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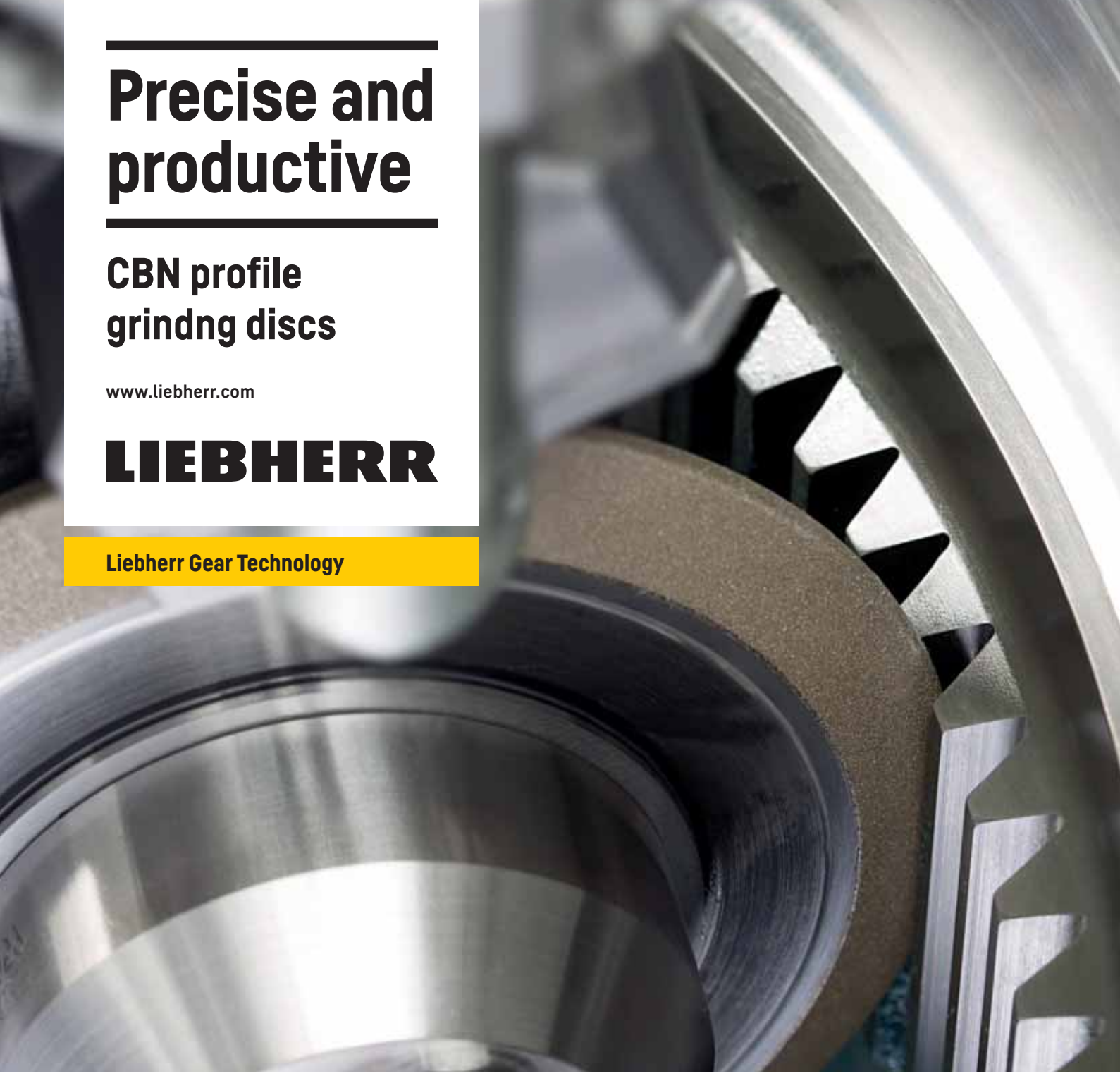


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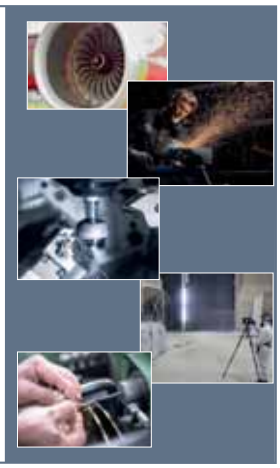
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Leading system solutions and grinding tools



Founded in 1919 and part of the Swarovski Group, Tyrolit is a family business that combines a long tradition of craftsmanship with a strong commitment to innovation. As a technology-driven company with a relentless focus on quality and industry expertise, it develops advanced system solutions designed to exceed customers' expectations.

With a portfolio of more than 80,000 products manufactured across 31 production sites, 500+ global patents and a presence in more than 140 countries, Tyrolit is a recognised leader in the grinding industry.

Precision solutions for demanding industries

Precision grinding covers many industries. Some of the key industries Tyrolit serves are aerospace, turbines, bearings, automotive and medical technology. Its comprehensive range of tools covers processes from grinding through to finishing and polishing, helping customers achieve consistent results, optimise processes and improve overall efficiency.

Tyrolit provides an end-to-end service, from initial consultation and process analysis through to implementation and application. The team of specific industry application engineers can provide product expertise and customisable solutions to enable you to develop your specific requirements, helping you take your processes to the next level.

From challenge to solution

Every successful solution begins with a clear understanding of the challenge. Tyrolit works closely with you to identify your specific technological requirements and develop a solution that delivers the performance you need while ensuring cost-effectiveness.

Once the solution has been agreed, sales engineers manage the complete implementation process, from initial development through to installation and application on your machines.

Tyrolit's specialised application engineers combine deep technical expertise with extensive industry experience to develop customised solutions for even the most demanding applications. Whether you are looking to optimise an existing process, improve efficiency or overcome a complex manufacturing challenge, the experts work with you to identify the right solution using the latest cost-effective technologies.

This support does not stop at the product. Where required, the company implements and optimises the process directly on your machines, providing a complete service from consultation through to successful application.

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From the River Aare to the Stockhorn: A day at STUDER

By Mark Maurice, managing director of Micronz Ltd

It started with an idea around a sales meeting table in Switzerland back in February: why not invite a group of our customers, both long-standing and new, to spend a day at STUDER? We would show them the company, share presentations, give them time to network and make it a day to remember.

We had our doubts. Everyone is busy, budgets are tight and getting people to take time out for a trip abroad is no small ask. But Micronz, Advanced Grinding Supplies and UMAC sent out the invitations anyway, to a mix of existing, new and potential customers. The replies came in one by one and by the end of August we had started a waiting list because interest had outgrown the places we'd reserved.

By late September the group was set. Together with representatives from Micronz Ltd (Northern UK), Advanced Grinding Supplies (Southern UK) and UMAC (Ireland and Northern Ireland), more than 40 of us were heading to Switzerland.









Arrival in Thun

On the 13th October, three groups set off from three UK airports and one group from Dublin and met up in Zurich. STUDER's coaches were waiting for us and we were taken to the scenic town of Thun, home of STUDER's headquarters. That evening we had dinner with STUDER sales managers. Over dinner and drinks we got to know each other and everyone was looking forward to the day ahead.



Inside STUDER

On Wednesday morning, a few brave souls started the day with a dip in the River Aare, which certainly woke them up. After breakfast, the coach took us to STUDER. CEO Sandro Bottazzo welcomed us and introduced the company. Sales director Kasper Schaerer then gave us an overview of the day and UK sales manager Michael Läuffer continued the presentations.

STUDER's team members took us through customer stories, case studies and the latest innovations before we set off on a tour of the company. We saw live grinding demonstrations on a range of machine models and heard detailed technical presentations along the way.

Lunch was served in the STUDER Museum, which was a fitting setting to take in the company's history. Lunch was also when the networking really came alive. Customers who have run STUDER machines for more than 25 years were swapping business cards and experiences with companies considering their first investment in this technology.

In the afternoon we saw more of the site, like the cutting-edge automated warehousing system, the flow line where the machines are assembled and the systems department, where customer-specific factory acceptance tests take place.

Plenty of questions were asked and plenty of innovations were shown. It was an unforgettable technical experience for everyone.

A surprise above the clouds

After a short break at the hotel, the coach collected us for a surprise evening. We drove for about 45 minutes along Lake Thun with the Alps as a backdrop, then up a valley to the base station of the Stockhorn. Two cable car rides followed and the second was a little nerve-racking for some of us. We reached the summit at more than 2,000 m, just in time to watch the sun set over the Alps. There was a lot of gasping and more than a few cries of amazement.

A tunnel through the mountain led us to a viewing platform suspended over a sheer drop. Afterwards we had an a Apéero on the terrace, then dinner in the summit restaurant, with more conversation and networking. Around 10:00pm we made our way back down the mountain and returned to the hotel.

What we brought home

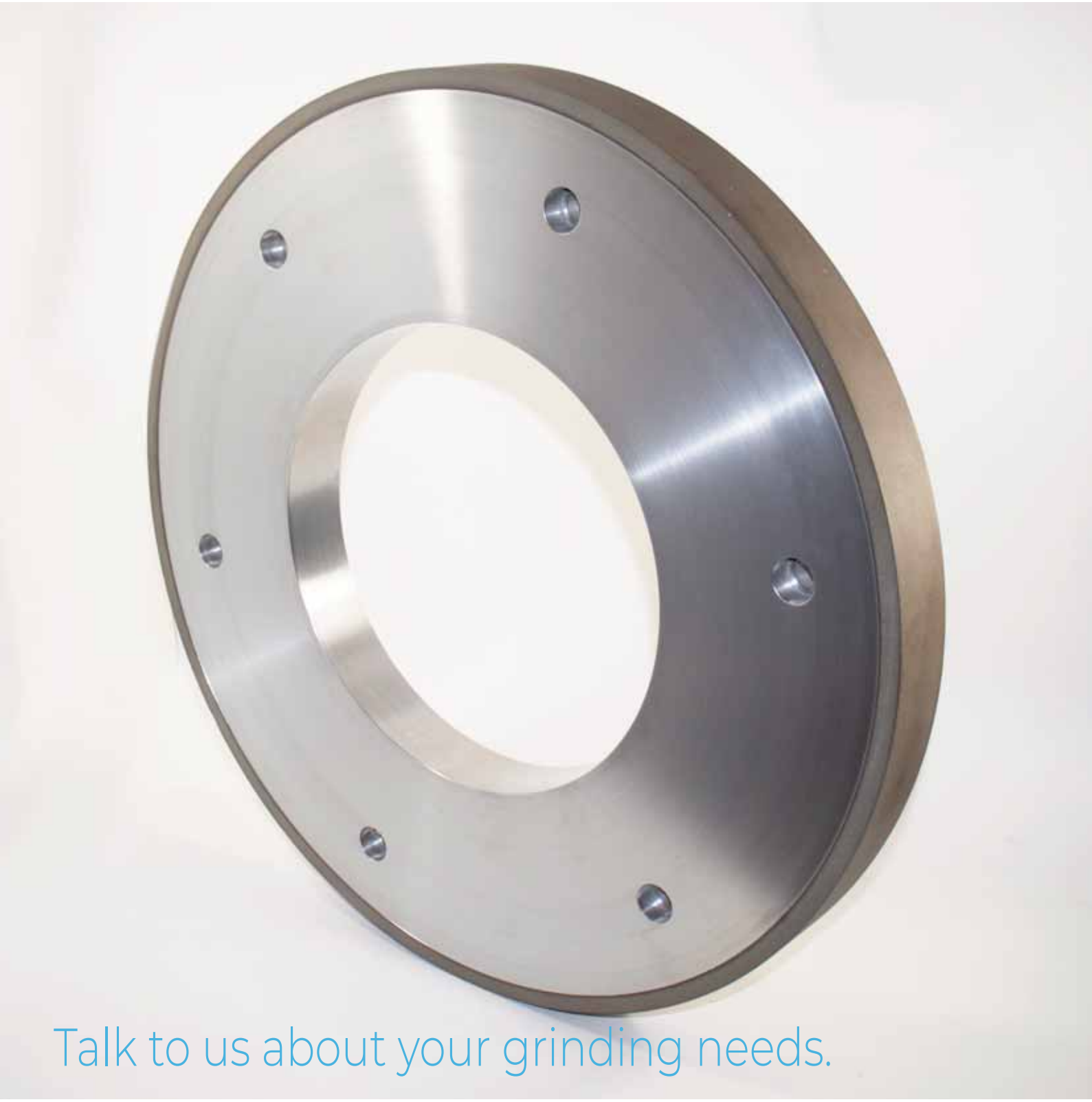
On Thursday everyone flew home, but the trip's impact goes well beyond the three days. Projects were discussed, ideas were put on the table and many guests went home with inspiration to share with their manufacturing teams.

We'd like to thank STUDER for their outstanding hospitality and our customers for making the trip. We look forward to seeing everyone again in England or Switzerland and to continuing the strong relationship between our customers, STUDER's UK and Irish agencies and STUDER itself.

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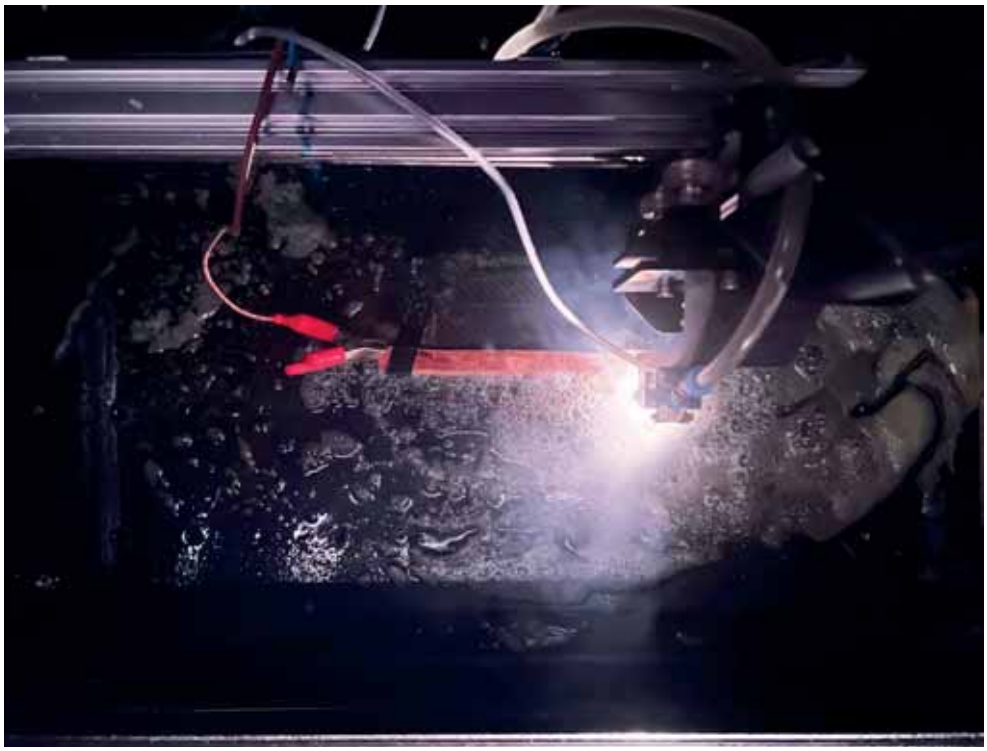
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TextureJet awarded Innovate UK grant to advance next-generation composite surface processing technology

TextureJet has secured a £130,000 Innovate UK grant to accelerate the development and commercialisation of its pioneering ArcSlice® surface processing technology designed to improve manufacturing efficiency, quality and sustainability across high-growth industrial sectors.



The funding has been awarded through Innovate UK's Advanced Manufacturing Supply Chains: Potential High Growth SMEs competition, which supports innovative UK businesses with the potential to strengthen manufacturing capability, productivity and supply chain resilience.

The nine-month project will focus on advancing ArcSlice, which is a new and disruptive surface finishing technology. The project will enable further development, validation and customer evaluation of ArcSlice, ahead of future commercial deployment.

Building on TextureJet's established expertise in intelligent surface engineering, the project will support advanced manufacturing of polymer and composite components by providing a new technology which will address the current industry challenges in the preparation and treatment of such materials.

Polymer and composite materials are increasingly being adopted across industries including aerospace, automotive and construction due to their high strength-to-weight ratio and their lightweight, durable and corrosion-resistant properties.

By addressing key manufacturing challenges around process consistency, productivity and resource efficiency, the project aims to help manufacturers meet the demands of Industry 5.0 by achieving higher quality outcomes while reducing waste, processing times and operational costs.

"This award is a fantastic endorsement of both our technology and our vision for the future of advanced manufacturing," says Dr Jonathon Mitchell-Smith, CEO and founder of TextureJet. "Innovate UK's support enables us to accelerate the development of a highly promising technology platform with the potential to deliver significant benefits for manufacturers working with advanced materials. As industries continue to pursue higher performance, greater efficiency and more sustainable production methods, we believe innovations such as ArcSlice will play an important role in supporting that transition."

The project forms part of TextureJet's broader innovation roadmap and reinforces the company's commitment to developing intelligent, scalable manufacturing technologies that help customers improve performance while reducing environmental impact.

