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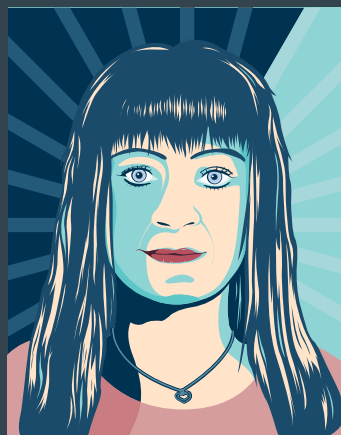
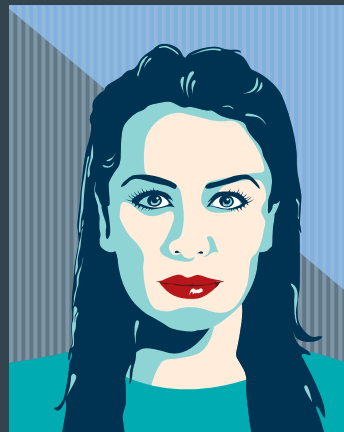
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- Component Cleaning



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DF Precision Machinery - The home of high precision



After spending the previous decade at the heart of the Jones & Shipman/Hardinge management team, Mike Duignan and Alan Fisher established DF Precision Machinery Ltd in 2020. Six years in, they continue to use their wealth of experience, related to precision grinding machine applications and sales, whilst providing the highest standards of customer care.

Key industries served by DF Precision include aerospace, automotive, autosport, mould, tools & die, bearings and medical sectors.

The range of products and technologies sold and supported has increased with automation systems from Wenger, lapping & flat honing from Stahl and centre grinding from Zamag. These complement the extensive grinding product portfolio from globally renowned precision grinding brands, including, Kellenberger, Voumard, Hauser, Tschudin, USACH and Jones & Shipman. As exclusive UK and Ireland representatives for Kellenberger grinding products, DF Precision Machinery boasts an impressive portfolio of solutions.

Complementing Kellenberger grinding products, the company is also the exclusive UK distributor of Okamoto Grinding Products. In addition to Okamoto's extensive range of surface and profile grinders, the renowned manufacturer also offers internal, cylindrical, vertical and rotary grinding products.

In addition to selling this wide range of precision machining solutions and providing related support services to UK customers, DF Precision Machinery is the official global supplier of Jones & Shipman spare parts and support services. The company holds the extensive J&S OEM records, drawings and software and offers unrivalled expertise related to Jones & Shipman products.

Explaining DF Precision Machinery's ethos, Mike Duignan says: "To ensure the delivery of highly efficient precise machines and solutions that provide an attractive ROI for our customers, we use only quality partners. The companies we represent are global leaders in their fields and have built strong reputations through their dedication and commitment to offering first-class products and support."

"Our Customer First philosophy ensures that all of our customers receive high-quality specialist support from initial sales discussions, through to the provision of long-term support services that optimise returns on our customer's investments."

DF also give a little back supporting charities and local sports clubs each year and have now planted 7,600 trees overseas and 21,000 m² of UK National Trust woodland.

DF Precision Machinery Ltd

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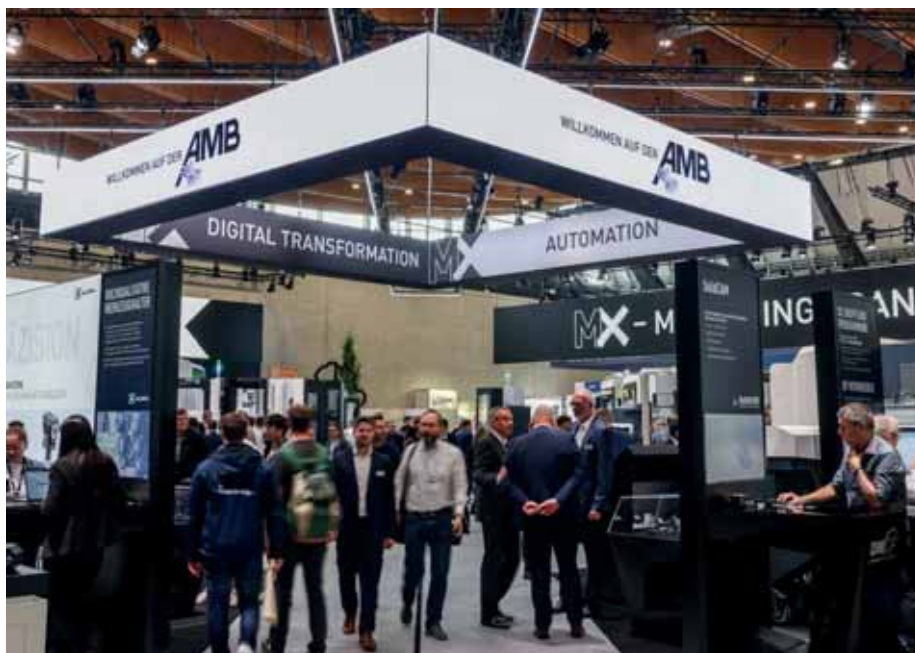
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Shaping the future of metalworking for over 40 years



AMB returns to Stuttgart, Germany this September

In the heart of Europe's most industrialised region, AMB has been shaping the future of metalworking for over 40 years. From 15th to 19th September 2026, you can experience the full power of machining across ten exhibition halls.

AMB has established itself as a leading trade fair in even-numbered years. It holds a top position among industry fairs and is among the top five worldwide.

On a total exhibition area of over 120,000 gross square metres, global market and technology leaders gather to present technologies for tomorrow's production. Visitors benefit from the clear and thematic hall layout. The AMB is supported by an attractive accompanying programme and exciting special exhibitions. Whether by plane, car, urban rail or train, the Stuttgart trade fair grounds are easily accessible.

At AMB, you will experience the world of metalworking as comprehensively as hardly anywhere else whether you shape, decide, or work hands-on with machines every day. Discover the entire value chain of machining across ten halls, each clearly structured by theme. Meet renowned manufacturers as well as innovative niche players, many of them exclusively at AMB. Experience the latest machines and technologies up close, gain practical insights and find solutions for your specific projects. Together, we initiate collaborations here that tackle the challenge of tomorrow.

The new look of AMB

A new look, a new claim: "Where metal comes alive." Metal is more than just material, it's movement, creativity and collaboration. AMB 2026 celebrates the people, machines and ideas that bring metalworking to life. Discover how the new design and message embody the passion, precision and innovation that drive the industry forward.

Metal is not merely a material. It is shaped, formed and perfected until something entirely new emerges, through powerful machines and, above all, through the people who bring it to life with precision and passion. That is exactly what AMB 2026 stands for: metalworking as a living experience.

When people, machines and ideas unite

In the world of metalworking, the industry's heart beats strong. But what truly drives it are the people behind it, those who set new standards with their skill, creativity and vision. Together with cutting-edge technology and a shared passion for progress, they create innovation that can be felt and nowhere is that spirit more alive than at AMB.

The industry's driving force

With its new claim, AMB 2026 positions itself as the central meeting point for the international metalworking community; a place where ideas take shape, innovations are unveiled and collaboration happens on equal ground. Here, experts from around the world come together with fresh impulses, pioneering products and strong partnerships to shape the future of the

industry. AMB is not just an exhibition, it's an experience that brings the world of metalworking to life.

A community that connects



Especially in challenging times, the strength of the community becomes visible. AMB 2026 stands for this spirit of unity, for open dialogue, shared solutions and a network that supports one another.

The new claim "Where metal comes alive" and the new key visual capture this mindset perfectly: People are at the heart of it all, in harmony with machines, ideas and technologies. The new design reflects this vision: fresh, modern and full of energy. It radiates dynamism and optimism while staying true to the industry's roots.

