has made it a trusted choice for aviation MRO tasks.



Guyson also provides advanced manual and automated blast machines for coating technology solutions, notably in turbine blade preparation. These machines, ranging from manual blast cabinets to fully automated robotic blast systems, deliver repeatable shot peening processes to improve fatigue life and grit etching turbine blades for example before coating. By ensuring an etched, contaminant free surface, Guyson enhances mechanical bonding, critical for the durability and efficiency of turbine components. Automated solutions, including robotic systems, deliver the quality and repeatability demanded by this highly regulated industry.

In addition to blasting solutions, Guyson's Microsolve Ultrasonic cleaning systems are widely recognised for their exceptional performance in precision cleaning. Available in both Mono and Co-Solvent configurations, these systems deliver industry leading cleaning standards vital for the longevity and reliability of critical components, such as avionics, guidance systems, actuators and gearboxes. Guyson customers rely on the Microsolve solvent cleaning systems to comply with stringent industry cleanliness standards, eliminating risk associated with contamination of components in critical applications.

Guyson's attendance at MRO Middle East & Aircraft Interiors Middle East 2025 highlighted its dedication to providing innovative, reliable solutions, tailored to the demands of the aviation and MRO sectors. The company continually builds upon its reputation as a trusted partner in the region, driving advancements in efficiency, precision and quality.

This project has been part-funded by the UK government through the UK Shared prosperity Fund. The UK Shared Prosperity Fund provides £2.6 billion of funding for local investment by March 2025. The Fund aims to improve pride in place and increase life chances across the UK investing in communities and place, supporting local business, and people and skills. For more information, visit: ***https://www.gov.uk/government/publications/uk-shared-prosperity-fund-prospectus***

Funded by UK Government

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ActOn Finishing's AWB Aqua blasting machine

Setting a new standard in surface finishing for UK manufacturing

ActOn Finishing, a trusted leader in surface finishing solutions, is proud to showcase the AWB Aqua Blasting Machine, a cutting-edge wet blasting cabinet that is revolutionising surface treatment processes across the UK's manufacturing sectors.

The AWB Aqua Blasting Machine is designed to provide unparalleled efficiency and precision, making it an indispensable tool for applications such as cleaning, descaling, deburring, roughening, oil or grease removal and die cleaning. Its robust design and user-friendly features position it as a game-changer for industries looking to optimise their finishing processes.

Key features and benefits:

- **Enhanced efficiency:** The AWB delivers fast and effective surface treatment, significantly reducing processing times and boosting productivity.
- **Continuous operation:** Built for non-stop performance, the machine minimises downtime and ensures maximum operational efficiency.
- **Durable design:** Constructed with high-quality stainless steel and reinforced for strength, the AWB excels in demanding industrial environments.
- **Operator comfort:** Ergonomic features such as adjustable working positions, comfortable armholes and a large viewing window ensure ease-of-use and operator satisfaction.
- **Versatility across applications:** Compatible with various inert abrasives, the AWB can handle materials like metals, composites and plastics, making it ideal for industries including automotive, aerospace, additive manufacturing and general engineering.

Supporting UK manufacturing excellence

The AWB Aqua Blasting machine exemplifies British engineering at its best, combining innovation with reliability. Its ability to tackle diverse finishing requirements makes it a valuable asset for industries seeking to enhance the quality and efficiency of their products.

In the automotive sector, for example, the AWB ensures precise cleaning of engine components, removing grime and deposits without compromising integrity. Similarly, in additive manufacturing, the machine achieves superior surface finishes for 3D-printed parts, meeting the exacting standards of modern engineering.

A word from ActOn Finishing

"Our AWB Aqua Blasting Machine reflects our dedication to delivering high-performance surface finishing solutions tailored to the needs of UK manufacturers," says Sid Gulati, managing director at ActOn Finishing. "We are proud to support the manufacturing industry with equipment that combines durability, efficiency and exceptional results."

To learn more about the AWB Aqua Blasting Machine and its benefits, visit ActOn Finishing's website or contact the ActOn team for a personalised consultation.

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