Dr Patrick Bointon, chief product officer at TextureJet, adds: "Advanced materials such as composites are becoming increasingly important across modern manufacturing, but many production challenges still remain. This project provides an exciting opportunity to further develop and validate our technology while working closely with industry to ensure ArcSlice delivers meaningful commercial and operational value. The Innovate UK award provides vital support to bring that capability closer to market."

The Innovate UK award marks an important milestone in TextureJet's innovation journey, accelerating the development of next-generation manufacturing technologies designed to deliver greater efficiency, improved quality and reduced waste. The project will support future commercial adoption while reinforcing TextureJet's position at the forefront of advanced manufacturing innovation.

About TextureJet

TextureJet is redefining surface engineering with cutting-edge technology that empowers manufacturers to selectively modify surface textures with precision and control. The company is dedicated to driving innovation, streamlining production processes, increasing sustainability and delivering transformative results for industries worldwide. Its team is full of innovative ideas and creative strategies to address the surface processing demands of today's businesses, both now and in the future.

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Why machine choice is only half the grinding equation

In precision grinding, the machine is only part of the equation. Wheel specification, abrasive selection, bond system, coolant delivery, wheel wear and process stability all influence the finished component.

Across aerospace, medical, automotive and high-precision engineering, grinding performance is measured across production runs, where repeatability, surface finish, dimensional control and tool life all matter.

DK Holdings Ltd and RK International Machine Tools have worked together over many years, combining machine tool expertise with precision diamond and CBN tooling knowledge. Following a recent JAINNHER centreless grinding project for carbide blank production, John Emptage, sales director at DK Holdings and Simon Rood, director and general manager at RK International, discuss joined-up thinking in demanding grinding applications.

Simon it's good to meet you again. RK International has a long-standing reputation in grinding machine supply. Could you tell us what types of grinding applications your customers are bringing to you and where wheel specification becomes critical to the success of a project?

Our grinding enquiries cover a wide range of applications, including aerospace components, medical devices, tooling manufacture, carbide processing, bearing production, ceramics and general precision subcontract grinding.

Whilst the machine provides the platform for the process, wheel specification is very often the key factor determining success. Material type, hardness, stock removal rates, accuracy requirements and surface finish target all influence wheel selection.

We increasingly find that customers want productivity gains without compromising quality. In many cases, optimising wheel specification delivers significant improvements in cycle time, wheel life, surface finish and overall process stability.

John, from DK Holdings' perspective, why is the relationship between machine supplier and grinding wheel manufacturer so important?

A grinding wheel should never be treated as an isolated consumable. It forms part of the complete grinding system, alongside the machine, workholding, grinding fluid, material, stock removal rate and finish requirement.

That is why our relationship with RK International is so valuable. RK understands the machine platform, rigidity and control system. DK understands the abrasive, bond, concentration, wheel geometry and grinding interface.

The recent carbide blank project is a good example. The application required tight tolerance control, reliable through-feed grinding and a diamond wheel capable of maintaining performance on a demanding material. By aligning the machine and wheel specification early, we could support the customer with a solution designed around the process.

Simon, when a customer is investing in a grinding machine, what information do you need before recommending the most suitable platform and how does that link to wheel selection?

Before recommending a machine, we always look closely at the application itself. Component material, size, geometry, required tolerances, production volumes and future growth plans all influence the recommendation.

Wheel selection is inseparable from machine selection. Abrasive type, bond system, wheel diameter, wheel width, dressing strategy and grinding fluid delivery all affect the required machine specification. Equally, machine rigidity, spindle power and control capability influence wheel performance.

The most successful projects are those where machine manufacturer, wheel supplier and customer collaborate from the outset to optimise the complete process.

John, how does DK approach the specification of a grinding wheel for difficult materials such as tungsten carbide, ceramics, hardened steels or superalloys?

The starting point is understanding the application properly. We look at the material, machine type, wheel dimensions, operation, tolerance, surface finish requirement, grinding fluid conditions and production volume. From there, we determine whether diamond or CBN is the correct abrasive and which bond system is most suitable.



JHC-18BS-CNC6 Centreless Grinding machine.



JAINNHER JHC – Diamond wheel.

Diamond is typically used for hard, brittle and abrasive materials such as tungsten carbide, ceramics, glass and certain composites. CBN is better suited to ferrous materials, including hardened steels, high-speed steels and some superalloys. Selecting the wrong abrasive can affect wheel life, heat generation and finish quality.

Bond selection then shapes how the wheel behaves. Resin bond wheels can provide a good balance of cutting action, controlled stock removal and surface finish in applications such as surface grinding, cylindrical grinding, OD grinding, fluting and tool production. Electroplated wheels are often selected where form retention, open cutting action or a specific profile is required.

Abrasive grit size is another important part of the specification. Coarser diamond or CBN grits are generally selected where higher stock removal rates are required, while finer grits are used where a smoother surface finish, greater edge quality or closer control of the finished surface is the priority.

The aim is to match the wheel to the production requirement, rather than asking the customer to adapt their process around a standard product.

Simon, the recent JAINNHER centreless grinding project for carbide blanks brought RK and DK together on a very specific application. From your side, what did that project show about the value of combining machine expertise with specialist wheel manufacture?

The project clearly demonstrated the value of combining machine expertise with specialist abrasive knowledge.

Carbide grinding places demanding requirements on both the machine and the wheel. Achieving the desired accuracy, productivity and surface quality depended on understanding how the complete process worked together.

JAINNHER contributed machine performance, rigidity, and process-control expertise, while DK Holdings brought extensive knowledge of abrasive technology and wheel specification. The result was a complete grinding solution tailored specifically to the customer's requirements. Projects like this show that the most effective modern grinding solutions come from partnership and collaboration, not from considering machines and wheels independently.

John, beyond supplying new grinding wheels, how does DK support customers with the lifespan of the tool?

For many applications, the value of a grinding wheel extends beyond first supply. Where suitable, DK Holdings offers Strip & Replate and redress services for both our own tools and tools from other manufacturers.

If the body of the tool remains mechanically sound, we can assess it, remove the worn abrasive layer and restore the working surface. In some cases, redressing can also help return a tool to a more effective cutting condition.

This can reduce tooling costs, shorten lead time where a bespoke wheel would take longer, and make better use of a body that still has value, while retaining a proven format that already fits the machine and operation.

Many grinding wheels are not simple catalogue items. If a proven profile, bore, mounting or abrasive specification is already delivering the required result, refurbishment can be a sensible option.

DK Holdings grinding wheel.



Whether the application calls for diamond, CBN, resin bond, electroplated tooling, replate, redress or a new design, the starting point is always the process.

As grinding applications become more demanding, joined-up technical support becomes increasingly important. By bringing machine knowledge and grinding wheel expertise together, DK Holdings and RK International help customers achieve reliable, repeatable and cost-effective production results.

For more information head to DK's and RK's websites:
www.dk-holdings.co.uk
https://www.rk-int.com/

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Gear cutting and grinding from a single source

Initial step in expanding the machine platform for large gear machining

Liebherr-Verzahntechnik GmbH is continuing the systematic development of its platform strategy with the redesign of its machine platform for workpieces up to two metres in diameter. The new series encompasses all relevant gear technologies and is aimed at manufacturers of large gears, particularly in the mechanical engineering, marine propulsion, construction machinery and wind power industries. The lineup begins with milling and profile grinding machines designed for this size range making it possible, for the first time, to perform precision hard machining on large workpieces.

By expanding the platform, Liebherr now offers the entire machining spectrum in this size range and is responding to growing demand for soft and hard-fine machining from a single source. "Our concept is designed specifically for this segment as a comprehensive solution," explains Thomas Breith, head of product management for gear technology. The new LGP 2000 enables profile grinding of workpieces up to 2,000 mm in diameter. In future, customers will receive a machine package that includes milling and grinding; a combination that is often used in the machining of large components.



LGP 2000 FN 2910 03.

Modular system

The redesign was focused on modularity, flexibility and reduced component diversity with the aim of optimising delivery times and spare parts availability. All machines are built on a thermally symmetrical machine bed that is precisely temperature-regulated via circulating coolant.

"This makes gear cutting and grinding even more thermally stable than with the previous machines," explains Thomas Breith. The machines feature a high-precision, hydrostatically mounted table with wear-free direct drive. Depending on the machine type, flat or roller linear guides are used, which enable high damping during gear cutting and maximum precision during grinding and gear testing on the machine. Two main stand variants with 1,500 and 2,000 mm of stroke enable efficient machining of even particularly long shafts with multiple gear teeth. The platform's machines are designed to accommodate automation solutions like pallet changers and ringloaders.

New gear cutting features: Integrable chamfering device, optimised chip removal

A new feature is that the gear cutting machines offer an optional chamfering device with a conventional end mill, FlexChamfer, that can be used directly on the cutter head This allows for cost-effective machining even with small batch sizes. When milling internal gear teeth, an integrated chip removal system eliminates the need for a separate, costly channel in the factory floor. The gear cutting machines are suitable for both dry and wet machining.

Profile grinding: New LGP series for large gear teeth

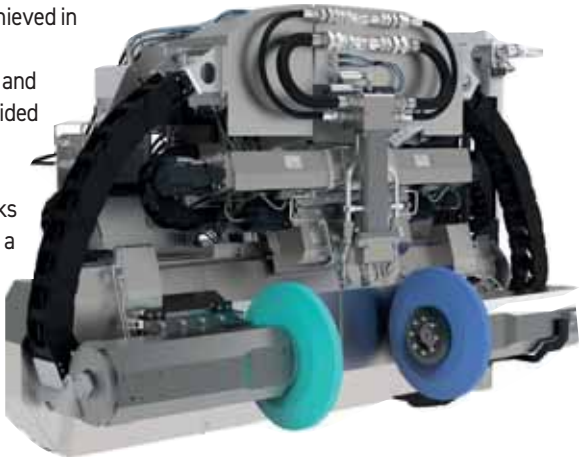
Various grinding head configurations are available on the LGP for profile grinding of large gears. A unique feature is the sequential use of two grinding wheels without a tool change. This allows different tool specifications to be used, which either shorten the grinding time or enable higher surface qualities to be achieved in production.

LGP allows both high-speed grinding and creep feed grinding. Single- or double-sided topological profile grinding and internal grinding using an optional, swivelling internal grinding arm are possible thanks to the modern LHGearTec. In addition to a conventional double dresser, the LGP can also be equipped with a double dresser for simultaneous dressing of both grinding wheel flanks. This allows dressing times to be almost halved and the productivity of the profile grinding machine to be significantly increased once again.

New platform: Modular, economical, precise

The newly designed large machine platform offers consistent synergies across all machining processes, thanks in part to a uniform control interface. Shorter processing times for profile grinding reduce machine costs and thus reduce unit costs for the customer. The modular design also improves the availability of spare parts, ensuring high machine availability.

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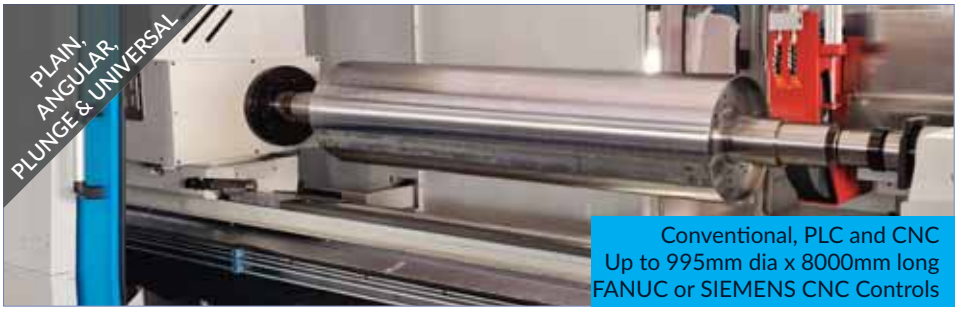

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RK International Machine Tools, a family-run business, has been a pioneer in supplying machine tools since 1951.

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Perfection in form and technology

Okamoto Machine Tool Works Ltd. Japan has been a leading manufacturer of high-quality grinding machines and related equipment since 1926. Okamoto Machine Tool Europe GmbH headquartered in Langen near Frankfurt am Main has been serving the European market since 1992 as its main office. The continued growth of the company has given rise to a network of subsidiaries and sales organisations in over 70 countries. Major production facilities are in Japan, Singapore and Thailand.

The intensive cooperation of Okamoto Machine Tool Works Ltd. and Okamoto Machine Tool Europe GmbH is a guarantor for the development and production of innovative grinding machines with highest precision. In its work, the company strives to respond positively to the developments in the market and use investments for future growth for the overall success of the company.

Okamoto ACC-85SA1

At the AMB trade show, which took place in Stuttgart, Germany in September, Okamoto Europe introduced the ACC-85SA1 precision surface and profile grinding machine. It is the latest model in the SA1 surface grinder series. It features a compact design which incorporates a 500 mm wide table and comes equipped with an on-machine Quick Touch Measuring Probe for non-programming origin and thickness measurements, reducing setup and measurement times.

The SA1 series is Okamoto's high-quality and most frequently used precision grinding machine for flat surfaces. It is the next step up from the company's ever popular ACC-DX Series. Featuring an industrial-grade MDI touchscreen control with intuitive graphics and the machine is built with a heavy-duty cast iron frame. It is designed for high-rigidity flat and form grinding in tool and mould making, aerospace and medical engineering.

Atsushi Kobayashi, managing director of Okamoto Machine Tool Europe, says: 'This is the new, bigger and wider machine that we are introducing with an advanced touchscreen automation system. We have found that an increasing number of our customers are requiring automation solutions and so we want to offer this to them."

DF Precision Machinery, based in Leicestershire, have been the exclusive distributor and agent for Okamoto grinding products in the UK for a number of years now. Mike Duignan, MD, explains how his relationship first started with Okamoto: "It started as a result of changes within Jones & Shipman and the Hardinge Group, at the time with their manufacturing marketing plans. They were trying to get away from lots of products and were trying to simplify the product portfolio, the number of grinding machines that were produced within the Group and also the technologies that they had to manage.

"Then Jones & Shipman stopped making surface grinders and so it was natural for us to say we want the best products for our customers and Okamoto offers that. So, discussions started and we made an agreement to represent them in the UK and then an agreement to do the same in France.

"Due to other changes that took place at Hardinge, we decided to set up DF Precision Machinery in 2020 and have continued to represent Okamoto ever since."

The UK market continues to be important to Okamoto and Atsushi Kobayashi remains clear on this. He states: "The UK is a very strategic country and the market offers us opportunities to reach many high-end customers. Many of these customers, in fact, are leading the industry not just for the UK but the whole of Europe actually. Also, the UK market remains important to us as it is strong in the aerospace sector. Aerospace continues to grow and that is why we will continue to value the UK market."



Okamoto YT-300 Aero Lap

Also at AMB, Okamoto showcased its YT-300 Aero Lap high-speed precision polishing machine. Aero Lap enables automatic mirror finish polishing for irregular shapes of punches, dies, pins and small-sized moulds by applying unique technology to accomplish the task that was previously performed almost entirely by manual labour.



The unique media used in the AERO LAP obtains elasticity of the Multi-Cone and adhesion of the Multi-diamond powder by the application of multi-liquid solution. The elastic properties of the media polishes the workpiece surface as it glides over it at high speed.

Okamoto grinding machines are exclusively available from DF Precision Machinery in Lutterworth.

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How STUDER cylindrical grinding machines boost competitiveness in medical technology



Anyone who contracted the flu 150 years ago, unfortunately, had little chance of survival. And people back then only went to the dentist when the pain became unbearable, because there, with crude instruments and no anesthetic, even greater pain awaited them. Fortunately, that has changed: Thanks to numerous scientific and technological breakthroughs, modern medicine can now successfully treat many diseases and injuries, which would once have been tragic blows for those affected and their families, through modern diagnostics, hygiene, medications, therapies, widespread access to care and instruments.

Manufacturers of machine tools, such as grinding machines, also make an important contribution to this positive development. This is because they provide the equipment on which modern medical instruments and devices, or the tools for their manufacture, are produced. Advances in manufacturing technology often have a direct impact on medical technology as a whole. This is particularly well understood by a long-established company like Fritz Studer AG, which, since its founding in Switzerland in 1912, has consistently contributed to ever-improving manufacturing capabilities through innovation.

Medical technology also places the highest demands on precision, surface quality, and cleanliness when it comes to the materials being machined. "Components such as implants, surgical instruments, and diagnostic devices often have complex geometries and are made of materials that are difficult to machine, such as titanium, stainless steel, or ceramics," explains Pascal Würsch, area sales manager at STUDER. With STUDER systems, customers benefit from grinding solutions that combine the highest accuracy with repeatability, excellent surface integrity and robust process reliability, particularly in controlled and certified manufacturing environments.

This is made possible by innovative grinding technology, accumulated expertise, and the versatility of STUDER's cylindrical grinding machines. For example, the S121 and S131 machines for internal cylindrical grinding produce hip joint balls and hip sockets. These are key components of modern hip prostheses that enable patients to move pain-free again after osteoarthritis or severe injuries. Such components, made from biocompatible materials such as titanium or ceramic, often remain in the body for decades. The S121 Radius, with features such as the revolutionary StuderGuide® guideway system and high-precision axis drives with linear motors, is suitable for grinding complex workpieces made of very hard materials. The S131 Radius also offers an extended swiveling range of the B-axis and up to four spindle positions for even greater flexibility.