Reasons to visit AMB Stuttgart

- At the AMB Stuttgart 2026 Trade Fair, the businesses can effectively present their brand, offerings and innovations and gather key industry insights.
- More than 1,000 exhibitors from over 30 countries are expected to attend the exhibition and display their latest machines, tools, production systems and services.
- With around 125,000 m² of exhibition space, AMB Exhibition 2026 will open to exhibit and display the products and services.
- As one of the industry's significant gathering platforms, the exhibition will offer access to qualified metalworking professionals across verticals.
- More than 50,000 exhibition visitors, including representatives from the automotive, aerospace, energy and mechanical engineering industries, are expected to attend.

The venue of the AMB Stuttgart 2026 will allow the gathering of competitive intelligence on similar and alternative offerings, strategies, pricing and capabilities.

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Kellenberger to present the future of precision machining at AMB

At AMB 2026 in Stuttgart, the Kellenberger Group will present innovative technologies for modern precision machining. The highlights of the exhibition include the KELLENBERGER SP42 high-precision hard turning machine, the KELLENBERGER K100 universal cylindrical grinding machine and a digital presentation of the KELLENBERGER TM300 as a highly realistic Digital Twin based on the latest Siemens technology.

With these solutions, Kellenberger demonstrates its commitment to being far more than a machine tool manufacturer. The company develops integrated manufacturing solutions that meet the highest standards of precision, efficiency and future readiness. The technologies on display are designed to support manufacturers in industries including aerospace, automotive and E-mobility, medical technology, energy, tool and die making and general precision engineering.

"Our customers' requirements are constantly evolving," Jörg Schmauder, CSO at Kellenberger, explains. "In addition to outstanding machining quality, productivity, flexibility and digital process reliability have become increasingly important. At AMB 2026, we will demonstrate how Kellenberger combines innovative machine concepts with advanced digital technologies to successfully address these challenges and help shape the future of precision manufacturing."

Digital innovation in focus: Experience the TM300 as a Digital Twin

A key highlight of Kellenberger's presence at AMB 2026 is the digital presentation of the KELLENBERGER TM300, a state-of-the-art 5-axis turn-mill centre designed for demanding applications in precision engineering, aerospace, medical technology and general mechanical engineering.

The machine combines outstanding turning and milling performance within a single platform. Both the main and counter spindle deliver speeds of up to 3,500 rpm and 600 Nm of

torque, while the milling spindle offers 12,000 rpm and 100 Nm of torque. A direct-drive B-axis with an extended 240° swivel range, together with an orthogonal Y-axis featuring 300 mm of travel, provides exceptional flexibility and a generously sized machining envelope.

Following the successful launch of the TM300 as Kellenberger's new turn-mill platform at EMO 2025, the company will present, for the first time at AMB 2026, a fully integrated Digital Twin of the machine. Developed in collaboration with Siemens, the virtual machine model offers visitors an impressive glimpse into the future of digital manufacturing.

The Digital Twin accurately replicates the physical machine, including its kinematics, machining processes and CNC control functions. Manufacturing operations can be simulated, optimised and validated before the first workpiece is produced. This significantly reduces development time, minimises process risks and enables faster machine commissioning.

With the TM300, Kellenberger continues its strategy of integrating complex turning, milling, and complete machining operations into a single, highly productive platform. The Digital Twin presented at AMB highlights the growing importance of digitalisation, virtual commissioning and connected manufacturing in the future of the machine tool industry.

Visitors will not only discover a powerful turn-mill solution but also experience how digital technologies are becoming an integral part of next-generation manufacturing concepts, paving the way for greater productivity, shorter time-to-market and enhanced process reliability.

KELLENBERGER SP42: Maximum performance in hard turning

With the KELLENBERGER SP42, Kellenberger presents a high-performance, high-precision hard turning machine designed for the economical machining of complex precision components.

The SP series has been engineered to deliver maximum rigidity, process stability and machining accuracy. Its robust machine concept enables the efficient machining of hardened workpieces with exceptionally tight tolerances and outstanding surface finishes.

Manufacturers in industries such as

automotive, aerospace, bearing production and general mechanical engineering benefit from the technological advantages of this advanced platform.

By combining hard turning and grinding in a single setup, the SP series simplifies process chains, reduces setup times and significantly enhances process reliability. A vibration optimised solid cast iron machine bed, state-of-the-art drive technology and highly



The KELLENBERGER SP42 is one of the high-performance, high-precision hard-turning lathes in the SP series.

precise machine kinematics ensure consistently reproducible machining results in the micron range. The main spindle of the SP42 reaches speeds of up to 6,000 rpm, while the larger SP51 and SP65 models operate at 5,000 rpm, providing the performance required for demanding high-precision turning applications.

With the SP42, SP51 and SP65, Kellenberger offers a scalable platform capable of meeting a wide variety of precision manufacturing requirements. The SP42 on display at AMB 2026 exemplifies Kellenberger's commitment to combining maximum machining quality with outstanding economic efficiency.

KELLENBERGER K100: The next generation of universal grinding technology

As a specialist in high-precision grinding solutions, Kellenberger will showcase the KELLENBERGER K100 universal cylindrical grinding machine at AMB 2026. The K100 combines flexibility, productivity and precision within a modern machine concept, making it the ideal solution for manufacturers processing a broad range of workpieces.



The machine is available with centre heights of 200 or 250 mm and distance between centres of 600, 1,000, or 1,700 mm, enabling the machining of a wide variety of components. Generous axis travels of 365 mm in X and 760, 1,150, or 1,800 mm in Z further expand its application range. Thanks to its modular design, the K100 can be individually configured for virtually any production requirement, from single-part manufacturing and small batches to high-precision series production.

Featuring ten grinding head configurations, a CNC-controlled direct-drive B-axis and powerful solutions for both internal and external grinding, the K100 covers an exceptionally broad spectrum of applications. Users benefit from short setup times, outstanding process flexibility and consistently high machining quality.

A particular highlight is the latest generation of Kellenberger's BLUE Solution operating and programming software. Its intelligent gSHAPE programming tool enables graphical, workpiece-oriented creation of grinding programs, significantly reducing programming effort while accelerating the introduction of new components into production.

The K100 perfectly represents Kellenberger's core expertise in grinding technology while demonstrating the company's continuous drive toward higher productivity, greater flexibility and improved ease-of-use.

The KELLENBERGER K100 1,700 mm.



Shaping the future of precision manufacturing

Kellenberger's presence at AMB 2026 reflects the company's strategic vision: delivering far more than highly precise machine tools by providing integrated manufacturing solutions that intelligently combine precision machining, digitalisation and process optimisation.

With the grinding expertise of the K100, the high-precision hard turning capabilities of the SP42 and the digital innovation represented by the TM300 Digital Twin, Kellenberger demonstrates how advanced manufacturing technologies enable companies to increase productivity, improve process reliability and strengthen their long-term competitiveness.

Visit Kellenberger at AMB 2026 in Stuttgart and experience the future of precision machining.

Kellenberger grinding machines are exclusively available from DF Precision Machinery in Lutterworth, the sole agent for all Kellenberger branded grinding products in the UK & Ireland.

UK Agent:

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Email: sales@dfpmach.com

<https://dfpmach.com>

Hall 4 - Booth B81

The KELLENBERGER K100 is available in grinding lengths of 600, 1,000 and 1,700 mm.





Manufacturing solutions for turning, grinding and gear cutting

At AMB, EMAG will present manufacturing solutions for a wide range of workpieces. The focus will be on high-performance turning, grinding and profile grinding machines, as well as flexible automation solutions that combine productivity, precision and cost-effectiveness in batch production.

G 375 H



Planetary roller screw drives convert rotational motion into high-precision linear motion. They are used in robotics and aviation, among other applications. The nut is the central component of these drives and requires pitch and profile accuracies in the single-digit micrometre range.