Another application example from the medical field is dental instruments manufactured using the S31 universal cylindrical grinding machine. These geometrically complex tools are indispensable for dental laboratories in the production of dental prostheses or splints. The flexible S31 manufactures carbide dental burs with high precision and efficiency and, thanks to a modular system, can be optimally configured for such tasks. Meanwhile, high-quality grinding technology such as frequency-controlled motorised grinding spindles and a high-resolution direct measuring system ensures the best results.



STUDER maintains a trusting, success-oriented partnership with all its customers. This is because the medical industry is now global in scope and faces intense competition. Demographic change also poses challenges for the industry. On the one hand, this leads to a dwindling supply of skilled workers for manufacturing. On the other hand, demand for medical technology is rising in increasingly aging societies. STUDER has therefore consistently invested in its portfolio with a focus on innovation and high-quality components, enabling customers to succeed in this challenging environment.

Today, STUDER is no longer just a leading manufacturer of grinding machines, but also a technology company. In-house developed software such as StuderWIN, StuderPictogramming, StuderSIM and integrated tools for profiling, measuring, or generating contours make even the most complex grinding tasks easy to execute. Additionally, STUDER cylindrical grinding machines now feature state-of-the-art sensor technology and C.O.R.E., the revolutionary hardware and software architecture from UNITED GRINDING.

Automation is also becoming increasingly important. This is because it enables the efficient, round-the-clock series production of consistently high-quality workpieces, even with a small staff. For medical technology, the technology also offers another advantage: reduced manual handling significantly lowers the risk of contamination by employees. Part of STUDER's service is working with the customers to find tailor-made solutions for their specific requirements.

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New ultra-precise helical pump screw grinding centre joins PTG Holroyd's acclaimed HG range

Following in the footsteps of its recently launched ultra-high-performance HG350 and HG500 helical profile grinding centres, UK-based PTG Holroyd Precision has introduced a new, smaller model to the HG range.

Called the HG200, the new machine has been developed to meet the needs of manufacturers producing pump screws, as well as those grinding the smaller helical components that are typically used in the manufacture of more compact refrigeration and air compressors.

Utilising PTG Holroyd's recently developed modular HG350 platform, the HG200 will precision grind helical gears and pump screws of up to 200 mm in diameter, with a profile of up to 50 mm wide, 35 mm maximum depth and 200 kg in weight.

Mark Curran, sales director, says: "Unlike our largest HG Series machine the HG500 rotor grinding centre will precision grind helical profiles of up to 510 mm in diameter and therefore requires a bespoke machine bed. For smaller models, such as the new HG200, our aim is to use the modular platform from the HG350. In addition to streamlining build time, this approach also allows our customers to benefit from maximum flexibility when specifying their profile grinding requirements. This is thanks to the platform being available in gear, rotor, worm and now, pump screw configurations."

The next natural progression in PTG Holroyd Precision's HG Series, the HG200 features many of the key attributes that have made HG models such a huge success. As standard, for example, HG200 machines will be controlled by Siemens SINUMERIK ONE CNC. PTG Holroyd was the first UK machine tool manufacturer to embrace the benefits of Siemens' latest control technology when it was launched and, as such, worked closely with the control systems provider to tailor the CNC's capabilities to its precise needs.

To simplify the production of even the most complex of helical components, the new HG200 features an integrated Renishaw OSP 60 scanning probe with SPRINT™ technology for automatic in-process corrections, or via an associated component measuring machine. "We have worked closely with Renishaw and Siemens to be the first machine tool manufacturer to integrate automatic calibration using the SPRINT™ probe," adds Mark Curran.

All of PTG Holroyd Precision's HG Series helical profile grinding centres feature the high power required for deep grinding operations, while a specially developed extended machine bed allows screws and worm shafts of additional length to be accommodated. IO-Link communication technology is available, as is RFID scanning; an option that will be particularly suitable for machines destined for production cells, by helping ensure that virtually any component or tooling item that needs to be switched between manufacturing cycles is correctly changed for each gear grinding operation. On-board features include automatic coordinate adjustment, in-cycle wheel dressing, integrated profile management and coordinate measurement.





A globally leading air compressor manufacturer has ordered its 18th PTG Holroyd EX Series CNC helical rotor milling production centre.

Currently in build at PTG Holroyd's UK-based manufacturing facility, the machine, a 3EX-R-XL derivative, will be installed at one of the air compressor specialist's overseas facilities early next year.

Designed to rough mill rotor blanks of up to 350 mm in diameter, the 3EX-R-XL will be used to produce rotors for portable and stationary air compressors. With its 'XL', extra component length, capability, something that is a new 'as standard' feature across PTG Holroyd's entire EX Series, the machine will feature a much longer machine bed than earlier models. This will equip it with the flexibility to accommodate longer helical components when required.

PTG Holroyd's ultra-high-performance EX Series CNC helical rotor and pump-screw production centres have earned global acclaim for its high speed, high precision and high efficiency, as well as for their build quality and enduring reliability. Regularly updated to offer the most advanced production capabilities, the EX-R-XL range begins with the 2EX-R-XL: a machine capable of milling helical components of up to 250 mm in diameter and offers stepped increases in capability, right up to the 8EX-R-XL rotor milling production centre. A dual-capability 4EX-R-BL helical rotor and Roots-type blower machine for rough and finish-milling helical rotors and blower blanks of up to 450 mm in diameter and 1,960 mm in length is also offered, as is a 'custom-build' 10EX-R-XL machine for milling rotor blanks in excess of 1,000 mm in diameter. All models benefit from the integrated safety, security, reliability and reporting that comes through the use of Siemens SINUMERIK ONE CNC.

Delivering high accuracy and aggressive stock removal rates, all PTG Holroyd EX-R-XL models can reduce overall machining times significantly, thanks to their ability to both rough and finish-mill components. Accurately rough-milling components ensures minimal stock removal during finishing processes, resulting in reduced cycle times and improved component quality. This is due to minimal heat being transferred to the component during finish milling and is the result of the cutting head's ability to remove so much material during roughing, when the majority of heat generated is transferred to the swarf chips.

EX Series rotor production centres cut a full-depth groove by traversing the cutting tool through the material at the relevant helix angle, whilst at the same time rotating the component in the 'C' axis. Accurate synchronisation between the axes is maintained via CNC, with digital drive technology controlling all axis movements.

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Master Abrasives began with trading mounted points and bonded abrasives are still a key product of their own Master® brand range.

Delivering complete manufacturing solutions for aerospace

As aerospace manufacturers continue to pursue greater efficiency, precision and process consistency, the demands placed on finishing and grinding operations have never been higher. Meeting these challenges requires more than high-quality abrasive products alone, it calls for complete manufacturing solutions supported by technical expertise and application knowledge.

For almost six decades, Master Abrasives has worked alongside manufacturers to optimise grinding, finishing and material removal processes across a wide range of industries, with aerospace remaining one of its core sectors. Today, the company offers a comprehensive portfolio of abrasive consumables, power tools, machinery and process solutions, enabling customers to source complete systems from a single supplier.

Originally established in 1967 as a specialist manufacturer and supplier of mounted points, Master Abrasives has evolved significantly over the years. Since becoming an independent UK-owned company in 2012, the business has expanded both its product portfolio and international customer base, while continuing to invest in technical expertise and application support.

For aerospace manufacturers, where component quality, repeatability and process control are critical, this consultative approach has become increasingly valuable. Rather than simply supplying products, Master Abrasives works closely with customers to evaluate manufacturing processes, identify opportunities for improvement and recommend solutions that enhance productivity, surface finish and cost efficiency.

"Our focus has always been on helping customers achieve better manufacturing outcomes," says managing director Paul Batson. "Every application is different, particularly in aerospace where materials, tolerances and quality requirements are exceptionally demanding. By understanding each customer's process, we can recommend the right combination of abrasives, equipment and technical support to deliver measurable improvements."

The company's offering now extends well beyond abrasive consumables. Alongside its extensive range of bonded abrasives, coated abrasives, superabrasives and finishing products, Master Abrasives supplies power tools, grinding and finishing machinery and process equipment that enable manufacturers to improve consistency throughout production.



Paul Batson, managing director, emphasises Master Abrasives focus on improving aerospace applications, recommending solutions that enhance productivity, surface finish and cost efficiency in aerospace where materials, tolerances and quality requirements are exceptionally demanding.

This broader capability allows customers to benefit from integrated solutions rather than sourcing individual products from multiple suppliers. The result is improved process reliability, simplified procurement and access to a single technical partner capable of supporting projects from initial process development through to production optimisation.

The aerospace sector continues to evolve rapidly, driven by increasing use of advanced alloys, lightweight materials and tighter production tolerances. These changes place greater emphasis on precision grinding, finishing and polishing operations while maintaining productivity and controlling manufacturing costs.

Master Abrasives continues to respond through ongoing investment in its product portfolio, technical resources and engineering support. By combining leading abrasive technologies with practical application knowledge, the company helps manufacturers address complex production challenges while maintaining the quality standards demanded throughout the aerospace supply chain.

In addition to serving customers throughout the UK, Master Abrasives has established a growing international presence, supporting manufacturers across Europe, North America and other global industrial markets. This expansion reflects increasing demand for suppliers capable of delivering both high-quality products and responsive technical support wherever production takes place.

Whether supporting precision finishing of aerospace components, improving grinding efficiency or developing bespoke process solutions, Master Abrasives remains focused on a simple objective: helping manufacturers achieve higher productivity, greater consistency and better overall process performance.

With nearly 60 years of experience and a continuing commitment to innovation, technical excellence and customer partnership, Master Abrasives continues to demonstrate that successful manufacturing is built not only on quality products, but on complete solutions that deliver lasting value.



About Master Abrasives

Established in 1967 as a specialist manufacturer of mounted points, Master Abrasives has evolved significantly over the years, continuing to invest in technical expertise and application support. 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' offered by the company in the UK and world-wide allows the Master Abrasives to offer its customers a wide range of abrasive consumables.

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Beyond the product

Raising the standard for abrasive partnerships

By the Weiler Abrasives team

Today's fabrication operations face increasing pressure from labour shortages, rising costs, strict sustainability targets and demanding production schedules. Metal fabricators and distributor partners should expect more from an abrasive supplier than simply delivering products on time. The best abrasive partners bring technical expertise, application knowledge and hands-on collaboration that help improve safety, productivity and quality. Abrasives are only one part of the solution, understanding the process is what unlocks the greatest value.

A cheaper wheel that fails prematurely, vibrates excessively, or slows down production does not save money. It introduces hidden costs that can chip away an operation's profitability and increase consumable waste.

Shifting from a commodity perspective to a more holistic, collaborative approach in choosing abrasives and abrasives supplier partners helps operations better understand their challenges and pick solutions that will address them. As a result, it can optimise the process and save time and money.

This may require a shift in thinking about abrasives, your abrasives partner and the role they play in your manufacturing operation.

Challenges facing fabrication operations

Manufacturers face ongoing challenges around safety, productivity, labour shortages, training and cost control. These issues are driving metal fabrication operations to look for solutions that help them get the best results and get a competitive edge.

Their challenges include:

- **Skilled labour shortage:** Many manufacturing and fabrication operations are severely impacted by high employee turnover and a lack of skilled operators. Operations are increasingly forced to rely on less experienced labour. These workers may handle tools differently and require consumables that deliver more forgiving performance or ease of use.

- **Rising production costs:** Margins are continuously compressed by escalating overhead costs, including industrial energy rates, fluctuating raw material expenses and rising labour mandates.

- **Throughput and efficiency pressures:** The need to optimise production floors, eliminate hidden costs such as excessive tool changeovers or downstream rework, and prevent inventory supply chain issues that could halt entire assembly lines. Every minute an operator spends on an excessive tool changeover or correcting rework caused by an incorrect surface finish threatens delivery deadlines. Additionally, supply chain issues with critical abrasives can bring an entire assembly line to a costly halt.

- **Sustainability requirements:** Sustainability requirements or goals regarding an operation's carbon footprint or recycling, for example, can introduce additional challenges regarding abrasives. Achieving process efficiency doesn't just save time. It can also help reduce energy consumption and reduce consumable waste to help operations hit their goals.



When an operation's profitability relies on maximising every labour hour and material input, a premium must be placed on how tools perform in human hands. Abrasives may seem like a small part, but they can play a big role in labour, downtime, safety and productivity. A change to the abrasive solution can save thousands of dollars.

Common questions about abrasives

Operations often ask: Are we using the right abrasive? Could a different product improve throughput? Are operators using the wheel correctly? Are we creating unnecessary rework? These questions often reveal opportunities that extend beyond the product itself.

The right abrasive partners can help solve these challenges by providing expertise, training, testing and hands-on support that delivers measurable results. They can evaluate your entire manufacturing ecosystem, including base materials, machinery, operator variables and production facility dynamics and focus on understanding your specific application and finding the best solution. Through ongoing technical support, specialised application training and data-driven performance evaluations, an abrasives partner can help optimise processes, control hidden labour costs and turn routine surface preparation into a competitive advantage.

There are several ways an abrasives partner can help operations sort through product options and choose the best solutions for their specific needs and help ensure they are being used safely and effectively.

Mobile technical support

Bringing technical expertise directly to customers, such as through the Weiler On Wheels (WOW) program, can accelerate learning and problem solving. Franja Juhart-Šega, area sales manager, EMEA, explains why meeting distributor partners and



end users at their locations makes technical support more practical and relevant: "Customers should expect more from an abrasives supplier than simply delivering a product. A true partner takes the time to understand the application, works alongside operators, tests solutions in real production conditions and proves the value through measurable results. With Weiler On Wheels, we bring our products, technical expertise and safety training directly to the customer, helping them improve productivity, reduce hidden costs and create a safer working environment."

Mobile technical support puts that collaborative approach into practice. Through WOW, a mobile demonstration and training vehicle used by Weiler experts in EMEA, Europe, the Middle East and Africa, technical specialists can bring live product demonstrations, safety education and onsite testing directly to distributor partners and fabrication operations.

Equipped with testing tools, presentation equipment and a range of abrasive products, the mobile unit supports side-by-side comparisons and targeted training without requiring operators to leave the facility. This allows participants to experience differences among grinding wheels, flap discs, fibre discs and power brushes on applications that reflect their own production challenges.

The role of onsite testing

Onsite evaluation and testing through an abrasives partner helps identify process challenges under real production conditions. Andrew Shadel, U.S. district sales manager for Weiler Abrasives, says: "The first step isn't recommending an abrasive, it's understanding the customer's process. We want to know what they're trying to accomplish, where they're experiencing challenges and what's happening on the shop floor. Once you understand the application, you can recommend solutions that improve productivity, quality and overall operating efficiency rather than simply replacing one product with another."

Every operation is different, which is why meaningful improvements begin with understanding the process under actual production conditions. One example is the Weiler Consumable Productivity (WCP) program, which provides a data-driven approach to identifying productivity improvements and hidden costs.

During an evaluation, technical specialists conduct side-by-side comparisons using the facility's existing tools, utilities, operators and materials. The evaluation measures the amount of abrasive consumed against the volume of base material removed within a defined period. It can also account for factors such as operator labour, energy or compressed-air use and abrasive life to provide a more complete view of the process and its hidden costs.

In many cases, a slightly more expensive abrasive can remove more material, last significantly longer and reduce the number of wheel changes throughout a shift. These improvements can save valuable labour hours and increase production output, often resulting in a lower overall cost per part.

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Flexible solutions from one of the leaders in grinding tools

Since its founding in 1919, Tyrolit has been helping manufacturers solve their most demanding surface conditioning, grinding and cutting challenges. Combining more than a century of expertise with continuous investment in advanced technology, it delivers high-performance solutions that improve productivity via efficiency reliability and performance.

The company offers its customers solutions from initial consultation through to on-site implementation and its knowledgeable application engineers support you in developing and optimising your process, treating each challenge as an opportunity to improve your productivity for even better results.

Tyrolit is active in more than 140 countries and has a range of over 80,000 products and more than 500 patents worldwide and offers the expertise, resources and flexibility to develop the solution that elevates your application to a higher standard.

Your partner in abrasives

When tolerances are measured in microns, consistency and technical expertise are critical. Tyrolit provides specialised grinding solutions for high-precision industries, helping customers optimise processes, overcome complex production challenges and achieve consistently high-quality results.

Tyrolit can offer specialised solutions for various industries from aerospace to medical. Excellence in the quality of its products, combined with know-how and the ability to find solutions to complex challenges means customers are fully supported in improving their processes.

As technology progresses, Tyrolit continuously works on developing better and more specialised solutions. It knows that customers expect the highest standard of products and industry knowledge and support them all the way from consultation to implementation on-site.

Aerospace & turbines

Aerospace manufacturing demands exceptional precision, reliability and process control within creep feed grinding, surface conditioning and polishing applications. Machining components for aircraft or gas turbines, experienced application engineers work closely with customers to develop system solutions that improve performance and productivity.