With the G 375 H profile grinding machine, the deep internal thread of these nuts can be finished in a single setup. The grinding process, using profiled CBN or corundum wheels, precisely replicates the thread contour turn by turn. Linear motors and directly driven main axes prevent pitch errors between the thread turns. Additionally, an integrated measuring probe checks the quality directly in the machine.

MSC 5 DUO



Short non-productive times and reliable automation are crucial for the cost-effective production of chucked components in medium to large batch production. The MSC 5 DUO offers both: Two independently operating spindles in a split-bed design prevent vibrations during simultaneous machining and enable complete-machining (OP 10/OP 20) in a single machine.

The integrated 3-axis gantry loading system with a 90° workpiece changer achieves a chip-to-chip time of less than six seconds. Additionally, a stacker system for raw and finished parts enables unmanned operation without requiring additional floor space. Each side features a servo-controlled 8-station turret with a BMT interface.

UG 1000



The UG 1000 combines internal, external, out-of-round and face-grinding in a single compact machine. This eliminates the need for time-consuming setup changes between different machines, while reducing lead times and increasing achievable accuracy.

The swiveling B-axis of the grinding head also enables bevel grinding and combined internal/external operations in a single setup. The direct-drive motor spindles work with both corundum and CBN grinding wheels. This allows the machine to achieve a roundness of 0.5 µm on the test workpiece.

VL 3 DUO

Flex splines and circular splines are the central components of harmonic reducer gearboxes, which are used, for example, in joint actuators of humanoid robots. The thin-walled workpieces require tight tolerances for concentricity, coaxiality and form accuracy. Special attention is also paid to the quality of the turning process, as it has a significant influence on the results of the subsequent gear cutting and grinding processes.

The VL 3 DUO handles the complete-machining process for both sides on a single machine. Two mirrored work areas, each with a pick-up spindle and a 12-station turret, operate in parallel. The TrackMotion automation system flips the workpieces between operations and supplies the machine from a magazine holding up to 400 components.

VT 100 with CRC robot cell

The VT 100 vertical turning machine processes shafts with a diameter of up to 100 mm and a length of up to 400 mm simultaneously using two opposing turrets. Eleven tool stations per turret and 4-axis simultaneous machining significantly reduce cycle time compared to conventional single-turret solutions. The vertical design allows for free chip fall and reduces chip clusters in the work area.

Loading and unloading on the VT 100 takes place directly via the turrets and takes approximately six seconds. For larger batches or more complex automation requirements, the machine can be expanded with an external workpiece supply system using the CRC robot cell. In this case, feeding can be performed via basket stacks, drawer systems, infeed and outfeed conveyors, or bin picking with 3D sensory equipment.

Manufacturing solutions for gear components of humanoid robots



Humanoid robots require compact, heavy-duty joint actuators whose performance depends directly on the manufacturing quality of the gear components. At AMB, EMAG will demonstrate how demanding workpieces for modern robotic drives can be manufactured economically and with high repeatability.

The focus is on circular splines with high-precision internal gear teeth, thin-walled flex splines, wave generators with elliptical functional contours, planetary gears for high-torque gearboxes and planetary roller screw spindles for linear actuators.

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Reproducible component cleanliness for stable production processes

Individually designed cleaning solutions that ensure technical cleanliness, reduce process risks and are precisely matched to the component, contamination and production environment.

At AMB in Stuttgart, BvL Oberflächentechnik will show how industrial parts cleaning becomes a reliable component of modern production processes. The focus is on individually designed cleaning systems for the metalworking industry, from compact stand-alone systems to complex, automated cleaning solutions for linked production environments. The benefit for users is clear: reproducible technical cleanliness, stable processes, reliable component quality and a solution that is precisely matched to the respective production task.

Precisely matched to the component, contamination and process

Whether machining, forming, heat treatment, assembly preparation or demanding downstream processes: in metalworking, clean components are increasingly decisive for functional reliability, process stability and cost-effectiveness. BvL develops and produces aqueous-based industrial cleaning systems that are individually matched to the component, contamination, material, cycle time, residual contamination requirements and production environment. The range extends from continuous, turntable, basket washing and rotary indexing systems to immersion cleaning systems, high-pressure processes and special solutions.

From automotive engineering to high purity

Especially in industries such as automotive engineering, commercial vehicle and vehicle technology, mechanical engineering, foundries, railway industry, defence and precision and ultra-fine cleaning applications, requirements for technical cleanliness are increasing continuously. BvL meets these requirements with a modular system concept, coordinated processes and intelligent system technology. Depending on the task, spray, flood, immersion, ultrasonic, high-pressure or combined processes are used. The systems are complemented by filtration, media treatment, drying, corrosion protection, process monitoring and automation solutions.



Compact BvL NiagaraUP system for the highest cleanliness requirements.

Efficiently integrated

For integration into existing production processes, BvL offers tailor-made transport and automation concepts. Whether manual loading, robot handling, conveyor technology, workpiece carrier systems or interfaces to customer-side automated guided vehicles, cleaning is efficiently integrated into the material flow. This ensures short paths, reduced non-productive times and high process reliability. In its in-house Technology Centre, BvL determines the optimal cleaning process using the customer's own components, creating a reliable basis for decision-making for the subsequent system concept.

New process for precision parts with demanding geometries

A special highlight is BvL's new Vacuum Impulse Technology, or VIT. The innovative pressure change process was developed for precision parts and applications with the highest cleanliness requirements all the way through to high purity. Alternating pressure conditions create intensive flow through hard-to-reach areas, complex geometries, undercuts, bores and cupped contours. Users benefit from effective deep cleaning, high reproducibility and an economical solution for components where conventional processes reach their limits.

Cost-effective retrofit: targeted further development of existing systems

Existing cleaning technology can also be adapted to new components, drive concepts and

production processes. BvL modernises existing systems, develops them further from a technical and process perspective and can expand them into automated cleaning lines. This is a particularly cost-effective approach: existing technology remains usable, investments are protected and retrofitting is often more economical than purchasing a new system. In this way, the system is specifically aligned with future production requirements.

Company information

BvL Oberflächentechnik GmbH is one of the largest suppliers of aqueous-based industrial cleaning systems in Germany. As a system partner, BvL offers individual customer solutions, from small compact washing systems and filtration and automation solutions through to complex, customised large-scale projects with process monitoring; always complemented by reliable service. As part of a long-established family-owned company with roots dating back to 1860, the owner families, now in the fifth generation, stand for technical excellence, innovative strength and absolute reliability. Around 170 employees currently work for the company. In export markets, BvL has a strong market position and a comprehensive sales and service network in 20 countries.