It collaborates with leading global manufacturers and conduct trials each year. These trials validate applications, accelerate innovation and enable Tyrolit to enhance product quality.

Automotive

Automotive parts present complex challenges, surface preparation before e-coating, weld blend, removal of oxidation and surface contaminants prior to welding, bonding or painting. Innovations in conforming flexible abrasives provide new possibilities and allow you to save time while creating the desired surface finish. Tyrolit's range of coated and non-woven products, supported by its application engineers, make the route to achieving a successful solution an easy one for customers.

Solutions cover body work, fuel-injection systems and chassis and transmission components, crankshafts, camshafts, connecting rods, turbochargers, compressor components and valves.

Medical technology

For implants, surgical instruments and dental products, quality and dependable supply are essential. Tyrolit provides high-quality, certifiable solutions designed to meet demanding machining requirements whatever your process.

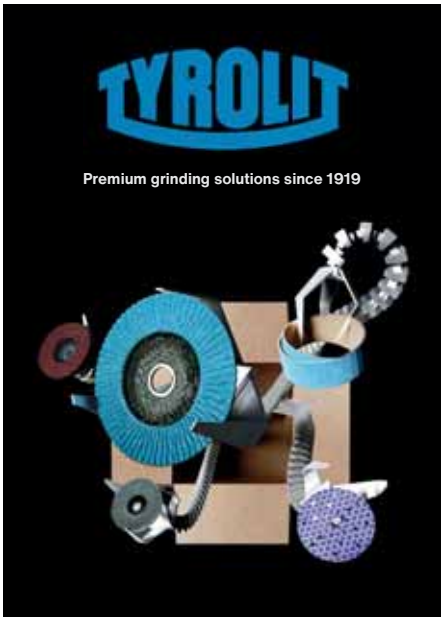
By combining application expertise with tailored cutting, grinding and polishing solutions, the company are able to help with demanding processes for knees and hip joints. Selecting the correct abrasive product for the demanding application is only part of the process, it makes sure the parameters are maximised and stable to allow medical manufacturers to achieve the accuracy, consistency and process reliability their products require. This comes with the experience of its application engineering team.

Flexible abrasive solutions

Innovation at Tyrolit never stops. Its application engineers continually develop advances in non-woven and coated abrasive solutions for demanding surface preparation, sanding, polishing and finishing applications.

The non-woven range includes surface-conditioning materials, coarse-cleaning products, unitised wheels and other specialised solutions. Its coated abrasives combine high-quality abrasive grain with flexible backing materials to produce excellent results across flap-discs, fibre discs, quick-change discs, hook-and-loop discs, sanding belts, rolls and sheets.





No one-size-fits-all solutions

Every application is different. That is why Tyrolit combines an extensive product portfolio with expert technical support and a tailored approach to each customer's requirements. Speak to one of the experts today and discover how Tyrolit can help you improve performance, efficiency and quality across your cutting and grinding processes.

Contact: **gbmarketing@tyrolit.com**

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The home of abrasives



Kayson Green Limited is a leading distributor of abrasive products. With over 45 years' experience of servicing and concentrating on a cross-section of businesses across the British and Irish manufacturing sectors, it offers proven advice in the specification of cost-effective and innovative abrasive products. Combine this with its access to world-class expertise, it's easy to see why Kayson Green is a popular choice for industrial firms seeking optimal grinding solutions.

The European manufacturers that the company represent are not just suppliers, they are valued partners. These partners share Kayson Green's belief in the benefits of innovation, customer focus and long-standing, close, open and reciprocal working relationships. Through these affiliations, Kayson Green can offer valued customers cost-effective and innovative abrasive products, underpinned by industry-leading technical support, customer service and delivery.

Kayson Green supplies directly to end users and to a selected network of independent distributors. Its customers span numerous manufacturing industries. These include the aerospace, automotive, medical, fabrication, foundry and steel industries.

Where a customer utilises the services of a site-integrator, whilst developing solutions with our customers' application engineers, Kayson Green also works closely with the site-integrator to ensure that effective and efficient logistics and stock management prevent any disruption to supplies. It also ensures that both the site-integrator and end user are kept abreast of any technical innovations relevant to their industry.

To service its customer base, in addition to the sales team located at the Colchester head office, Kayson Green employs technical sales representatives covering the length and breadth of the UK and Ireland. For highly specialised, industry-specific applications, it can call upon the technical expertise of application engineers from its partners. These application engineers are highly qualified and experienced in specific industrial grinding applications, such as bearings, rolls for steel mills, gears etc.

The company strives to supply the optimum bespoke quality products, thus many of its products and qualities are not found in literature or catalogues. It achieves this by working in close collaboration with customers, identifying areas requiring improvement. This could include surface finish, geometry, grinding cycle etc. Once identified, it liaises with its partners to develop a prototype solution for testing. This philosophy is used for many types of products, ranging from miniature mounted points for the aerospace industry to 1,000 mm grinding wheels used in the production of steel and paper rolls.

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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

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Klingspor launches welding dealer program, bringing a complete industrial abrasive offering to welding retailers

New program gives welding retailers direct access to Klingspor industrial abrasives, exclusive territories and dealer support.

Klingspor Abrasives Inc., a leading global manufacturer of high-performance abrasive technology, has launched its new welding dealer program making its industrial sandpaper and abrasives available to welding retailers for over-the-counter sale. The program gives welding-supply dealers a differentiated way to offer industrial-grade cutting, grinding and finishing abrasives directly to walk-in customers, supported by a complete product line, direct manufacturer access and a coordinated retail-display strategy.

Built on more than 130 years of engineering and industrial-grade abrasive manufacturing experience, the Klingspor welding dealer program is designed to give dealers a quality-brand story, a broad selling platform and an exceptional price-to-performance proposition. Dealers gain access to a complete line of abrasives, including hard-to-find sizes and materials, allowing them to address varied fabrication applications and specialised customer needs with products for cutting, stock-removal grinding, fine grinding and finishing.

The program is structured to help dealers build a strong local market position.

Participating dealers receive geographic exclusivity and buy directly from Klingspor, eliminating the middleman. Monthly representative visits set and stock the display, giving dealers consistent merchandising and inventory support. Product packaging designed for quick identification helps customers find the right products at the point of sale, while point-of-purchase signage supports in-store visibility, category organisation and navigation across the cutting, grinding and finishing assortment.



Klingspor's welding-focused offering gives dealers the ability to support customers throughout the weld-seam process rather than selling a single abrasive category. The product range serves applications in metalworking, shop and metal construction, staircase and railing construction, stainless-steel container construction, vehicle construction, hall and crane construction and shipyards. Dealers can use Klingspor's product-selection guidance to help align grinding discs, fibre discs, flap discs and abrasive mop discs with customer priorities including process cost, process speed, surface quality, ergonomics, noise, vibration and accessibility.

The dealer program pairs product breadth with practical commercial support. Technical and product-application specialists help dealers address customer questions and recommend products for specific applications.

Factory-trained sales representatives support product selection, sales efforts and dealer merchandising, while customer service assistance is available for ordering, account and service-related needs. Klingspor's application-focused product development helps dealers offer abrasives suited to modern fabrication and welding-shop requirements.

Preconfigured welding supply dealer worksite packages provide ready-made assortments for cutting, grinding and finishing, helping simplify display setup and initial inventory selection. Dealers also receive signage, brochures, posters, web resources and weld-seam-process video content to support merchandising, product education and customer conversations. Klingspor warrants products to be free from defects for up to one year.

For more information about the Klingspor Welding Dealer Program, visit **www.klingspor.com/welding**



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Poly strip discs for paint & rust removal

When it comes to surface preparation, the challenge is always finding the right balance: you need enough power to remove stubborn paint layers or deep rust, but you can't damage the base metal underneath. That's where you need poly strip discs. Unlike sharp grinding wheels or traditional sanding discs, which can quickly damage and mark your workpiece, poly strip discs offer a fast, controlled and non-aggressive solution for cleaning metal surfaces.

Whether you are doing an automotive restoration, prepping structural steel for a fresh weld, or just cleaning up an old garden gate for a home improvement project, these discs are essential to your surface prep toolkit. Their innovative open-web structure offers easy cleaning and raw metal finishes, while minimising the risk of over-grinding.



What are Poly strip discs?

Poly strip discs are designed with a thick, open-web mesh of synthetic nylon fibres coated with coarse, high-strength abrasive grains. This unique "open" structure prevents the disc from loading, meaning debris like paint flakes or rust dust won't get caught in the abrasive. Because the nylon fibres are flexible, the disc moulds to the shape of your workpiece, effectively removing material without damaging the base metal.

How Poly strip discs differ from grinding wheels

Traditional grinding is about force and heavy metal removal. A grinding wheel or a grinding disc cuts aggressively into the metal, which can cause heat buildup, warping and significant material loss. A stripping disc, by contrast, is designed for "controlled stripping." It removes unwanted coatings while preserving the structural integrity of your metal.

Best applications for Poly strip discs

The best applications for poly strip discs are listed below:

Rust removal

For rust removal from metal surfaces, these discs are unmatched. They effectively strip away surface rust, oxidation and scale without cutting into the sound metal below. This makes them ideal for salvage work, where you need to see exactly what metal remains to be saved.

Paint removal

Whether you are stripping layers of old automotive paint, stubborn primer, or industrial coatings, a paint stripper wheel allows you to reach bare metal rapidly. Because they don't generate the intense friction of a flap disc, they are significantly less likely to gouge sheet metal or create heat-induced distortion.



Surface cleaning before welding or coating

Proper surface treatment is the secret to a long-lasting weld or a durable powder coat. Using a strip disc to clean a weld area ensures that your arc is clean and consistent. By removing the contaminants that lead to porosity and inclusions, you guarantee that your bond is as strong as possible.

Choosing the right Poly strip disc for the job

To choose the right Poly strip disc for your project, start by matching the disc size to your specific tool, typically an angle or die grinder, and verifying that your machine's RPM does not exceed the disc's rated speed to prevent premature wear and ensure consistent results. Next, select the appropriate grit based on your surface conditions: opt for Silicon Carbide (SiC) "Extra Coarse" discs to effectively tackle heavy-duty rust and thick paint, or choose a standard "Coarse" disc when you require a more refined finish on delicate components.

Finally, while strip discs are excellent for initial cleaning, you may eventually need the best flap discs for stainless steel to achieve a polished finish, especially since both tools minimise heat buildup when working with sensitive materials like thin-gauge aluminum.

Poly strip discs vs other abrasive products

- **Poly strip discs vs. flap discs:** Flap discs are beneficial for both grinding and blending. They are much more aggressive and will leave a scratch pattern in your metal. If your goal is to prep a surface for painting, use a poly strip disc to remove the old finish first, then follow up with a finishing abrasive.

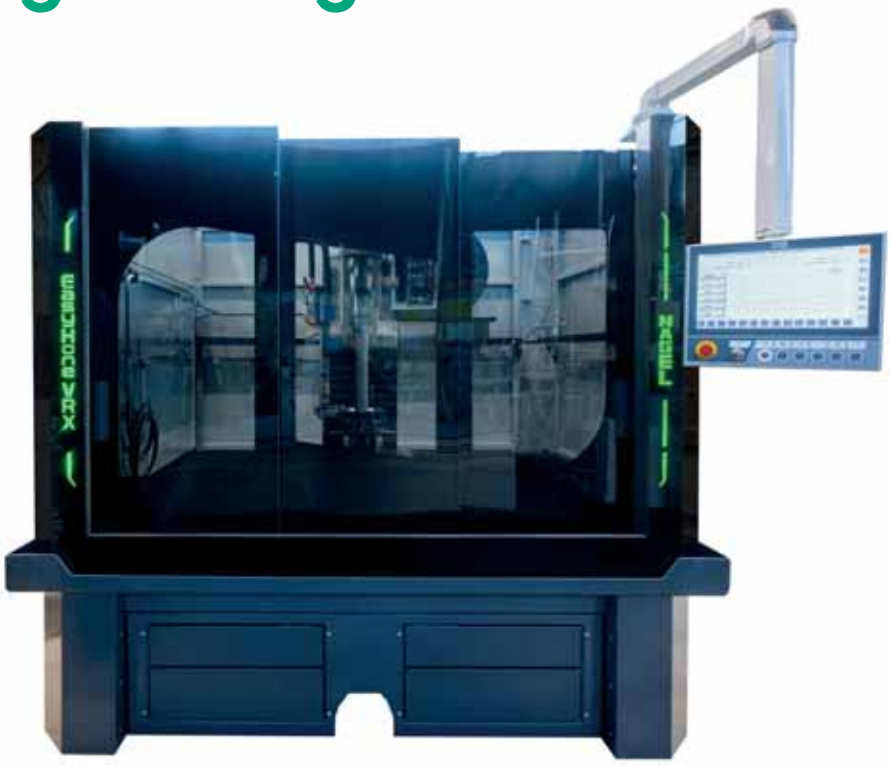
- **Poly strip discs vs. wire brushes:** Wire wheels and wire brushes are notorious for throwing sharp metal wires, which can embed in your skin or eyes. Poly strip discs are far safer, don't "fling" wires, and provide a much more uniform finish without the risk of leaving broken wire fragments in your workpiece.

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Flexible honing technology for agile manufacturing strategies

Nagel Technologies GmbH has introduced the EasyHone VRX, a honing platform engineered for maximum flexibility, precision and cost-effective machining. Designed specifically for small- and medium-volume production, the machine combines a highly adaptable platform with proven honing expertise, addressing the demands of today's increasingly flexible manufacturing environments.

At the heart of the machine is a vibration-optimised structure paired with a generously sized T-slot clamping table. This enables the integration of customer-specific fixturing solutions, ranging from single-part fixtures to multi-part batch setups. With an X-axis travel of 1,200 mm, 47.2 in, the system accommodates a wide variety of component geometries while ensuring fast, repeatable positioning. For manufacturers, this translates into significantly reduced setup times, greater production flexibility and highly stable machining processes.



Maximum loading accessibility with flexible sliding doors: The large sliding doors can be moved either to the left or right without an overhead guide rail obstructing access. This creates a fully usable opening width, allowing safe and convenient loading and unloading of large or heavy workpieces.



Integrated Beckhoff MX-System: All electrical components are fully integrated into the machine, eliminating the need for a separate electrical cabinet. This saves valuable production space, reduces installation and wiring effort and improves accessibility for maintenance. The result is shorter service times, higher machine availability and a leaner production infrastructure.

Precision that can be controlled

The EasyHone VRX incorporates Nagel's proven honing technology, combining high-precision axis guidance with an accurate feed system featuring integrated bore correction and automatic tool wear compensation. An optional in-process air gauging system enables closed-loop process control, delivering tight tolerances, consistent surface finishes and repeatable dimensional accuracy, even for demanding component geometries.

A newly developed Honing Assistant further simplifies operation by supporting software-based program creation. Its guided workflow reduces setup effort while improving repeatability, particularly in production environments with frequent part changes.

"Manufacturers are increasingly challenged to produce a growing variety of parts economically," explains Sören Pöhlsen, sales engineer industrial at Nagel Technologies. "With the EasyHone VRX, flexibility is not a compromise it is an integral part of the machine concept. Especially in small and medium-volume production, users benefit from short changeover times and consistently stable processes."



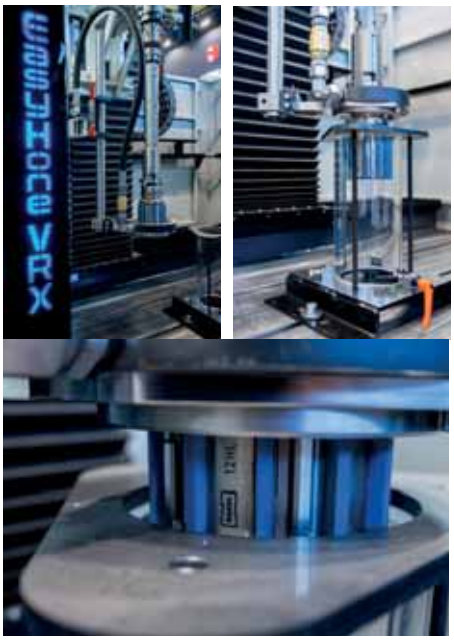
Maximum fixturing and process flexibility: The generously sized T-slot table supports highly flexible fixturing concepts, from single-part clamping to multi-part production setups. Different workpiece sizes can be integrated quickly and repeatably. With its 1,200 mm (47.2 in.) X-axis travel, the machine enables flexible positioning, convenient loading, including by crane and significantly shorter setup times for higher productivity.

Ready for automation and digital manufacturing

The EasyHone VRX has also been designed with future manufacturing requirements in mind. Flexible interface options and Industry 4.0 connectivity enable seamless integration into existing production systems and automated manufacturing environments. One of the machine's distinguishing features is its integrated Beck-hoff MX-System. All electrical components are incorporated directly into the machine, eliminating the need for a conventional external electrical cabinet. This reduces installation effort, minimises factory floor space requirements and improves service accessibility.

"For manufacturers, overall performance is determined by the combi-nation of precision, availability, ease of operation and long-term investment security," says Udo Strefler, sales manager at Nagel Technologies. "The EasyHone VRX provides a robust, maintenance-friendly and expandable platform that integrates seamlessly into existing production lines while offering the flexibility to support future growth."

Suitable for applications ranging from engine blocks, cylinder liners, hydraulic components, bearings and gears to aerospace components, the EasyHone VRX is designed for manufacturers seeking to combine high precision with economic efficiency in a flexible, scalable solution.



Integrated process monitoring: The EasyHone VRX features an integrated air gauging system with an air-measuring honing tool and a tool guide equipped with an oil flushing ring, enabling automatic tool entry into the bore while supporting reliable in-process quality control.

Technical overview

The EasyHone VRX is suitable for a broad range of workpieces, including engine blocks, cylinder liners, compressors, hydraulic components, bearings, gears, large-format workpieces and aerospace applications.

Key specifications:

- Honing diameter: 20–200 mm (0.79–7.87 in.)
- Stroke length: 800 mm (31.5 in.)
- X-axis travel: 1,200 mm (47.2 in.)
- Machine footprint: 1,700 × 2,500 × 2,200 mm (66.9 × 98.4 × 86.6 in.)
- Machine weight: approx. 5,000 kg (11,000 lb)
- Connected load: 18 kW

Despite its compact footprint, the EasyHone VRX delivers high machining performance while offering the flexibility required for modern production environments.

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Sunnen introduces new SV-45 vertical honing machine for taller and deeper workpieces

Sunnen Products Company, a leader in high-precision honing, bore sizing and engine rebuilding equipment, has expanded its vertical honing machine portfolio with the introduction of the new SV-45 Vertical Honing Machine. Designed to accommodate taller and deeper workpieces, the SV-45 delivers increased stroke capacity while maintaining the precision, flexibility and performance required for demanding industrial honing applications.

The SV-45 features an extended column design that provides 17.5 in. of additional stroke length compared to the SV-35. With a maximum stroke length of 47.25 in, 1,200 mm, the machine is engineered to support manufacturers processing longer bores and larger components across a range of industries, without requiring a larger honing system.

The machine combines extended reach with proven honing performance, featuring spindle speeds from 50 to 600 RPM, a 4.55 hp, 3.4 kW, servo spindle and a 4.7 hp, 3.5 kW, servo ball screw stroking system. The SV-45 also provides 32 in, 813 mm, of X-axis carriage travel and accommodates workpiece and fixture weights up to 1,325 lbs, 600 kg, within a 48 in. x 30 in., 1,219 mm x 760 mm, work envelope. A standard 55-gallon, 206-litre, honing oil reservoir with integrated filtration supports consistent process performance, while 400 VAC 50 Hz and 460 VAC 60 Hz three-phase electrical configurations are available.

At the core of the SV-45 is Sunnen's advanced Sunnen2 control system, developed specifically for honing applications. The intuitive touchscreen interface provides enhanced process control, simplified setup and real-time monitoring capabilities that help improve productivity, repeatability and bore quality.

Synchronised spindle and stroker mechanisms maintain a consistent crosshatch finish throughout the bore while minimising rollover at bore entrances and exits. Additional capabilities include automatic tool protection, programmable process controls and compatibility with Sunnen's broad range of honing tools, abrasives and process solutions.

Designed for both durability and operational flexibility, the SV-45 incorporates a heavy-duty cast iron column, welded machine base, integrated filtration system and front-loading machine architecture. Standard CE-compliant safety features include interlocked access panels, safety PLC functionality and safe limited setup speeds to support safe operation in modern manufacturing environments.

The introduction of the SV-45 expands Sunnen's SV-Series portfolio, providing manufacturers with a dedicated solution for longer and deeper bore applications while leveraging proven honing technology for high-precision production environments.



About Sunnen Products Company

Sunnen Products Company, a leader in precision manufacturing for over a century, has established itself as a premier provider in the creation, sizing and finishing of machined surfaces. Headquartered in St. Louis, Missouri, Sunnen is a "total solutions provider," manufacturing everything from machinery and abrasives to precision bore gages and customised coolants.

This comprehensive approach enables Sunnen to deliver turnkey honing solutions that encompass cutting-edge equipment, tooling, consumables and coolants. The company's expertise spans a diverse range of industries, including aerospace, automotive, energy, hydraulics, medical, firearms & defense and tool & die, showcasing its versatility and commitment to innovation. Sunnen's dedication to quality is evident in its products which exemplify the company's focus on high efficiency, precision and advanced technology. With a worldwide presence and a track record of building thousands of honing machines, Sunnen continues to drive innovation in bore sizing and finishing, providing tailored solutions to meet the exacting demands of modern manufacturing across diverse sectors.

For more information about Sunnen and the SV-45 visit: **https://www.sunnen.com/products/sv-45-vertical-honing-machine**

Sunnen Products Ltd
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https://sunnen.com/



Specialist honing services



Manufacturing enterprises within the UK's engineering sector continue to be significant contributors to the economy. Just over one-eighth of the 5.5 million registered enterprises in the UK are in the engineering sector. And yet, in comparison, there are only a handful of companies providing specialist services, and even fewer who carry out all those specialist services in-house.

Hone-All has always responded to customer demand which has resulted in the company progressing and expanding from simply offering a subcontract honing service in the beginning to now offering a fully managed, outsource solution to businesses requiring tubular components including material supply.

The services it supplies are uncommon and demand a high level of knowledge and technical expertise which is simply not taught in colleges due to the high cost of the equipment and lower demand than for other more familiar services like CNC milling.

CNC honing

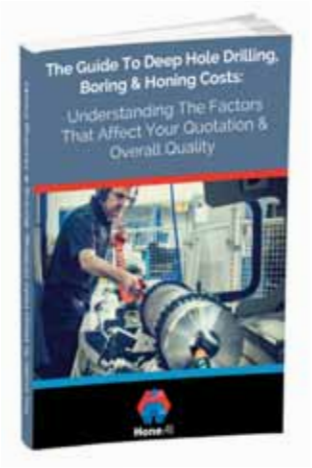
CNC honing is used to finish the size and form of a machined surface by the use of abrasive machining technology when tolerances and surface finishes cannot be achieved by conventional machining methods. Some of the specialist applications undertaken using CNC honing are the finishing and polishing of cylinders for petrol and diesel engines, hydraulic cylinders, drilling collars for oil and gas rigs and air bearing gears and spindles. CNC turning.

Modern CNC turning is a highly specialised area of precision engineering development. Where 50 years ago, a single lathe operator could spend hours with a micrometre and callipers to produce a single piece of work, CNC lathes can produce large numbers to extremely high tolerances in a fraction of the time. This service is more common within the engineering sector with many companies utilising a wide range of lathes with varying degrees of complexity and capacity.

Find out more

Hone-All Precision is an established engineering company that provides high-quality drilling, boring and honing solutions at competitive rates and lead times.

If you would like more information on how it can help to deliver your project on time and on budget, download the free booklet, The Guide to Deep Hole Drilling, Boring and Honing Costs. **https://blog.hone-all.co.uk/free-guide-to-deep-hole-drilling-boring-honing-costs?hsCtaTracking=81578f56-eaa0-433c-9489-b8846a37d829%7C106a85a6-362f-42ed-a703-1850a02b1656**



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Advanced technologies for metal surface deburring and finishing

SCM once again took centre stage at EuroBLECH 2026. Visitors were welcomed to its stand where SCM showcased some of its most advanced solutions for metal surface deburring and finishing. These technologies are designed to deliver outstanding machining quality, maximum production flexibility and reliable performance, even in the most demanding industrial environments.





With more than 70 years of expertise in designing and manufacturing industrial technologies, SCM offers the complete DMC Metal range for both dry and wet processing, meeting the needs of manufacturers of all sizes, from highly diversified production environments to heavy-duty applications, where productivity, process repeatability, operational continuity and margin per workpiece are key competitive factors.

Taking centre stage on the SCM stand was the dmc eurosystem md, the automatic dry deburring and finishing machine designed to deliver the ideal balance between machining quality and application flexibility. Thanks to its extensive range of configurations and optional devices, the machine can be tailored to a wide variety of production requirements, making it the ideal choice for modern, dynamic manufacturers seeking premium surface quality while optimising production costs.

One of the machine's key strengths is its disc unit, designed and engineered by SCM, which can be equipped with different types of 130 mm brushes to perform operations such as edge rounding and edge oxide removal. The roller unit, available with a wide selection of contact rollers, enables a broad range of machining processes, from primary burr to oxide removal to satin finishing and more sophisticated surface finishing operations, ensuring outstanding versatility and consistently high-quality results.

The entire DMC Metal range stands out for the high modularity of its operating units, allowing every machine to be configured according to specific production requirements and easily adapted as manufacturing processes evolve. The machines' sturdy construction, built upon SCM's long standing expertise in sheet metal fabrication, combined with high machining precision, long-term reliability and intuitive programming, helps reduce setup times, improve operational efficiency and deliver consistent, repeatable surface quality on every workpiece.

Alongside the dmc eurosystem md, SCM also presented its complete DMC Metal portfolio, including dry and wet processing solutions designed to meet every deburring, edge rounding, oxide removal and surface finishing requirement. The range includes compact models for flexible production, highly configurable modular systems and heavy-duty machines for high-productivity industrial applications, enabling manufacturers to select the solution best suited to their materials, production volumes and finishing requirements.

"Market requirements are evolving rapidly. Today, achieving high-quality surface finishing is no longer enough; manufacturers also need flexible, repeatable processes that can easily adapt to increasingly variable production demands," says Alessandro Caramia, business developer for DMC Deburring & Finishing Solutions at SCM.

"EuroBLECH provides the ideal opportunity to demonstrate how the modularity of our technologies delivers a tangible competitive advantage. Every machine can be configured to match specific applications and evolve alongside our customers' production needs, resulting in more efficient processes, superior surface quality, higher productivity and consistent performance over time."



About SCM Group

SCM Group is a leader in technologies for machining a wide range of materials including wood, aluminium, plastic, glass, stone, metal and advanced materials and industrial components. Across the globe, the group's companies act as highly reliable partners to leading industries in a wide range of product sectors, from furniture to construction, automotive to aerospace and nautical to plastic machining. SCM Group coordinates, supports and develops a system of industrial excellence, with highly specialised and integrated plants in Italy and other sites in Germany, the United States and Brazil with production dedicated to local markets. SCM Group has a turnover of 900 million Euros, more than 4,000 employees and a direct presence on five continents.

SCM Group UK
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Q-Fin brings handling and finishing together in the right flow

A strong finishing process isn't just about the end result, but about the entire workflow surrounding it. With the Qubes, Q-Fin brings handling and finishing together in one scalable production flow. Sheet metal parts are automatically loaded, moved, finished, turned and unloaded, allowing machines to remain productive for longer and operators to focus their attention where it is truly needed. The Qube 15-Line was nominated for the EuroBLECH Award 2026 in the Automation & Smart Factory category.

The right flow in every production environment

No production day is the same. Products change, batch sizes vary and one order may require a different approach from the next. That is exactly why automated handling should not determine how you produce, but adapt to the flow your production requires.

The Qubes are modular handling solutions for the automatic loading, unloading, stacking, and moving of sheet metal parts around a finishing line. Depending on product weight, available space, required capacity and desired level of autonomy, a suitable configuration can be created.



Automation can therefore start small, for example, by adding batch tables or a rotator and later be expanded with automatic loading and unloading. In this way, the handling solution grows alongside production without losing sight of flexibility on the floor.

Finishing and handling as a single system

One of the innovations shown at EuroBLECH this year was the Qube 15-Line. The Qube 15 combines flow, scalability, minimal footprint, data and uptime in a single compact automation solution. Thanks to Eye-Q vision technology, this cell effortlessly handles a wide range of product sizes and weights. Products can be picked "on the fly" from the conveyor belt or processed in batches. No programming is needed. This allows you to automate the loading and unloading of the finishing machine without human intervention.

Designed for integration with the Q-Fin F250, the Qube 15 automatically handles workpieces up to 15 kg, reducing manual handling and creating a more continuous production flow. Products can be fixed using either vacuum or magnetic technology. The system is suitable for workpieces from 40 x 40 mm up to 240 x 1,000 mm, with material thicknesses from 1 to 25 mm. With one pallet position and a compact footprint, the Qube 15 makes automated finishing accessible without requiring a large amount of floor space.

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LISSMAC brings new momentum to automated sheet metal processing

At EuroBLECH in October, LISSMAC presented a wide range of solutions for grinding, deburring and automation. The focus of the trade fair appearance was on the new SMD 122, a compact entry-level machine for deburring, edge rounding and finishing of sheet metal components.

A special feature in this machine class is the combination of magnetic and vacuum technology in a machine table. The vacuum is frequency-controlled. This allows a wide variety of materials and workpieces, especially small parts, to be securely fixed and processed. Speed-controlled and electrically adjustable machining units enable machining adapted to the respective application. With its compact design, the SMD 122 is aimed in particular at companies that are looking for an economical entry into mechanical grinding and deburring technology.





The SMD 3 EVO stands for the next generation of the proven LISSMAC SMD-3 series and has been specially developed for demanding tasks in deburring, edge rounding and finishing. The revised machine concept enables flexible processing of different materials, sheet thicknesses and workpiece geometries and, at the same time, impresses with its particularly service-friendly design. A new, intuitive 13.3-inch HMI with modern control and clear menu navigation simplifies



operation, shortens the training time and supports the operator in setting up and monitoring the machining processes. RFID can be used to manage individual authorisation levels for different user groups, so that sensitive machine parameters can only be adjusted by authorised personnel. The standard tool wear compensation helps to ensure consistently high machining quality by automatically compensating for wear and precisely readjusting machining. In addition, the integrated LISSMAC Setup Assist (LISA) supports the operator during machine setup and product changeovers with clearly structured processes and practical operating instructions directly on the HMI. This allows setup processes to be carried out more efficiently, operating errors to be reduced and repetitive machining tasks to be prepared more quickly.

The intelligent automation cell for sheet metal processing

With the LI-CELL, LISSMAC is focusing on the automation of loading and unloading processes on deburring machines. Specially designed for SMBs with high-mix, low-volume requirements. The cell reduces manual handling steps, improves the material flow and integrates economically into existing hall structures without costly conversions. Equipped with an AI-supported recognition system, the LI-CELL recognises components automatically, without CAD data or programming knowledge and starts the process in just a few steps: insert the pallet, confirm parameters, start the system. The intuitive HMI enables even employees without an IT background to commission independently. An integrated safety check before each cycle ensures maximum safety and the robot checks the number of suction cups, part weight and centre of gravity before the machine starts. With a payload of 0–20 kg and component sizes from 30 x 30 mm to 1,200 x 800 mm, the cell covers the entire spectrum of sheet metal processing. The Smart Loop mode for loading and unloading via reversing mode enables unmanned machining with just one robot.

The SBM-L G1S2 EVO from LISSMAC is a high-performance high-end model for the efficient and precise machining of sheet metal parts. Stamped, laser and plasma-cut parts made of steel, stainless steel, aluminium and non-ferrous metals can be completely deburred on both sides in just one operation with the machine, so that manual turning of the workpieces is no longer necessary. The SBM-L G1S2 EVO is available in working widths of 1,000, 1,500 and 2,000 mm. Depending on the design, materials with a thickness of 0.5 to 60 mm and a weight of up to 300 kg per meter can be processed. Processing on both sides in a single pass can save up to 60 percent of time. In addition, the machine has a new, intuitive HMI with modern control and clear menu navigation, which simplifies operation, shortens training time and supports the operator in setting up and monitoring the machining processes. RFID can be used to manage individual authorisation levels for different user groups, so that sensitive machine parameters can only be adjusted by authorised personnel. The integrated LISSMAC Setup Assist accompanies the operator during machine setup and product changeover with clearly structured processes and practical operating instructions directly on the HMI which means that setup processes are carried out more efficiently.

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UK manufacturing is growing and now is the time to build on it

UK manufacturing entered the autumn with another month of growth, adding weight to the case for renewed investment in Britain's industrial base. The latest S&P Global manufacturing Purchasing Managers' Index rose to 51.9 in September, from 51.7 in August, marking an eleventh consecutive month of expansion. A reading above 50 indicates growth.

For manufacturers operating across the UK supply chain, the figures provide a useful measure of an industrial economy that continues to move forward through a period of changing energy costs, international trade patterns and increased demand for supply-chain resilience.

At Midland Deburr, managing director Chris Arrowsmith believes the response should be to build on that momentum. He states: "Eleven months of manufacturing growth tells us something important. There is work out there, there are companies investing and there is still a tremendous amount of engineering capability in Britain. The opportunity now is to turn that momentum into sustained industrial growth."

Manufacturing growth is often measured through the output of major factories, yet every finished aircraft component, vehicle assembly, machine, defence system or engineered product depends upon a much broader network of specialist suppliers. That includes the finishing processes that prepare components for assembly, coating, inspection or onward manufacture.

From its West Midlands facility, Midland Deburr provides vibratory deburring, component cleaning, solvent degreasing and vapour degreasing services for manufacturers producing pressings, castings and machined components. These processes sit towards the end of a manufacturing sequence, making activity at specialist subcontractors a useful reflection of what is happening further upstream.