BvL Oberflächentechnik GmbH

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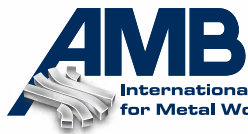
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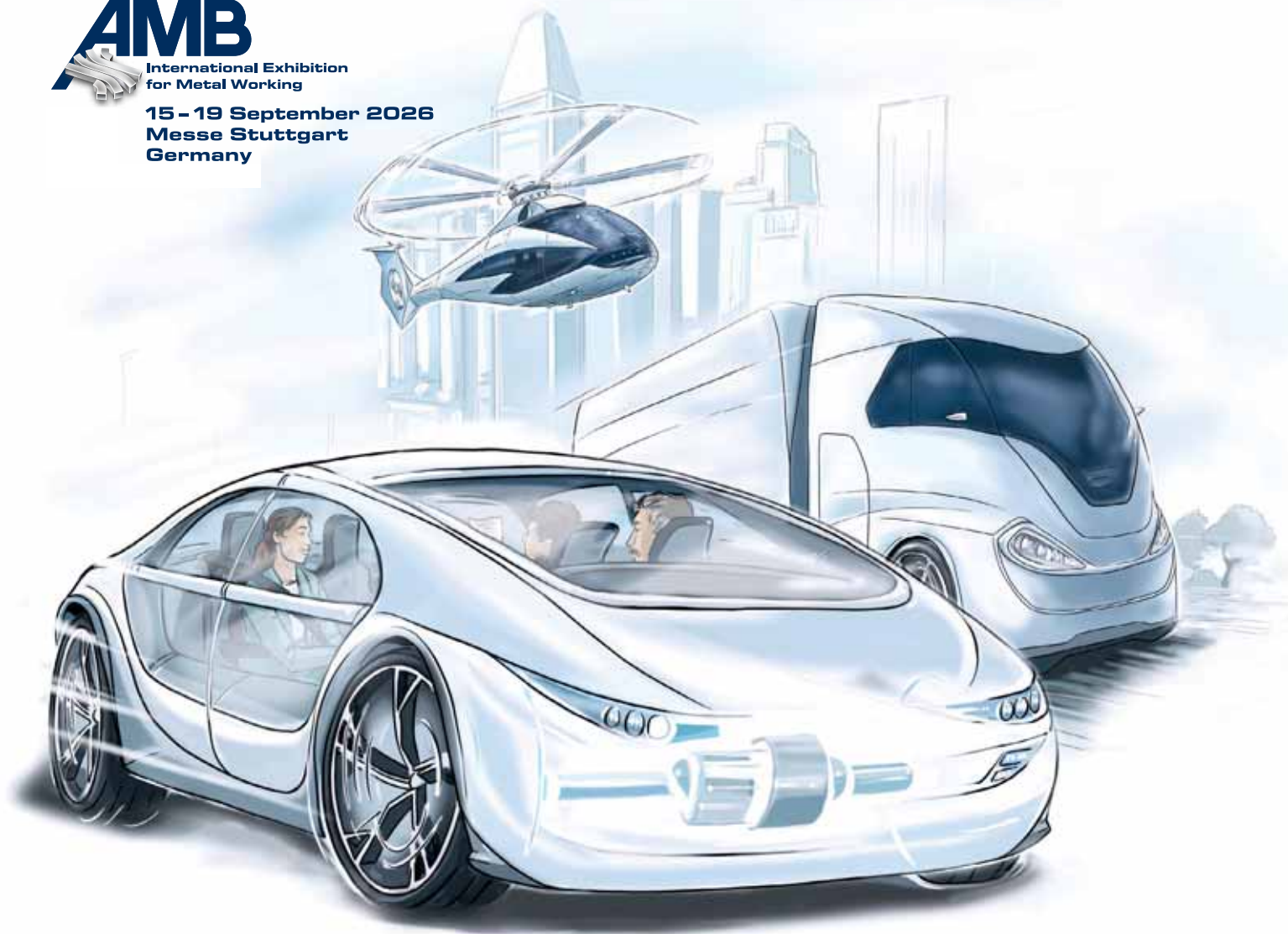
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KLINGELNBERG Sets the Tone at the AMB Trade Show in Stuttgart, Germany

At AMB 2026 in Stuttgart, the KLINGELNBERG Group will demonstrate how modern gear manufacturing can be made efficient, transparent, and future-proof. The combination of high-precision machines – such as the Höfler VIPER 500 cylindrical gear grinding machine and the P 40 precision measuring center with automation – enables consistent, stable processes.

These solutions are complemented by digital concepts such as Data-Driven Quality Management, Smart Tracing, and Smart Factory, which make production data intelligently usable and actively control quality.

Experience tomorrow's solutions live at **AMB 2026 – Hall 5, Booth B22.**



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trade show highlights.



High-precision measurement for maximum process reliability with the KNM 6X

The analytical measuring machine KNM 6X from KAPP NILES combines maximum measurement accuracy with a compact, thermally stable machine design, enabling fast measuring procedures with high process reliability.

It is designed for high-precision measurement of gears, gear tools and other rotationally symmetric workpieces such as rotors, bevel gears, shafts and similar components.

KNM 6X integrates modern drive technology, intelligent clamping systems and high-performance software packages to create a complete system for reproducible measurement results and short measuring times. The patented quick change clamping system reduces non-productive times. The motorised adjustable tailstock enables optimum workpiece accommodation and expands the machine's working area. The KNM 6X can be used both in the lab and directly on the shop floor. Thanks to the integrated air spring system for vibration isolation, no separate foundation is required.

Its application range covers gears with diameters of up to 750 mm as well as a wide variety of rotationally symmetric workpieces for applications in mobility, automation and energy segments.

Ergonomic and setup efficient machine design



The KNM 6X is designed for intuitive and efficient operation, combining high-precision metrology with intelligent software and clamping technology. The motorised adjustable tailstock for loading and unloading enables flexible workpiece clamping, extends the working area and simplifies the handling of different workpiece geometries. Combined with

the patented quick change clamping system, it reduces non-productive time while enabling fast, secure and highly repeatable workpiece positioning.

The machine design features high intrinsic accuracy and excellent thermal stability. All guides and base plates made of granite are extremely stable in the long-term and have identically low expansion coefficients. Consequently, the machine is insensitive to temperature fluctuations. Air bearings with emergency operation properties ensure precise and wear-free guides without short-term errors.

KAPP NILES presents new profile grinding machine KNG 5P expert



The new KNG 5P expert profile grinding machine from KAPP NILES combines high flexibility and outstanding setup efficiency with an exceptionally compact design. It is designed for the precise machining of external and internal gears. As a next level development of the successful ZE series, it combines the established advantages with numerous additional features. This enables efficient production processes while ensuring excellent gear quality and a wide variety of applications.

The machine's versatile application range includes drive wheels for rail vehicles, components for wind power and automotive transmissions, as well as gear worms for industrial gearboxes.

The KNG 5P expert has been consistently designed for easy handling and short setup times. The machine door provides optimum access to the workpiece, enabling fast and convenient loading. Another special feature is the swivelling, direct-driven dressing spindle. This allows dressing tools to be changed ergonomically from outside the machine.

For increased flexibility when machining between centres, the KNG 5P expert features an optimised tailstock with an 850 mm stroke as

well as a retractable tailstock with continuously adjustable centre pressure of up to 2,000 N. This significantly extends the machine's range of applications.

Tools designed for a wide range of machining processes



As a manufacturer of gear and profile grinding machines KAPP NILES offers sophisticated technologies with different tool concepts, customised for particular tasks. Its grinding and dressing tools can be used on machines of renowned manufacturers.

KAPP NILES manufactures non-dressable, electroplated CBN tools for hard and soft finishing of gears and profiles. The new CBN pro product line expands the portfolio of grinding tools. For decades, KAPP NILES tools have ranked among the world's leading products. They are used whenever the highest quality standards, performance and efficiency are required.

Tools for special requirements

CBN pro is a new generation of grinding tools that set themselves apart from conventional solutions, offering product-specific benefits such as enhanced surface finish, improved profile accuracy, higher performance, and extended tool life.

The new CBN pro tools from KAPP NILE are particularly well suited to aerospace applications. While standard CBN tools previously achieved surface qualities of $Ra < 0.4 \mu m$, these new grinding wheels enable surface qualities of $Ra < 0.2 \mu m$ on the workpiece.

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Klingelnberg sets the tone at AMB

The Klingelnberg Group will be exhibiting again at AMB with the company presenting its latest solutions and innovations at the show. Among the trade show highlights are the Höfler cylindrical gear grinding machine VIPER 500 and the Klingelnberg precision measuring centre P 40 with automation. Another focus is on digital solutions such as Smart Factory and Smart Tracing.

Höfler VIPER 500

With the Höfler cylindrical gear grinding machine VIPER 500, Klingelnberg offers a solution that stands out for its flexibility and efficiency. The machine is designed for component diameters up to 500 mm and is ideally suited for small to medium batch sizes. Thanks to its modular design, the VIPER 500 is available in three different configurations: profile grinding with small grinding wheels for special tasks and multi-wheel technology (K), generating grinding (W) and a combined variant (KW). Particularly noteworthy is the ability to



perform both profile grinding and continuous generating grinding on the same machine in the VIPER 500 W/KW configuration with minimal setup times.

Quick-change adapter solution for internal grinding arms

The smallest model in the internal grinding arm series, the "VGS8," has recently been equipped with an innovative quick-change adapter solution. The grinding wheel mounting is now integrated into an adapter that can be attached to the housing with minimal effort. The grinding wheel is no longer changed inside the machine, but conveniently on the workbench under optimal conditions. The newly equipped adapter is then mounted securely and precisely in the housing. With two adapters used in rotation,



changeover times can be reduced to a minimum. The VIPER 500 also impresses in terms of energy efficiency: energy consumption is optimised through energy recovery and demand-driven power units, sustainably reducing operating costs. The VIPER 500 has been a mainstay in gear manufacturing for years and stands for proven technology in demanding applications.

KLINGELNBERG P 40

As an indispensable component for stable and quality-assured manufacturing processes, the fully automatic, CNC-controlled P 40 precision measuring centre makes a significant contribution to process reliability. The compact device is designed for workpieces with a diameter of up to 400 mm and enables the precise inspection of spur gears, cutting and scraping wheels, worms and worm gears, gear hobs, bevel gears, as well as general dimensional, form and positional deviations on rotationally symmetric workpieces. In addition, the P 40 is also suitable for measuring camshafts and rotors.

At AMB 2026, the P 40 will be presented in combination with a robotic arm that enables automated loading and unloading of workpieces. This achieves a continuous, efficient and operator-independent measuring process, an important step toward fully automated manufacturing.

Thanks to integrated temperature compensation, the precision measuring centre delivers reliable results even at ambient temperatures ranging from +15 °C to +35 °C,

right on the production floor. Fast and precise data acquisition is supported by a high-precision workpiece rotary table. A wide range of measurement tasks, such as coordinate, form, gear and surface roughness measurements, can be performed in a single setup. The versatile, scanning 3D probe system with digital measurement data acquisition in all coordinate directions ensures maximum accuracy and tight tolerances. The simple, graphical programming environment and the intuitive software interface make operation easy. The rapid availability of measurement results leads to significant time savings in the production process.



The future of manufacturing

Data-Driven Quality Management (DDQM) is considered a key technology for the future of manufacturing. It focuses on the consistent use and integration of all relevant production data with the goal of systematically controlling, improving and continuously optimising the final quality of workpieces. A holistically understood DDQM enables the early identification of problems in manufacturing and preemptive corrective action. This drastically shortens response times within production, even before the workpieces leave the production hall. Quality is no longer merely inspected at the end but actively controlled throughout the entire production process.

DDQM comprises a suite of modern software tools, some of which are directly integrated into the machines. Relevant process and quality information is automatically transferred from the machine to a web-based solution and made available there via a browser application. Based on this data, manufacturing processes can be analysed in detail, tailored to specific goals and sustainably optimised. Data-Driven Quality Management thus combines production with digital intelligence for more efficient processes, higher productivity and permanently improved quality in manufacturing.

Smart Tracing



Smart Tracing is a web-based software solution that comprehensively analyses the behavior of all types of CNC machines, from machining centres to complex manufacturing systems and is equipped with the most common control systems. By uploading, managing and evaluating time-series data in conjunction with relevant process and performance data, control, regulation and contour deviations, as well as other performance indicators, are made visible. This enables the targeted identification and evaluation of cause-and-effect relationships for both individual machines and entire production lines.

With Smart Tracing, high-frequency recorded signals can not only be analysed but also archived, compared and checked for tolerance. This allows for the early identification of

malfunctions, vibrations, changes in stiffness and process deviations in the manufacturing process. The software thus supports predictive maintenance and contributes significantly to the optimisation of production processes and not just for KlingelInberg machines.

Smart Factory

The Smart Factory is revolutionising product development, manufacturing and delivery processes. Through the integration of IoT, AI-ready technologies and real-time data analysis, factories are becoming smarter, more efficient and more adaptable than ever before.

From predictive maintenance to minimise downtime to digital workflows for process optimisation, the Smart Factory enables higher productivity, lower costs and better quality. Smart Tracing is a key component on the path to connected, transparent and sustainable production.

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Hall 5 - Booth B22



KNG 5P expert

Gear profile grinding machine

Wide range of components

Outstanding set-up efficiency

Powerful grinding spindle



Come and visit us in Hall 5, Booth B11



Four responses to the challenges facing modern honing technology

Only a few years ago, honing machines were designed primarily for maximum output. Today, smaller batch sizes, frequent variant changes and shorter delivery times define day-to-day manufacturing. Cost-effectiveness therefore no longer depends on short machining times alone. It increasingly hinges on the ability to process a wide range of components quickly and precisely, with minimal setup effort. Flexibility is thus becoming the decisive driver of productivity.

Four technologies, one common goal

Whether the challenge is flexible high-mix, low-volume production, achieving specification from the very first component, maintaining precision over several metres, or producing surfaces in the nano- and submicron range, the demands placed on precision machining vary widely. Yet the response follows the same principle: greater flexibility, more intelligent processes and maximum productivity. At AMB 2026, the Nagel Group, represented by Nagel Technologies, Kadia, Gehring Technologies and FLP Microfinishing, will demonstrate how these requirements can be addressed across the entire process chain: from flexible honing and highly productive series manufacturing to deep-hole honing and AI-assisted ultra-precision surface finishing. The focus is not on stand-alone machines, but on future-ready manufacturing solutions for the precision machining of tomorrow.

Flexible honing for high-mix, low-volume production

Nagel Technologies developed the EasyHone VRX flexible honing centre specifically for these requirements. Its modular machine concept provides small and medium-sized manufacturers and contract machining companies in particular with a cost-effective entry into honing technology. As requirements grow, the system can be expanded with additional axes, workholding solutions or measuring modules. Developed and manufactured in Germany, the machine combines proven Nagel quality with a high degree of investment security. The EasyHone VRX is also engineered for flexibility at the mechanical level. An X-axis travel of up to 1,200 mm, a generously sized T-slot table and a versatile workholding concept enable a wide



EasyHone VRX – Maximum workholding and process flexibility: Its generously sized T-slot table and 1,200 mm X-axis support a wide range of workholding configurations and ensure easy loading, even by crane. The result: shorter setup times and high productivity across a broad variety of components. Photo: NAGEL Technologies GmbH

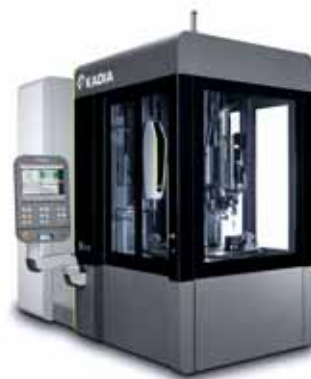
variety of components to be machined without time-consuming retooling. Multiple fixtures can be prepared in parallel, reducing downtime and creating productivity gains even before the honing process begins. Mechanical flexibility alone, however, is not enough.

The EasyHone VRX uses the digital HonAssistant to support operators with program creation and process control. An optional pneumatic air-gauging system monitors bore diameter directly during machining. This eliminates manual intermediate measurements, reduces measurement errors and enhances process reliability, particularly where tight tolerances are involved. At the same time, specialist know-how is digitised and made available independently of any individual operator, an important advantage as the shortage of skilled labour continues to intensify. The EasyHone VRX is designed for applications involving frequent component changes, ranging from bushings and compressor components to cylinder blocks.