"When customers become busier, that work travels through the supply chain," Chris Arrowsmith explains. "Machining creates components that need finishing. Pressings and castings need deburring and cleaning. Increased production ultimately means increased demand across dozens of specialist processes.

"That is why we should look at manufacturing as an ecosystem. The strength of UK industry comes from having those capabilities available here, close to the companies that need them."

September's survey recorded continued growth in new orders and exports, alongside longer supplier delivery times and higher input costs. For Chris Arrowsmith, that combination reinforces the importance of productive capacity throughout the domestic supply chain.

A manufacturer increasing output needs confidence that its suppliers can respond. That requirement extends from material producers and machine shops through to heat treatment, coating, vibratory deburring, solvent degreasing and vapour degreasing.

Investment at each stage can therefore support productivity across the wider manufacturing economy.

"If Britain wants higher manufacturing output, we have to think about capacity all the way through the supply chain," says Chris Arrowsmith. "It is machinery, skills, energy, premises, logistics and the specialist subcontract processes that keep components moving.

"When those businesses invest, their customers benefit as well. Lead times, quality, responsiveness and the ability to increase production are all influenced by the depth of the supply chain around them."

The opportunity extends well beyond individual companies because a stronger domestic manufacturing base creates demand for engineering skills, apprenticeships, machinery, maintenance, logistics and professional services. It also retains specialist knowledge accumulated over decades of making products in Britain.

That capability becomes particularly valuable as aerospace, defence, automotive, energy and

advanced engineering businesses consider how resilient their supply chains need to be. Midland Deburr sees its own role within that network as straightforward: helping customers move components efficiently through essential finishing and cleaning operations.

Vibratory deburring can remove burrs and improve component edges and surfaces across production batches. Solvent degreasing and vapour degreasing provide controlled cleaning options for components where oils, machining residues and other contaminants need to be removed before the next production stage.

For manufacturers of pressings, castings and precision-machined components, access to established subcontract finishing capability can support both day-to-day production and future increases in volume.

Almost half of the manufacturers surveyed by S&P Global expect output to rise during the coming year. Chris Arrowsmith believes that confidence deserves to be matched by ambition from industry, government and customers buying manufactured products. He states: "We have spent a lot of time in Britain talking about the potential of manufacturing. I would like to see us concentrate on making that potential happen. Back the companies that are investing. Encourage young people into engineering. Give manufacturers the confidence to buy machinery, train people and expand capacity. Where we have the capability to manufacture and process components in Britain, give British industry the opportunity to compete for that work.

"Manufacturing creates skilled employment and supports an enormous network of businesses. Every order placed into that network helps sustain the knowledge and capability we will need for the next generation of industry."

September's PMI provides another positive marker. Eleven months of expansion has established a run of growth for UK manufacturing. The task now is to turn that run into something more substantial. For businesses such as Midland Deburr, that means continuing to invest in the practical industrial capabilities that customers rely upon every day: processing parts, maintaining quality and helping manufacturers get finished components through the factory and on to their customers.

Chris Arrowsmith concludes: "Britain knows how to manufacture. We have the people, the engineering heritage and an extraordinary base of specialist companies. This is the time to use it, invest in it and give it every opportunity to grow."

Midland Deburr supports manufacturers with specialist component finishing and cleaning services, including vibratory deburring, solvent degreasing and vapour degreasing. The company works with manufacturers of machined components, pressings and castings across UK industry.

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Every carbide rod counts: grinding, stream finishing and HiPIMS Coating as one process

Tungsten prices have eased from their spring peak, but carbide cost has materially risen and supply is anything but secure. CemeCon and ANCA show how a closely linked chain of grinding, edge preparation and coating extracts maximum tool life from every carbide rod.

Carbide: ease on prices, persistent risk

After a rally driven by regulatory and demand factors, tungsten prices peaked in March 2026. Despite a partial relief, prices remain several times above early-2025 levels and the market has split: Buyers still face supply issues, long lead times and limited material, while new capacity is not expected before 2027–2028. Procurement has become a strategic risk and higher costs can rarely be passed on. Many manufacturers now hold larger safety stocks, tying up capital in a material whose price can swing within weeks. Efficiency is no longer optional.

Tool life: the most direct lever

When every carbide rod is a valuable resource, tool life has the most direct effect on carbide consumption per part. It is defined by three interacting processes: the geometry produced by grinding, the micro-geometry created by edge preparation and the coating that protects the edge. CemeCon and ANCA optimise this chain together. Purchase price is only the visible part of tool costs; downtime, maintenance, energy and quality issues make up the larger share. A longer and, above all, more predictable tool life reduces all of them.

Grinding: stability down to the nanometre

ANCA's ULTRA package tackles grinding errors at the source. A stiffer C-axis, a one-nanometre control resolution and fast servo algorithms keep axis motion smooth, while active motor temperature control prevents thermal drift of the spindle. Runout compensation, LaserUltra in-process measurement and iBalance wheel-pack balancing close the loop.

In tests with CemeCon, end mills ground on an MX7 ULTRA showed around 40 percent less wear than those from a standard MX7, with far less scatter between edges and tools. For tool manufacturers this means predictable tool life, less scrap and inspection effort and a reliable basis for the next process steps. Consistency is decisive here: only when every edge leaves the grinder with the same geometry can edge preparation and coating run as stable, repeatable processes instead of being adjusted tool by tool.

Edge preparation: stream finishing under CNC control

In stream finishing, the tool moves through a rotating drum of granular abrasive media that hones, deburrs and polishes at the sub-micron level. On the EPX-SF, this is no black box: eleven CNC axes control position, orientation, immersion depth and relative speed of each tool, so edge radius and symmetry (K-factor) are set deliberately and reproduced consistently batch after batch.

The same machine serves three process goals: edge honing to create the radius needed for coating adhesion and edge stability, deburring, for example, to meet the burr-free requirements of orthopaedic drills and flute polishing before or after coating to improve chip evacuation.

The machine builds on ANCA's tool-manufacturing know-how. Application software programs the process around the tool geometry and pallets are shared with ANCA grinders. A standard robot loader and three independent workheads enable unattended production.

Coating: HiPIMS with synchronised pulses

Arc evaporation leaves droplets that roughen the coating. CemeCon's HiPIMS, a further development of sputtering, deposits droplet-free layers that are dense, hard and tough. CemeCon builds its own pulse generators and synchronises the HiPIMS pulses with the substrate table, so the coating grows on the tool in a targeted way. This markedly reduces residual stresses, enabling thick coatings on inserts as well as process-safe coatings on sharp micro-tool edges.

CemeCon provides coatings in joint engineering with the tool manufacturer, matching coating material, thickness, pretreatment and finishing to substrate and geometry, either in its coating service or on the customer's own CC800 HiPIMS system, which gives full access to all process parameters.

Getting more from every rod

The joint tests show how the steps reinforce each other: ULTRA grinding delivers consistent geometry, the EPX-SF turns the sharp ground edge into a defined radius and halves surface roughness and HiPIMS preserves this micro-geometry under a smooth, dense layer. The result is a homogeneous cutting edge with longer, more predictable tool life.

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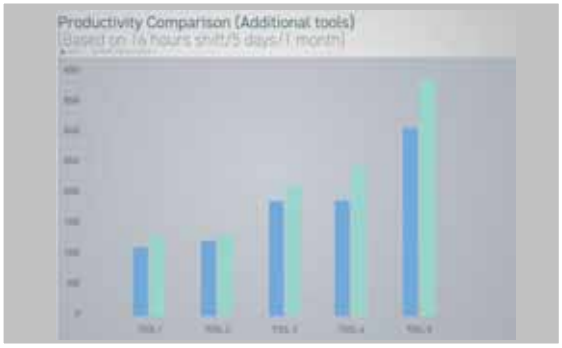


Image 1: One process chain for maximum tool life – grinding on the ANCA MX7 ULTRA, edge preparation on the ANCA EPX-SF, coating with CemeCon HiPIMS.

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2 REDUCE SCRAP AND REWORK AND INCREASE TOOL LIFE





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SCAN TO BOOK

WALTER unveils two world premieres

The game-changers in tool production

Two world premieres, one stage across two continents: At IMTS in Chicago and simultaneously at AMB in Stuttgart, both events took place in September in the USA and Ger-many, WALTER unveiled two world premieres at the UNITED MACHINING SOLUTIONS booth: the HELITRONIC FUSION and the HELICHECK COMPACT. With an elaborately staged show at both trade shows, WALTER delivered one of the most talked-about appearances of the year and underscored its commitment to actively shaping the tool grinding and measuring machine market.

Two world premieres at once

Anyone who manufactures cutting tools for the automotive industry, mechanical engineering, or aerospace knows the pressures of the market: maximum precision, short turnaround times, and decreasing operating costs must all be achieved simultaneously. WALTER responds precisely to this with its two new machines. While the HELITRONIC FUSION takes the production of rotationally symmetric cutting tools to a new level of efficiency, the HELICHECK COMPACT targets those new to the world of measurement technology: high-precision tool measurement at an entry-level price.

HELITRONIC FUSION: Fully integrated automation reimagined

The HELITRONIC FUSION was specifically designed for the production of drills, end mills, profile tools, countersinks and reamers and is one of the first machines in its class to combine fully integrated automation for workpieces and tools with a compact footprint. Despite a maximum grinding length of 380 mm and tool diameters up to 260 mm, it requires significantly less floor space than comparable machine designs. This is the result of a new cross-bed design featuring high thermal stability, as well as static and dynamic rigidity with symmetrical kinematics.



Users achieve the greatest productivity gains in the details: tool and wheel changes occur in parallel. The wheel change itself takes only a few seconds. This is made possible by a newly developed wheel changer. A vibration-damping mineral cast bed with a symmetrical axis layout also minimises vibrations and ensures consistently high manufacturing accuracy, even over long production runs.

WALTER has also set new standards in energy efficiency: For the first time in its product portfolio, high-precision glass scales are used entirely without blocking air, which significantly reduces energy consumption. Drive cooling sized to meet actual demand and optimised exhaust systems further lower operating costs. The package is rounded out by the intuitive C.O.R.E. technology with a large touch panel, IoT connectivity and the latest generation of the optional FANUC robot. Together, these features ensure excellent accessibility for operation, maintenance and service.

"The HELITRONIC FUSION is a milestone in the tool grinding machine market," summarised Dr. Christoph Müller-Mederer, CEO of WALTER, at the unveiling. The combination of optimised performance, fast automation and high efficiency provides customers with an out-standing price-performance ratio and reduces operating costs, all without compromising on quality.

HELICHECK COMPACT: Precision at an entry-level-price

At the same time, WALTER introduced the HELICHECK COMPACT, a new tool measuring machine specifically designed for those new to the world of measurement technology. Premium measurement technology at an entry-level price, based on the proven design of the HELICHECK series.

With a measurement uncertainty of EUX, MPE = 1.4 + l/300 µm, it performs at a level typically reserved for significantly more expensive measurement systems. The key



specifications speak for themselves: maximum tool diameter of 255 mm, 180 mm using the throat gauge principle and a maximum tool length of 365 mm on the SK 50 base.

The proven monolithic design based on a granite block ensures incredible repeatability. It runs on Windows 11 LTSC and utilises the latest C.O.R.E. technology. On the software side, all features of the WALTER Metrology Centre software are available, including EASY Check and the new grinding wheel measurement function. The new measuring machine is IoT-ready, ensuring compliance with the requirements of the Cyber Resilience Act.

A new measuring machine for all tool measurement applications and for all transmitted and reflected light measurements.

Great response at both trade shows

The simultaneous unveiling on two continents demonstrated the importance WALTER attaches to these two new products: In both Chicago and Stuttgart, numerous trade visitors attend-ed the presentations at the UNITED MACHINING SOLUTIONS booth. It became clear that both the innovative concept of the HELITRONIC FUSION and the HELICHECK COMPACT's price-performance ratio generated significant interest.

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VOLLMER showcases four advanced tool machining technologies at IMTS

VOLLMER of America Corp showcased four advanced technologies for precision tool machining at IMTS 2026. At its booth, VOLLMER demonstrated the depth of its capabilities through the VGrind Infinity LINEAR, VHybrid 260, VLaser 370 and ultraTEC A25S, giving manufacturers an opportunity to explore different approaches to producing and processing today's increasingly sophisticated cutting tools.

Together, the four machines represented the diverse technologies available from VOLLMER and its subsidiaries, from conventional precision grinding to combined grinding and erosion, contactless laser machining and ultrasonic deburring.

The exhibition also marked a significant milestone for VOLLMER of America: 2026 is the company's 50th anniversary in North America. Founded in Pittsburgh in 1976 as VOLLMER's first overseas subsidiary, VOLLMER of America provides sales, application support, installation, training, parts and service to customers throughout the United States, Canada and Mexico.

VGrind Infinity LINEAR: One machine for virtually every grinding challenge

At the centre of VOLLMER's rotary-tool grinding offering was the VGrind Infinity LINEAR, the company's latest tool grinding machine and an all-rounder designed for flexible production of precision rotary tools.

The VGrind Infinity LINEAR is engineered to process a wide range of cutting-tool materials, including carbide, high-speed steel (HSS), PcBN and ceramic and can accommodate tool diameters from 0.2 to 200 mm. This wide operating range allows manufacturers to use the machine for everything from extremely small precision tools and special geometries to larger-diameter cutting tools.

At IMTS, VOLLMER used the VGrind Infinity LINEAR to showcase not only its grinding capabilities, but also technologies designed to improve quality control and production flexibility. The machine was equipped with a laser measuring system for form tools and other applications where maintaining tight tolerances is critical.

VHybrid 260: Grinding and erosion in a single machine

The VHybrid 260 demonstrated another key element of VOLLMER's technology portfolio: the ability to combine two different machining processes within a single machine.



As its name suggests, the VHybrid 260 combines grinding and Electrical Discharge Machining (EDM). The machine is designed for machining rotary tools made from carbide or equipped with PCD, allowing manufacturers to perform different processes without transferring the tool between separate machines.

At the show, VOLLMER highlighted the machine's ability to process tools ranging from micro tools as small as 0.4 mm up to tools with diameters of 150 mm.

VLaser 370: Contactless laser sharpening for ultra-hard materials

The VLaser 370 represented a third machining technology at the VOLLMER booth: laser processing.

Rather than mechanically grinding or eroding the cutting edge, the VLaser 370 uses laser energy to machine ultra-hard cutting materials, including PCD, CVD diamond and PcBN. The contactless process makes it possible to process materials and geometries that present challenges for conventional machining technologies.

The advantages of laser processing become particularly apparent when tool geometries include closely spaced cutting tips, small radii or other features that can be difficult to access with conventional processes.

The VLaser 370 can also be integrated with automation solutions, supporting continuous production and reducing the amount of manual intervention required. VOLLMER has highlighted the machine's ability to operate for extended periods while maintaining process stability, making laser technology an increasingly attractive option for automated production of ultra-hard tools.

ultraTEC A25S: Ultrasonic deburring technology expands the possibilities

Completing the four-machine display was the ultraTEC A25S, representing the ultrasonic deburring technology of VOLLMER subsidiary ultraTEC innovation.

While the VGrind infinity LINEAR, VHybrid 260 and VLaser 370 focus primarily on machining and processing cutting tools, the A25S demonstrates the role that ultrasonic technology can play in precision manufacturing.

The A25S is designed around ultrasonic machining technology, using controlled high-frequency oscillation to process demanding materials and applications. The technology is particularly relevant where conventional machining methods can be limited by material hardness, brittleness or geometry.

Four technologies. One focus: precision tool manufacturing

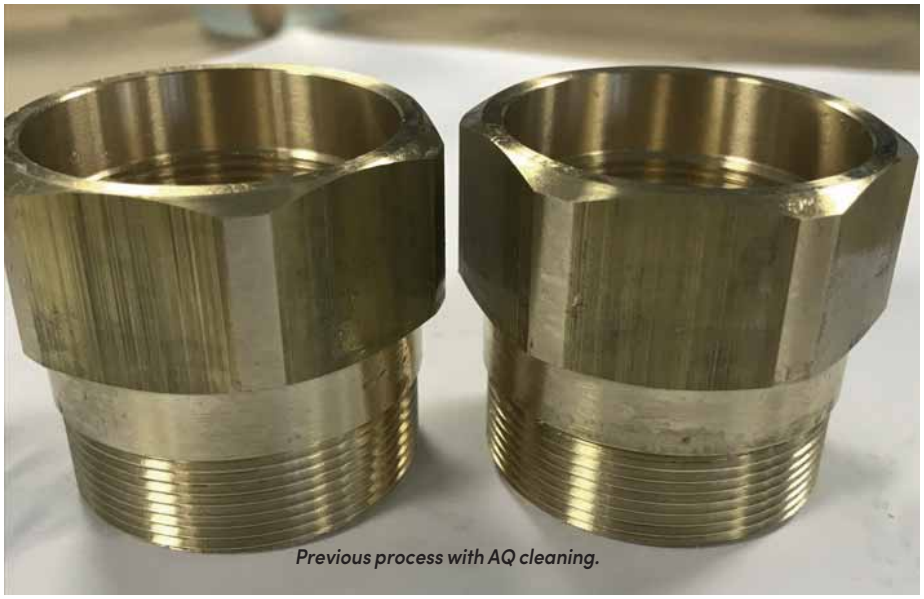
Although the four machines displayed at IMTS use fundamentally different technologies, they share a common objective: enabling manufacturers to produce increasingly complex cutting tools with greater precision, flexibility and efficiency.