Productivity starts with the first component

With smaller batch sizes, growing product diversity and shorter product life cycles, high output alone is no longer sufficient. What matters is the ability to produce within tolerance immediately after each component change, without lengthy run-in procedures or optimisation loops. Industries such as hydraulics, aerospace, defence, medical

technology and pharmaceuticals now demand maximum precision, short setup times and economical high-mix, low-volume production. Kadia developed the third generation of its U line to meet these demands. A rotary table enlarged by 30 percent, 60 percent more



KADIA U line – Compact Design, Maximum Performance: Featuring the powerful LH2x honing spindle, intelligent HMC100 control and optimised accessibility, the U line delivers maximum precision from the very first component, short setup and cycle times, and outstanding productivity. Photo: KADIA

working space and improved accessibility shorten tool and component changeovers while creating ideal conditions for flexible automation, from handling systems for small batches to fully unmanned manufacturing cells. Productivity and flexibility become one.

A key feature of the U line is its software-centric development approach. The new HMC100 control continuously monitors the machining process and combines multiple machining strategies within a single honing cycle. Together with the new LH2x honing spindle, which features three direct drives, it enables greater dynamics, increased material-removal capacity and a wider range of applications. Integrated form honing produces defined bore geometries with repeatable accuracy, while higher machine availability, simplified maintenance and intelligent process control significantly reduce dependence on the experience of individual operators.

When precision extends over several metres

As component length increases, the demands placed on honing technology rise substantially. Long hydraulic cylinders, shafts and tubular



Gehring Deephone 2000 - Precision for demanding large components: The horizontal honing machine processes bore diameters from 20 to 600 mm, combining high material-removal rates with excellent thermal process stability. Integrated in-process measurement technology enables continuous quality monitoring, outstanding process reliability and repeatable precision, even when machining complex large-scale components. Photo: Gehring Technologies

components require not only maximum dimensional accuracy, but also repeatable precision over several metres. At the same time, customers expect shorter project lead times, cost-effective machine concepts and rapid adaptation to different applications. Gehring Technologies has developed a new modular platform for deep-hole honing to meet these requirements. Instead of relying on individually engineered special-purpose machines, the concept is based on standardised modules that enable deep-hole honing systems for component lengths from two to ten metres to be configured quickly and economically.

The modular platform is complemented by various gearbox options, the new GCU 3.x control generation and a coordinated portfolio of tooling and abrasive technology from within the Group. Machine, tool and process are therefore developed as an integrated system, ensuring maximum precision, process reliability and cost-effectiveness over the component's entire length. Yet even precision over several metres does not mark the limit of technological development. In semiconductor manufacturing, optics and medical technology, the benchmark shifts once again: here, surface quality in the nano- and submicron range becomes decisive. FLP Microfinishing specialises in precisely this level of manufacturing performance.

When Artificial Intelligence (AI) enables nanometre-level accuracy

Ultra-precision surface finishing is undergoing a transformation similar to that seen in honing technology. While micrometre-level accuracy was once the benchmark, many applications now require tolerances in the nano- and sub-nanometre range. At the same time, shortages of skilled personnel and rising cost pressure are making highly precise

manufacturing processes more difficult to operate economically. The market therefore needs machines that combine maximum precision with intelligent process control and energy efficiency.

With its HE series, FLP Microfinishing offers a modular machine platform for double-sided fine grinding, lapping and polishing that is designed for these requirements. Its stable, compact design can be adapted to a wide variety of machining tasks through standardised assemblies or customer specific extensions, providing high flexibility and long-term investment security. The HE 540 was developed specifically for geometrically demanding and thin-walled components.



FLP HE 540 - Compact design for ultra-precise surface finishing: Engineered for fine grinding, lapping and polishing thin-walled and geometrically complex components, the HE 540 combines exceptional process stability with repeatable surface quality and cost-effective precision machining. Photo: FLP Microfinishing

The potential of intelligent process control is illustrated by an Industry 4.0 production cell already implemented within the Nagel Group. Several networked machines exceeded the originally specified performance indicators by more than 50 percent. For users, this translates into greater process stability, consistent material-removal rates, repeatable precision and a substantial increase in cost-effectiveness. The HE series therefore exemplifies the transformation of ultra-precision surface finishing, from a highly precise stand-alone machine into an intelligent production platform.

A technology leader in precision and innovation

For decades, NAGEL has been a leading force in honing and superfinishing, setting international standards for quality and technological advancement. Through continuous innovation, the company develops precise and efficient solutions that provide customers with a decisive competitive advantage. With more than 1,800 employees and international locations across four continents, NAGEL combines extensive

specialist expertise with pioneering technology. Alongside its established business activities, the Group is systematically expanding into new automotive and non-automotive markets.

Precision and innovation since 1959

KADIA is a leading specialist in honing and mechanical deburring technologies, developing customised solutions for the precise machining of component geometries and surfaces. Since its foundation in 1959, the company has continuously advanced its technological capabilities. Its first honing machine followed in 1969 and its first deburring machine in 1981. Today, with locations in Nürtingen and Homburg in Germany and Brighton in the United States, KADIA ranks among the leading specialists in its field and supplies the global automotive industry. KADIA has been part of the NAGEL Group since 1996.

Where precision meets innovation

The Gehring Group is a leading provider of solutions for E-mobility, laser processing and honing technology. Its high-precision manufacturing technologies, from laser cracking and honing for advanced combustion engines to production technologies for hairpin electric motors, set new industry standards. Gehring provides customised solutions for the automotive, aerospace and hydraulics industries, helping manufacturers optimise their production processes for maximum efficiency. As part of the NAGEL Group, Gehring has been shaping the future of manufacturing technology for 100 years.

FLP Microfinishing

For 30 years, FLP Microfinishing GmbH has stood for exceptional precision, innovation and customer-focused solutions in fine grinding, lapping and polishing technology. The company has established itself as an internationally recognised specialist in flatness and plane-parallel machining, developing customised systems, processes and technologies for producing ultra-precise surfaces in the nano- and sub-nanometre range. Through its three business areas: mechanical engineering, micromachining and the supply of consumables, tools and system solutions, FLP offers a complete package for solving complex machining challenges.

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Hall 5 - Booth C30

Ghiringhelli's flexible solutions for aerospace fasteners

By Claudio Tacchella



In the aerospace industry, Ghiringhelli's M100 centreless grinding machine stands out for its exceptional precision, quality, reliability and durability.

In today's dynamic global manufacturing environment, the aerospace industry has once again proved itself to be a highly strategic market for the machine tool industry, that is driven by steady demand for extremely high-precision components.

The recovery in worldwide air traffic has prompted major aircraft manufacturers to increase their production volumes, but the technological challenges remain significant due to ever-higher quality standards. Over the past two years, marked by economic instability and severe geopolitical tensions, Rettificatrici Ghiringhelli has observed an ongoing willingness among industry players to investment, despite a focus on volume that significantly diversifies from those of the past. It is a technologically complex sector where the "zero waste mindset" and the need for production flexibility are non-negotiable industrial criteria. In this scenario a leading global manufacturer of high-precision

components and fasteners for the aerospace industry identified the company headquartered in Luino as the ideal partner. Acting as a Tier 1 supplier to renowned aircraft manufacturers worldwide, this end-user needed equipment able to ensure the production of parts that could meet the highest standards in terms of precision, quality, reliability, and durability. The micrometric grinding of fasteners in the aerospace industry calls for tolerances to the micron to withstand the extreme kinematic and structural stresses which are typical of flying; these critical parameters led the customer to choose Ghiringhelli's highly customisable engineering solutions.

Extreme flexibility and reduced setup times

The specific technical request submitted to Ghiringhelli aimed at solving a crucial problem for modern aerospace manufacturing: the need to combine high grinding flexibility with reduced production line inefficiencies, thus decreasing



Its highly flexible design allows for rapid reconfiguration of the machine setup to grind fasteners, from one to four pieces simultaneously per grinding cycle.