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CMP Products adopts modified alcohol solvent for effective and reliable cleaning performance

CMP Products is a leading manufacturer of cable glands, cable cleats and associated accessories. Supplying a wide range of industries, including transport, robotics and energy conveyance, the company requires consistent and reliable parts cleaning results, supported by specialist expertise and cutting-edge technology.

Headquartered in Newcastle, UK, the company was founded in 1957 as part of the British Engines Group and now employs more than 450 people globally. Its commitment to continuous product development and innovation has resulted in state-of-the-art products that often exceed international standards and lead the way in quality, safety and performance.



Previous process with AQ cleaning.

Consistent cleaning results as a quality requirement

For several decades, CMP Products relied on water-based cleaning for parts cleaning. However, the results were inconsistent and challenges relating to operating costs and water quality remained.

"We tried different aqueous cleaners over the years; however, we never really found anything that would effectively remove the oils and deliver reliable results. After a period of time, there were always fluctuations. Sometimes the cleaning results varied after just the second batch," reports Suresh Talwar, senior production engineer at CMP Products.

But this is precisely what matters in CMP's customer industries. Fluctuations in cleaning performance are undesirable and can have serious consequences because the products are used not only in industrial environments but also in locations where people are present, for example transportation projects including the London Underground and Paris Metro.

Another major concern was maintenance of the aqueous cleaner. As contaminants and oils are encapsulated, washed off and rinsed away with water, the used water must be disposed of regularly unless suitable treatment facilities are available.

Since water-based cleaning systems are often not hermetically sealed, evaporation losses must be monitored, measured and compensated for on a regular basis. Continuously topping up the cleaning machine with water-based cleaning agent required considerable time and expense and therefore proved uneconomical.

The question therefore arose: how could consistent cleaning results be maintained in an efficient and cost-effective manner?

DOWCLENE 1601 modified alcohol, the long-awaited solution

When the time came to invest in a new cleaning machine, the company initially planned to remain with aqueous cleaning, despite the challenges it had experienced. It believed that the water-based coolant used in manufacturing its products could only be removed using aqueous cleaning agents.

With support from Ecoclean, a leading equipment manufacturer for industrial parts cleaning and degreasing, CMP carried out test runs using both a water-based cleaning machine and a solvent cleaning machine.

After several trials with different water-based cleaners, the results were still not satisfactory. However, when using the modified alcohol



New Process with DOWCLENE 1601.

solvent DOWCLENE™* 1601 in the Ecoclean EcoCcore machine, Suresh Talwar was quickly convinced by its cleaning performance.

"And we never looked back. There was simply no need to look for more alternatives. DOWCLENE 1601 has been as good as gold for us and the implementation of the new solvent cleaning machine went smoothly from the very beginning," Suresh Talwar explains.

DOWCLENE 1601 is a virgin-grade, high-performance modified alcohol solvent. Thanks to its lipophilic and hydrophilic properties, DOWCLENE 1601 removes oils and greases just as effectively as certain polar contaminants, such as cooling emulsions, as well as solids including particles and abrasives. The solvent also has low toxicity and good biodegradability.

Process monitoring has become much easier, as there is no need to monitor surfactant and builder concentrations when using the solvent. "In addition, we were able to free up 10 hours of operator time per week because they no longer have to clean the water-based tanks regularly," reports Suresh Talwar.

The efficient recycling of DOWCLENE 1601 through the machine's distillation unit enables consistently high cleaning quality, a longer solvent lifespan and lower lifecycle costs, while minimising solvent residues in the waste stream.

Added value through a customised chemical leasing offering

The new cleaning machine was commissioned with an initial fill of 1,600 L of DOWCLENE 1601. Delivery of the solvent in SAFECHEM's risk management solution, the SAFE-TAINER™ System, ensures safe and sustainable transport, storage and handling.

Because of the solvent's high stability and the nature of the technology, both solvent and stabiliser consumption have remained extremely low since commissioning, resulting in lower ongoing costs and reduced environmental impact.

With the switch to DOWCLENE 1601, CMP also benefits from the COMPLEASE™ Chemical Leasing offering from SAFECHEM.

Instead of purchasing solvents, customers purchase a comprehensive, tailored performance package. The service bundle typically includes high-performance solvents, safe solvent delivery and collection of used solvents in the SAFE-TAINER System, waste analysis, test kits and stabilisers, as well as laboratory services, technical consultancy and solvent training all for a fixed monthly fee.



"Another burden has been lifted off our shoulders. With COMPLEASE we can order products and services without any hassle," states Suresh Talwar. "And again, it comes back to consistency. We know what we are going to spend over the next 12 months and that creates certainty."

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Precision cleaning for medical manufacturing: Guyson's ultrasonic solutions

In medical manufacturing, cleanliness is critical. From implants and surgical instruments to optical components and dental equipment, manufacturers require cleaning processes that deliver consistent, repeatable results without compromising delicate and complex components.

With more than 85 years of experience developing surface finishing and cleaning technologies, Guyson offers a comprehensive range of ultrasonic cleaning solutions engineered to meet the demanding requirements of medical manufacturing.

Ultrasonic cleaning technology: Precision at every stage

Guyson's ultrasonic portfolio ranges from compact manual cleaning baths through to fully automated, multi-stage precision cleaning systems, providing solutions for differing applications at all stages of production.

The GUK range of ultrasonic baths can be used for applications including the cleaning of medical instruments, implants, glassware and syringes prior to sterilisation. For more specialised applications, Guyson's Ultrasonic Clean-Rinse (UCR) systems provide precision cleaning and rinsing capabilities, suited to applications such as medical stent cleaning.

Microsolve: Advanced precision cleaning for medical components

For applications demanding a higher level of process control, the Microsolve range provides a high-end, fully automated ultrasonic solvent cleaning solution designed for precision cleaning of components.

The Microsolve Mono-Solvent system combines ultrasonic cleaning, vapour rinsing and freeboard drying into a controlled three-stage process utilising a single solvent. For applications involving heavier contamination, the Microsolve Co-Solvent system adds a secondary solvent for more powerful cleaning, alongside an ultrasonic rinsing stage to create a four-stage cleaning process.

The combination of ultrasonic cleaning and solvent technology provides an effective solution for removing oils, greases, particles and other contaminants from complex components, making the Microsolve well suited for a range of precision manufacturing applications.



Microsolve systems incorporate numerous features designed to maximise cleaning performance whilst controlling solvent consumption. Triple-coil reflux cooling, vapour break technology and a 150 percent freeboard ratio help reduce solvent loss and support predicable operating costs. Automated handling options can also be incorporated, helping manufacturers achieve consistent processing from component to component whilst also increasing production throughput.

Cleaning chemistry matters

The choice of ultrasonic equipment is only part of the equation, selecting the correct chemistry is equally important when developing an effective precision cleaning process. Through its partnership with Inventec Performance Chemicals, Guyson provides



access to a range of modern precision cleaning solvent compatible with Microsolve systems, including PFAS-free PROMOSOLV solvent solutions. This combination of leading equipment and chemistry allows Guyson to develop cleaning processes tailored to the specific component, contamination and process requirements of individual applications.



Test it. Prove it. Process it.

Guyson's test & evaluation facilities provide customers with the opportunity to trial their own components using a range of systems before committing to their choice of equipment.

The ultrasonic test facility includes Microsolve Mono and Co-Solvent systems alongside other Guyson ultrasonic cleaning equipment, allowing customers to compare processes, evaluate cleaning performance and establish the optimal solution for their application. Rigorous trials and process development allow manufacturers to move from testing to a validated, repeatable production ultrasonic cleaning process with greater confidence.

Looking for a complete cleaning solution?

Contact Guyson today to discuss your cleaning application or arrange a component trial with its Test & Evaluation team.

Guyson Microsolve makes its US debut



Last month the Guyson team travelled to the IMTS 2026 show in Chicago, to launch the Microsolve range to the US market through our sister company Guyson Corporation of USA. The Microsolve received a great reception from visitors to the stand, with many leading companies interested in how ultrasonic cleaning can revolutionise their production processes.

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The new EcoCbase from Ecoclean

When it comes to efficiently removing contaminants such as oils, greases, emulsions and chips, there's no substitute for non-halogenated hydrocarbons and modified alcohols. The new EcoCbase enables a cost-effective entry into high-performance and economical cleaning with these solvents. The compact and flexible plug-and-play system was developed specifically for companies with lower capacity requirements and high standards for process reliability as well as resource and energy efficiency. It can be adapted as needed for pre-cleaning, intermediate cleaning and final cleaning applications.

On the one hand, general industry is facing increasingly stringent requirements for component quality and cleanliness. On the other hand, more diversified product portfolios are leading to lower production volumes. To remain competitive in the face of these challenges, component cleaning must be carried out reliably, economically and in an energy- and resource-efficient manner.

For these applications, Ecoclean has developed the flexible EcoCbase: a cost-effective yet high-performance entry-level solution for cleaning with non-halogenated hydrocarbons and modified alcohols. The compact plug-and-play system, available in S and M versions, requires a footprint of just 2,000 x 1,400 mm and 2,500 x 1,600 mm (L x W), respectively. Its comparatively low transport height of 1,940 mm ensures that the single-chamber full-vacuum cleaning system can be easily installed even in areas with low ceiling heights. The maximum batch size for the EcoCbase S is 430 x 225 x 200 mm s (L x W x H), with a weight of 50 kg; the M version is designed for batches weighing up to 75 kg with dimensions of 530 x 320 x 250 mm. The conveyor is operated manually as standard via an ergonomic loading station and can be automated upon request.

The system, which comes standard with a flood tank, ensures that the solvent is always available in optimal quality thanks to full-flow filtration during filling and emptying of the working tank, as well as bypass filtration. If the system is equipped with a second tank, this tank features a corresponding, separate filtration



system. Continuous solvent treatment via the integrated distillation unit also contributes to consistently optimal media quality. The separated oil is continuously discharged into an external tank with level monitoring. This enables the recovery of expensive machining oils, which, in addition to long media service life, contributes to low operating costs.

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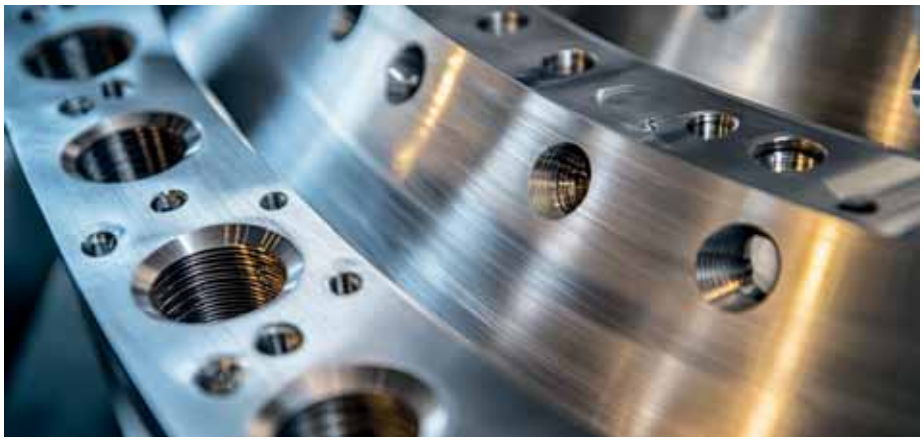
Tackling the top four cleaning challenges in metal finishing

Finishing defects can originate well before a component reaches the plating bath or coating line. Residual machining oils, polishing compounds and fine particles can compromise adhesion and surface uniformity, even when the part appears clean.

Contamination trapped in a blind hole or narrow channel may be difficult to detect until subsequent treatment exposes the problem.

Production engineers and finishing specialists need to reach the required surface condition consistently, often across components with very different geometries and contamination profiles. A process that removes machining oil from an accessible surface may struggle with heavy grease, wax or polishing residue in a recessed feature.

Four recurring problems warrant particular attention: complex geometries, mixed contaminants, equipment limitations and poorly defined cleaning procedures. Addressing these during process development helps reduce the risk of contamination reaching the finishing stage.



Complex Parts: Blind holes and narrow channels can trap oils and particulates, affecting finishing quality.

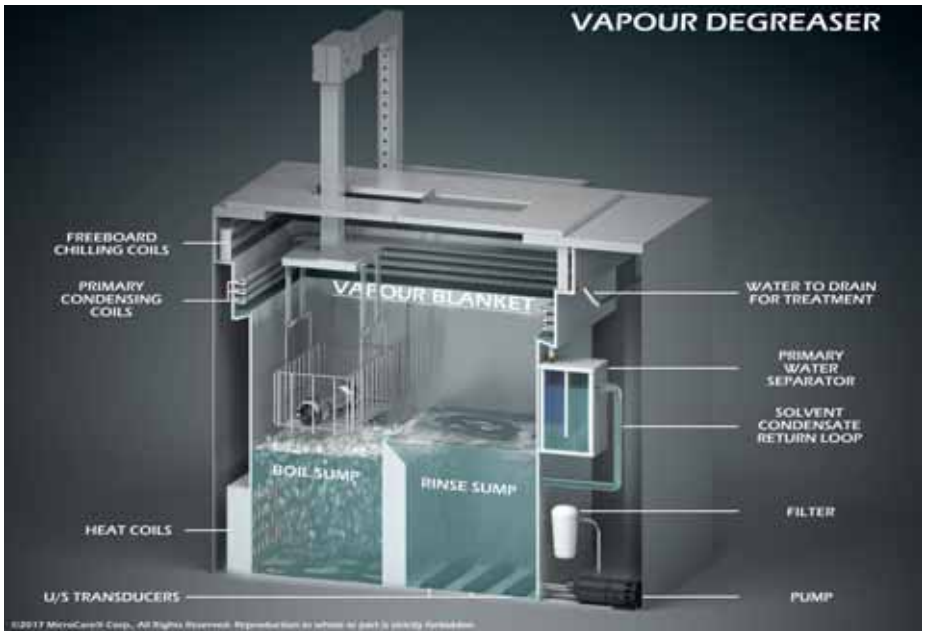
Complex geometries

Residues trapped in holes, grooves and recesses can be hard to reach, so the cleaning fluid must penetrate these features and remove the contamination without leaving residue.

Both aqueous cleaning and vapour degreasing can effectively clean precision components, including parts with complex geometries. Aqueous systems combine water-based chemistry with heat, agitation and, in some cases, ultrasonics, but typically require extensive rinsing to remove residual cleaning chemistry. Achieving a complete rinse can become more difficult as geometry becomes more complex and removing particulates can be particularly challenging.

Vapour degreasing combines solvent immersion with vapour rinsing and drying and is particularly suited to intricate shapes. A vapour degreaser is a closed-loop system with a boil chamber and a rinse chamber. Fluid in the boil chamber is heated to generate vapour, which condenses on cooling coils and returns as clean solvent to the rinse chamber. Parts are lowered through the vapour into each chamber in turn. The low surface tension of suitable fluids helps them reach into blind holes and narrow channels, while the vapour-rinsing stage helps remove residual contamination. Parts come out clean and dry, without a separate drying stage. When particulate contamination is present, ultrasonic energy can further enhance removal, especially when contamination is heavy.

Whichever method is used, the fluid must have sufficient cleaning strength to remove the contamination without damaging the component.



Vapour Degreaser: Vapour degreasing cleans intricate components and delivers clean, dry parts.

Mixed contaminants

Machining oils, forming lubricants, greases, waxes, grinding dust, metal fines, oxides and polishing residues may all be present, often on the same component and each can respond differently to cleaning.

Knowing which substances were used during manufacture shows what needs to be removed.

Aqueous cleaning can be effective for water-soluble contamination such as coolants and water-soluble cutting fluids. Vapour degreasing is particularly useful for heavy greases, waxes and other hydrophobic residues, which aqueous methods can struggle to remove.

Particles need separate consideration, as metal shavings and grinding debris cannot be

dissolved like an oil film. Removing the oil or grease holding them in place helps, but particulate removal can be challenging, particularly in complex geometries or when contamination is heavy. Agitation and ultrasonics can provide additional cleaning action.

Fluid selection must also account for material compatibility, removing the contamination without affecting the substrate or other materials on the part. Where residues are difficult to remove, a cleaning-fluid specialist can advise on a suitable fluid.

Equipment limitations

Cleaning results depend on the equipment as well as the fluid. Poor temperature control, insufficient agitation or limited cycle control can produce inconsistent results, even when the right fluid has been chosen.

Where results fall short, the first step is to check whether the existing system can deliver the required process. A change to the settings may be sufficient. Other applications will need additional features or a newer machine with tighter control.

Ultrasonics and spray wands are two such features. Ultrasonics are often an important tool for particulate removal, especially when contamination is heavy and can enhance cleaning in suitable aqueous or vapour-degreasing systems. Spray wands can also improve cleaning effectiveness. Cleaning trial results should determine which features are needed, with equipment and fluid suppliers agreeing on the operating conditions.