The automation implemented in the supplied grinding system enables the production both of medium-to-large batches and small batches in semi-automatic cycle.

downtime during production changeovers. The customer expressed an urgent need for a highly versatile, cutting-edge solution designed for rapid changeovers, thus enabling a quick transition from a machine configuration suited for grinding a single part per cycle to another configuration with specific equipment to simultaneously grind up to four parts per cycle. The main goal was to minimise machine downtime as much as possible and drastically reduce overall setup times. In the aerospace fasteners sector, where the high variability of orders requires frequent reconfigurations of production batches, the quick setup directly affects the plant's overall returns. The solution was meant not only to ensure the maximum geometric performance required on the parts to be ground, but also to radically simplify the day-to-day management of the machine by the line technician, thus turning grinding flexibility into a competitive advantage.

High-precision engineering and digitalisation

The customised engineering solution took the form of the M100 CNC7A centreless grinding machine, equipped with a 450 mm diameter grinding wheel and a 135 mm width which is suitable for the flexible grinding of one or more parts per cycle. The machine, which complies



The CNC digital native Siemens Sinumerik-ONE with the "Safety Integrated Plus" module is managed through the HMI interface owned by Ghiringhelli.

with Industry 4.0 requirements, features the Siemens Sinumerik-One digital native CNC control with the "Safety Integrated Plus" module, managed through the HMI interface owned by Ghiringhelli that integrates all software functions. The system seamlessly manages ten axes and three spindles, divided as follows: two axes for the grinding wheel dressing, two axes for the control wheel dressing, two lower and upper slides with micrometric compensation of 0.0005 mm and one axis for the axial displacement of the grinding wheel spindle, which is essential for grinding the underhead of the workpiece. The configuration includes three loader axes and three spindles for the grinding wheel, the control wheel, and the electric spindle for the grinding wheel dressing, supported by an automatic wheel balancing unit. The machine has been designed to integrate with the customer's loading system, which is based on a bulk feeding system with a workpiece sorting and orientation device. Ghiringhelli has implemented a 3-axis CNC gantry-type loader that interfaces with the customer's system for the production of medium-to-large batches, as well as a part feeder for small batches in semi-automatic cycle, completed by a motorised conveyor belt unloading system positioned beneath the wheels. A key customisation feature is the development of an interface connecting the grinding machine to the customer's MES (Manufacturing Execution System), that enables real-time monitoring of the process and order progress. Thanks to this highly flexible and quickly reconfigurable solution, the customer has achieved a reduction during changeover times of approximately 15 percent compared to before.

This achievement shows the effectiveness of the strategic vision articulated by Mrs. Patrizia Ghiringhelli, the company's CEO, who states: "In the aerospace industry, there is often a significant challenge in breaking into established supply chains, which represent a major barrier to entry. For Ghiringhelli, it is therefore becoming increasingly strategic and rewarding to be able to provide innovative centreless grinding solutions, such as the one described above, to key players in this highly sought-after yet complex sector."

Rettificatrici Ghiringhelli will be showcasing at the BIMU exhibition in Milan in **Hall 22 - Booth D08.**

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From prototype to production

De-risking aerospace surface finishing with Fintek

On turbine blades, disks, blisks, gears, actuation components and precision housings, surface condition influences friction, fatigue, coating integrity, airflow, fuel consumption/emissions and service life. Increasingly complex geometries, difficult to work alloys and tighter tolerances make manual deburring and polishing less consistent and economic. The challenge is to achieve a defined result repeatedly without compromising edges, profiles or critical dimensions.

Fintek has spent more than four decades solving these problems for UK precision manufacturers. As the exclusive UK representative for OTEC Präzisionsfinish, it combines application knowledge with access to advanced disc, drag, stream and electro finishing systems. It also operates a subcontract service, enabling aerospace companies to use advanced processes without capital expenditure or additional specialist staff.

This dual role is important. A manufacturer can begin with sample processing, establish the correct machine, media, tooling and cycle parameters, then choose whether to continue subcontracting or transfer the validated process into production. This reduces technical and commercial risk while providing sound evidence for an investment decision.

Stream finishing

OTEC stream finishing is particularly suited to demanding aerospace parts. A workpiece is held securely and moved in a precision-controlled way through a process medium, creating high relative motion and directed finishing forces. Depending on the requirement, one cycle can deburr, smooth and produce defined edge radii. OTEC's patented pulse finishing adds rapidly alternating movement. This increases intensity

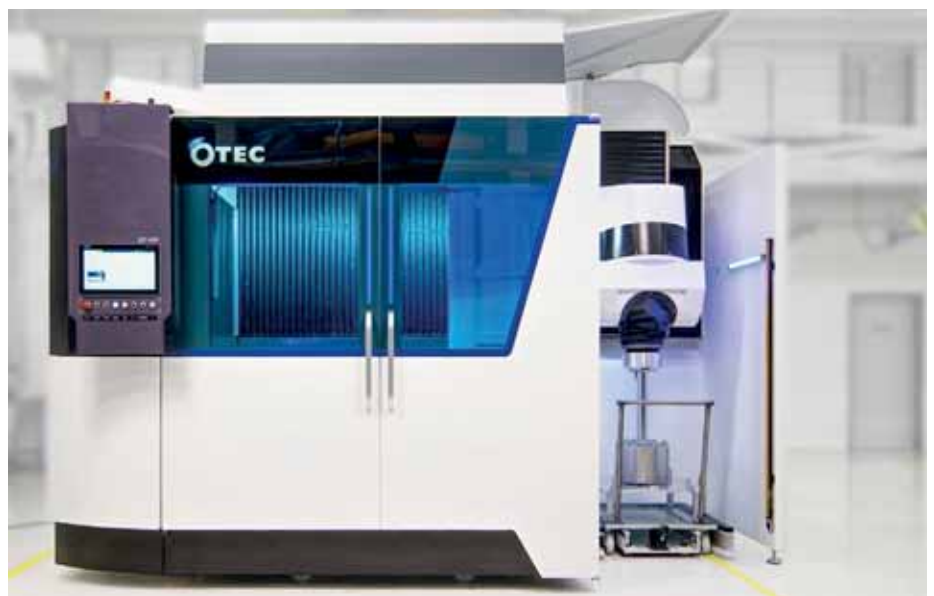
while retaining programmable control. The process parameters can be documented and stored for easy recall and repetition. This also makes scaling-up a process much quicker.

For compressor blades and vanes, the objective may include removing milling lines, smoothing an airfoil, controlling vital leading and trailing edges geometries and refining fillet or root areas while preserving aerodynamic geometry. Fintek reports homogeneous smoothing to Ra 0.05µm or below, with five titanium compressor blades measuring approximately 90 by 40 mm processed in 10 to 20 minutes, depending on initial condition. Removing machining marks during finishing can also reduce upstream milling time.

SF technology is equally relevant to larger parts. OTEC's SF-HP platform extends stream finishing to workpieces up to 800 mm in length and 900 mm diameter and weighing as much as

200 kg. This allows automated processing of component classes historically dependent on labour-intensive methods. For smaller components and volume production, other SF configurations, with automated loading/unloading and tailored fixtures, support integration into manufacturing cells.

Additive manufacturing brings different finishing challenges. Layer lines attached particles and varying access to external and internal surfaces create substantial post-processing challenges. Controlled stream and electro finishing processes provide repeatable ways to improve selected surfaces while limiting geometry change. In one example, a 200 mm, Inconel 718 vane was reduced from an initial Ra of around 7.4-9.11 µm to 0.27-0.29 µm in just 40 minutes using stream finishing.





Electro finishing

The OTEC EF Performance electro finishing machine complements mechanical processes where intricate geometry, low mechanical stress and minimal edge abrasion are priorities. OTEC systems can smooth and polish to a high-gloss complex workpieces without introducing micro-scratches or affecting material microstructure. Reaching roughness values as low as Ra 0.01 µm for suitable applications. Combining technologies lets engineers select the process according to material, geometry, starting condition and functional target rather than forcing every part through one method.