Consistency also depends on the condition of the fluid. Routine checks should confirm the equipment is operating at the conditions established during trials. If performance deteriorates, review the fluid, contamination and equipment operation before changing the cycle, as longer cleaning times will not necessarily correct unsuitable chemistry or inadequate mechanical action.

Inconsistent process planning

A cleaning procedure should specify the result required, not just the method. For finishing, that means agreeing the surface condition needed for the next treatment and checking that the cleaned component meets it.

Trials should establish a suitable cleaning, rinsing and drying sequence, with the fluid, cycle times and machine settings recorded so operators can repeat the process.

Regulation must also be considered. Under REACH, solvents such as nPB and TCE can no longer be used without a specific authorisation, which rules them out for most users. Newer vapour degreasing fluids are designed to meet European F-Gas and REACH requirements, with low global warming potential and no ozone depletion and closed-loop degreasers help reduce emissions and waste. Aqueous cleaners offer low toxicity and straightforward disposal, although they typically require extensive wastewater treatment to remove residual cleaning chemistry and may need longer drying times, using more energy.



Contaminants: Oils, grinding dust, metal fines and polishing residues require targeted cleaning.



Inspection: Cleaning trials and inspections verify surface cleanliness for plating, coating or anodising.



Finished Parts: Effective cleaning supports coating adhesion, surface uniformity and less rework.

Inspection should reflect the cleanliness requirement. Surface appearance alone may be insufficient where fine particles or thin films could affect finishing, so suitable checks should be agreed during development.

Upstream changes, such as a different lubricant or polishing compound or a revised component design, should prompt a review of the cleaning procedure, with further trials where necessary.

Improving finishing quality

When finishing defects occur, the cleaning stage should be part of the investigation, as residues left in a recess, an unsuitable fluid or a poorly controlled cycle can all affect the surface presented for treatment.

Vapour degreasing, using a fluid matched to the contamination, addresses several of the challenges covered here, reaching into complex geometries, removing heavy greases and waxes, and delivering clean, dry parts from a closed-loop process. Results still depend on keeping the equipment under control. Trials with production parts establish what works, while documented procedures and regular checks maintain those results. This gives manufacturers a more reliable basis for plating, coating or anodising, with less contamination-related rework.

Author information:

Elizabeth Norwood is a senior chemist at MicroCare, LLC, which offers precision cleaning solutions. She has been in the industry for more than 25 years and holds a BS in Chemistry from the University of St. Joseph. Her role involves researches, development and tests for cleaning-related products. She currently has one patent issued and two pending for her work.

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Making the move to automatic wet blasting

Many precision engineering shops still finish ground parts by hand at a manual blast cabinet. Vapormatt's Puma+ range offers those shops a straightforward route into automatic wet blasting, without a bespoke machine, a large footprint or a long learning curve.

Grinding delivers the tolerance. What happens next often decides whether the part ships on time. In many UK subcontract shops and production cells, deburring, edge preparation and pre-coat cleaning still happen at a manual blast cabinet, with results that depend on who is holding the gun.

That works at low volumes. But as batch sizes grow and aerospace and automotive customers tighten their surface finish requirements, manual blasting becomes both a bottleneck and a source of variation. It also ties up skilled operators that few shops can spare.

Bridgwater-based Vapormatt, which pioneered wet blasting in the 1950s, designed its Puma+ range for exactly this point: the step from manual to automatic.

Why wet blasting suits ground components

Wet blasting combines abrasive, water, compressed air and detergent into a high-velocity slurry jet. In a single operation it degreases, cleans and finishes, producing anything from a fine satin finish to a coarse key for coating.

For precision ground parts, what the process avoids matters as much as what it does. There is no dust, no heat build-up, no sparks or burning, no static, no media embedment and no need to pre-wash. The water cushions the abrasive and blast pressure is manually adjustable, so fragile edges and fine features are treated without damage.

That makes it a natural next step after grinding. Typical applications include deburring, edge honing of cutting tools, surface activation before PVD and CVD coating, removing heat marks and machining blemishes, cleaning before inspection or assembly and surface improvement after casting.

Has your shop outgrown manual blasting?

Few shops decide to automate on a whim. More often, the case builds up through day-to-day frustrations.

The common signs are:

- Finish varies between operators or shifts, and customers have started to notice.
- Parts queue at the blast cabinet while grinding machines sit waiting.
- Skilled staff spend hours on repetitive blasting instead of higher-value work.
- Aerospace or medical customers want a documented, repeatable process rather than operator judgement.
- Batches of small parts, such as additively manufactured components, are impractical to handle one at a time.

If two or three of these sound familiar, automation is likely to pay for itself sooner than expected.

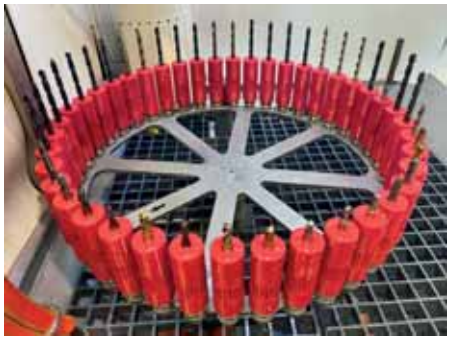
Vapormatt Puma+ automatic wet blasting machine.



Four configurations, matched to the part

Rather than engineering a bespoke system for every customer, Vapormatt has built Puma+ as a standard machine in four configurations. Each shares the same cabinet, controls and filtration, but handles parts differently.

Puma+ Vertical with satellites will interest tool grinders most. It automatically processes round shank tools such as solid carbide end mills, drills and taps, from 3 mm to 25.4 mm in diameter and up to 300 mm long. Up to 42 tools load into holders around the turntable. The table indexes each one into position, the tool rotates on its satellite, and two nozzles travel down its length at a recipe-set speed. Edge honing and



Vapormatt Puma + Vertical turntable with 42 satellites.



Vapormatt Puma+ Barrel automatic wet blasting machine.



Vapormatt radial automatic wet blasting machine.

pre-coat preparation then run unattended while the operator loads the next grinder.

Puma+ Radial suits flat and prismatic parts. Components sit on a 700 mm driven turntable while four nozzles sweep across them on a traversing head. It removes paint, weld and heat marks and machining blemishes to give a consistent finish, with a maximum turntable load of 150 kg.

Puma+ Vertical handles taller components. Two nozzles on a vertical oscillation arm blast the part as the turntable rotates and the recipe sets the Z-axis speed and component height. Bespoke holders and fixtures can be designed around the turntable.

Puma+ Barrel processes small parts in bulk, including additively manufactured components. The standard 350 mm barrel takes loads up to 20 kg, and an optional 500 mm barrel takes up to 50 kg. The barrel rotates in both directions at 1.7 to 6.8 rpm, has a replaceable abrasive-resistant lining and rinses parts automatically at the end of the cycle.

Recipes, repeatability and running costs

Consistency comes from recipes. The operator selects a stored programme on the colour HMI, which sets cycle time, nozzle travel speed or barrel speed and direction for that part. Once a recipe is proven, it becomes the process and any trained operator gets the same result. Cloud connectivity allows Vapormatt to make programme changes and diagnose faults remotely through Vapormatt 4.0, its Industry 4.0 support platform.

The machines are designed for busy workshops where floor space is tight. Th Radial and Vertical models occupy 1,473 mm by 1,386 mm and all abrasive filtration sits within the cabinet's footprint, so the machine can go close to a wall or into a corner. The cabinet is built from 304 stainless steel.

Running costs are kept down by the S-Tank filtration system, which cleans and recirculates water for rinsing and the window wash. The sump holds 148 litres with an abrasive charge of 6 to 12 kg. Installation needs a three-phase 400/480V supply, compressed air at 1.13Nm³/min per blast gun and a standard water connection.

Proven on your parts before it ships

For a shop taking its first step into automation, the biggest worry is whether the machine will actually deliver the finish required. Vapormatt addresses this through a structured technical acceptance process, led by a dedicated project leader from order to installation.

Process development establishes the recipes and component holding system first. Factory acceptance testing then takes place at Vapormatt, often using the actual components the customer will be processing. After delivery, the same commissioning engineer installs the machine and runs site acceptance testing, followed by training in operation, daily maintenance and recipe fine-tuning. Vapormatt calls this commitment to agreed performance the Vapormatt Promise.

"The Puma+ represents everything we believe automatic wet blasting should be. Simple to specify, easy to operate and fast to justify commercially," says Ryan Ashworth, head of sales and marketing at Vapormatt. "We have taken decades of process knowledge and put it into standard machines that are accessible to a much wider range of manufacturers than has historically been the case."

For grinding shops, subcontractors and production cells where finishing has become the slowest step, that accessibility may be the deciding factor.

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GKN Aerospace relies on Rösler's mass finishing and shot blasting solutions

For decades, the area around San Diego (CA) has been a centre for the US aerospace industry. It offers highly qualified personnel as well as a large network of suppliers. At the same time, the state of California is imposing strict regulations for sustainable and resource saving manufacturing.

In 2024 GKN Aerospace, a globally leading manufacturer of high-performance components and systems for the aerospace industry, who supplies customers like Pratt & Whitney, General Electric and Boeing, opened an ultra-modern factory in El Cajon. This location specialises in Maintenance, Repair and Overhaul (MRO) for all kinds of aircraft components.

The high environmental protection standards in Southern California are in perfect synch with the sustainability offensive of GKN Aerospace. But for suppliers they can pose a real challenge: Every piece of equipment must comply with the strict environmental standards in the state of California. But in addition, it must offer precise, reliable and highly productive performance. For the relatively complex reconditioning of turbine blades for aircraft engines the customer chose high-performance surface finishing systems from Rösler, not only for stripping of the used turbine blades but also for the final mass finishing operation. To a large extent this decision was influenced by the positive experience the GKN Aerospace sister company in Malaysia had with comparable Rösler equipment and processes.

The blades in aircraft engines, be it fan blades, pressure blades or turbine blades, are exposed to tremendous stress, including high temperatures, strong centrifugal force and constant vibration. Over time, such loads can cause material fatigue, micro cracks and unwanted deposits. To ensure the safety, performance and efficiency of aircraft engines, the blades must be periodically checked, cleaned and as needed, overhauled. The required technical procedures are spelled out in the repair manual for the respective engine components issued by the engine manufacturer.

It stipulates that prior to visual and x-ray inspection the components must be stripped of all coatings, respectively, deposits. For these stripping operations GKN Aerospace is using a high-pressure water jet system from Rösler that produces perfect results. Since it does not require any processing media or chemicals, the stripping process with pure water is extremely eco-friendly. A further advantage of the waterjet system is the automatic process water cleaning and recycling system that drastically reduces the overall water consumption. The final step of the overhaul operation, surface finishing of the reconditioned components, is also handled by Rösler equipment, namely 12 tub vibrators. Two process water cleaning and recycling systems, each equipped with two centrifuges, are cleaning the process water contaminated with solids and sending the cleaned water back to the mass finishing machines for reuse.

To allow an objective evaluation of their condition, in a first step any coatings/deposits on the blade surface must be removed. Until now, this was done using chemical stripping, which involved substances that had to be disposed of in a complex and costly process. At its sister plant in Malaysia GKN Aerospace has been using a Rösler high-pressure waterjet



stripping system for several years. Based on the good experience in Malaysia the plant in El Cajon decided to use the same stripping technology. The high-pressure waterjet technology uses a combination of high energy in combination with a liquid medium, namely water. This penetrates the surface and chips away the surface coatings. Water jetting is much faster than the previously used chemical stripping method. Actually, it is twice as fast and extremely eco-friendly, because it completely eliminated the disposal of numerous batches of chemical waste and coating residues.

The highly regulated aerospace industry requires not only effective and sustainable equipment technologies; equally important is the complete documentation of all manufacturing processes. The robotic stripping of the turbine blades is fully automated and the entire process, including the computer managing the robot movements, is controlled by a supervisor system (PC supervisor master). The supervisor monitors all process parameters in real time, including all valves, maintenance components and processes. The entire process status is digitally displayed. Based on their serial numbers a barcode scanner assigns the respective processing program to the components, thus allowing complete documentation of every single process step. Because the PC supervisor monitors all process parameters and makes sure that their values remain within set limits, complete traceability of the entire process and, therefore, absolute process safety is guaranteed. This is particularly critical for shot blast processes, because one faulty operational parameter can damage or even destroy a component.

For another stage of the reconditioning operation at the El Cajon location, namely the surface refinement of overhauled turbine blades, the customer is also using a Rösler system. With this operation the savings in processing time and use of processing media are even more impressive. Until recently the last step, surface finishing of the reconditioned components, was done in somewhat obsolete machines, supplied by a competitor, and with comparatively low-quality processing media. But the new mass finishing vibrators are not only designed for high efficiency but also offer optimised ergonomics. Pairs of two tub vibrators share one pedestal. This shortens the distance the machine operator has to walk. For noise protection, a key consideration of the project, the mass finishing machines were completely enclosed with suitable noise absorbing cabins. In each tub, equipped with dividers, two workpieces can be processed at the same time without touching each other.

With a suitable supervisor system the entire finishing process is monitored and all process stages documented. The specified finishing goal is a surface roughness value of Ra = 0.6 µm (24 micro inches).

A big step towards improving the sustainability of the mass finishing operation is the switch from using fresh water for every single finishing cycle to cleaning and recycling the process water. For this purpose, four fully automatic centrifuges were installed for cleaning the process water and pumping it back to the mass finishing system for reuse. Depending on

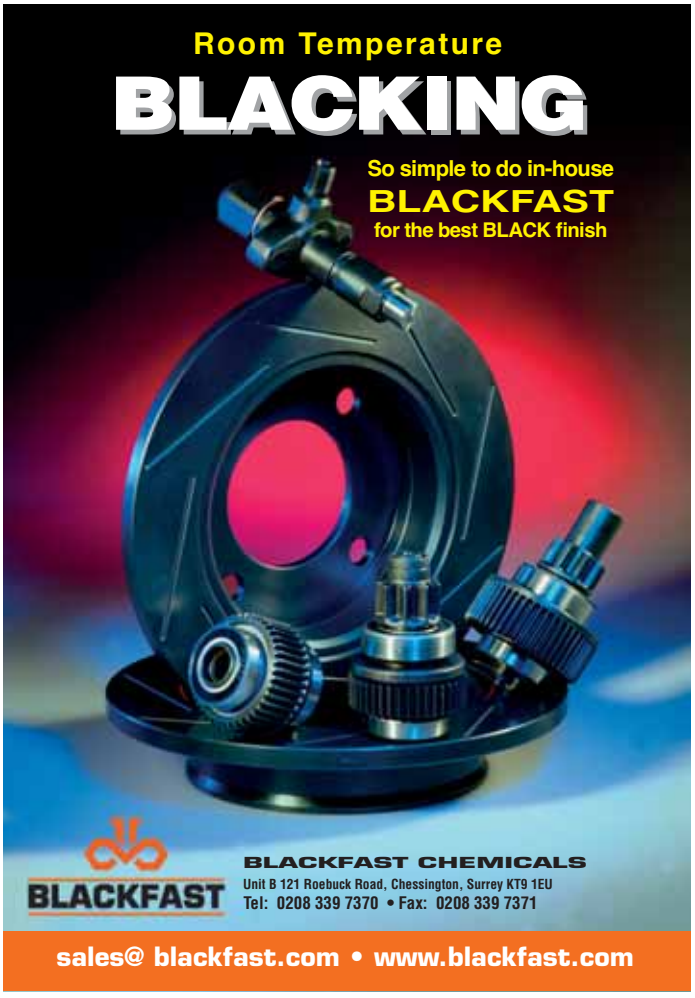




the actual water demand one or two of these centrifuges can be turned on or off, in line with the "master & slave" principle.

The process water cleaning & recycling system is controlled by the "Advanced" version of the Rösler Smart Solutions (RSS) software. This digital tool checks the condition of the process water and recommends corrective action, whenever predefined values of certain water parameters are out of the acceptable range. The comprehensive monitoring of the process water conditions resulted in additional savings in consumables consumption, especially the compound usage. Compared to the exclusive use of fresh water the process water recycling system helped reduce the overall compound consumption by around 90 percent.

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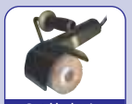
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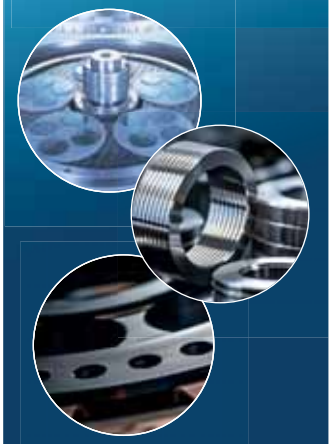
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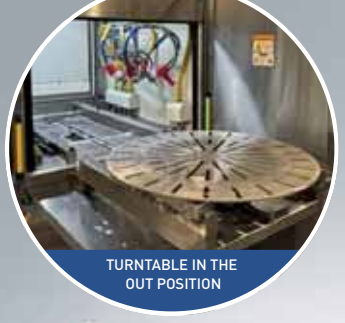


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