Automation also strengthens traceability. OTEC's latest machines can connect component-specific process data with production databases and record processing at serial-number level. Intelligent media management monitors rotational speed, water and compound dosing help to stabilise results

as media condition changes. For high-value, safety-critical components, this security can be as important as cycle-time reduction.



Greater capacity for UK aerospace manufacturers

Fintek's recent move to larger premises adds a practical UK dimension. The expanded facility provides greater capacity for aerospace subcontract work, including trials, prototypes, urgent batches and production programmes. It also gives the team more scope to demonstrate OTEC equipment, develop application-specific processes and support customers through machine purchase, installation, training and production ramp-up.

A case study illustrates the approach. Faced with a backlog caused by hand-deburring

difficult threaded aerospace connectors, a manufacturer asked Fintek to develop an alternative. Dedicated tooling and an OTEC stream finisher, equipped with pulse finishing, produced repeatable deburring in five minutes per component, while radiusing edges and smoothing the surface in the same cycle. The backlog was cleared in three days and Fintek subsequently processed around 300 parts per month.

For UK aerospace manufacturers, advanced surface finishing is becoming a controllable production process rather than an unpredictable craft operation. Fintek's AS9100 and ISO9001 certified subcontract capability offers immediate access to capacity and expertise. Its OTEC partnership provides a route to automated in-house production and a truly global knowledgebase. Together, the expanded premises, proven processes and broad machine range give engineers a practical way to improve surfaces, remove bottlenecks and protect component geometry and strengthen process control further.

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Advancing aerospace surface finishing through intelligent automation

As aerospace manufacturing continues to demand greater precision and production efficiency, automated surface finishing solutions are playing an increasingly important role. Whether carrying out controlled shot peening, preparing components for coating or cleaning precision engineered parts, manufacturers require blast systems capable of delivering exceptional consistency whilst meeting stringent industry standards.

Guyson has developed a range of bespoke Multiblast® systems that combine advanced process control with innovative automation technologies. The Multiblast RSB HL, RXSB and RB RXS each address different production requirements whilst sharing the common goal of delivering repeatable, high-quality surface finishing for complex aerospace components.

Precision for complex components

For components requiring the simultaneous treatment of internal and external surfaces, the Multiblast RSB HL offers a highly specialised automated solution. Two independently controlled horizontal blast lances operate in tandem with a rotating spindle to ensure complete and consistent coverage of intricate aerospace parts.

An intuitive HMI/PLC control system allows operators to create and store process recipes, ensuring identical blasting parameters are

applied to every component. Real time monitoring supports process validation and quality assurance, helping manufacturers meet the demanding standards expected.

To maintain consistent blasting performance during continuous production, the system incorporates an integrated media recovery process featuring auger-fed reclamation and a two-deck sieve separator. Damaged media is automatically removed while reusable abrasive is returned to the system, reducing waste and maintaining process consistency.



Increasing throughput without compromising quality

For manufacturers seeking higher production volumes, the Multiblast RXSB combines Guyson's proven Rotary Spindle Blast (RSB) and Rotary Indexing Blast (RXS) technologies into a single automated solution.

The cabinet's rotary indexing table allows for up to four components to be loaded and processed during each process cycle, significantly increasing productivity whilst maintaining consistent blast quality. Two independently adjustable pressure feed blast nozzles simultaneously process internal and external surfaces, while controlled spindle rotation and vertical gun drive movement ensures repeatable coverage across the component(s).

Operators can adjust the spindle speed, blasting duration, gun drives movement and air wash functions, with high accuracy, through the HMI/PLC interface, allowing individual process recipes to be optimised for a wide range of aerospace components. Supporting continuous operation is an efficient media management system incorporating cyclone reclamation, dust extraction and automated media top-up, minimising downtime and maintaining abrasive quality.



Robotic automation for maximum flexibility

Where the highest levels of automation are required, the Multiblast RB RXS integrates robotic blasting with rotary indexing technology, delivering exceptional precision and flexibility.

A KUKA industrial robotic arm controls four Guyson Model 900 blast guns, while a four-station rotary indexing platform allows components to move efficiently through loading, blasting and air wash stages. Rotating spindles accurately position each component throughout the cycle, enabling highly repeatable shot peening results even on complex aerospace geometries. The spindle system is also designed to ensure future system flexibility in accommodating different component geometries and process requirements, with the rotation speed of the spindles able to be adapted

or even disabled to facilitate linear blasting as suited for the respective process.

Comprehensive HMI/PLC controls allow manufacturers to configure multiple process recipes and adjust blasting parameters to suit different component designs, delivering the flexibility needed for modern aerospace production environments.

Supporting the future of aerospace manufacturing

Although each system has been developed to meet specific customer requirements, the RSB HL, RXSB and RB RXS demonstrate Guyson's expertise in designing bespoke automated blast finishing solutions for demanding industries.

From precision dual-lance processing and increased throughput, through to rotary indexing and advanced robotic automation, these technologies help aerospace manufacturers improve process consistency, maximise productivity and maintain the high standards of quality required by the industry.

As aerospace components become increasingly complex and production demands continue to grow, intelligent automated blast systems will continue to play a vital role in delivering reliable, repeatable and efficient surface finishing processes.



Contact Guyson today

To discover in greater detail how Guyson's automated blast finishing systems can advance your aerospace component processing, contact the Guyson team today. Or to see the specialist Multiblast systems in action, check out the Guyson YouTube channel:

<https://www.youtube.com/@guysoninternational9916>

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Advanced grinding for precision aerospace components

Within its precision engineering services, Bowmill Engineering customers often require components to be produced to highly exacting tolerances. It deploys advanced grinding technology which forms a critical part of the production process.

With grinding, customers can receive components to a dimensional accuracy in microns. Surface finish can also be enhanced, which can be vital to reduce friction or seal mating surfaces. Plus, where components are created from harder materials that are hard to machine, grinding can be an important stage in finished quality and accuracy.

Increasing capacity with advanced grinding technology

With demand from customers for highly precise finished components, Bowmill Engineering has invested in two new grinding machines. This increases its capacity to produce highly accurate parts and increase both speed and consistency in its engineering facility.

Studer favoritCNC for high-precision grinding

The first machine is a Studer favoritCNC. The



Swiss brand is already familiar to Bowmill as the S33 machines have previously been installed at its facility. The favorit, which will bring the total number of CNC universal grinding machines on site to four in total, is renowned for delivering highly precise grinding for cylindrical components. The favorit is also very flexible, with the ability to perform external, internal, shoulder/taper and face work.

Consistent accuracy through controlled grinding

Careful temperature control when grinding is essential when achieving consistent accuracy. The favoritCNC monitors component temperature to ensure tolerance levels are maintained through a grinding cycle. This provides a further benefit to customers requiring components made from hardened

materials including stainless steel or having coatings such as chrome.

Introducing centreless grinding capability

In addition to the Studer favoritCNC, a Jainnher centreless grinder has also been introduced within the engineering facility. This machine will undertake external grinding tasks on components which cannot be supported at their ends and allows items to be processed using feed or plunge operations. Centreless grinding is rare within aerospace precision engineering services providers and with this new machine from Jannher, Bowmill looks forward to supporting customers' new and existing work.

As customers' requirements continue to evolve, so too does the company's investment in people, processes and technology. By expanding its grinding capabilities, Bowmill Engineering is ensuring it remains ready to meet the exacting standards of the aerospace industry, both now and in the future.

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Dlyte Polishing machine from AGS for perfect finishes

Advanced Grinding Solutions (AGS) of Coventry has announced the sale of a Dlyte Polishing machine manufactured by GPA Innova to its UK customer, Implants International, who are based in Thornaby-on-Tees.

Implants International, headed up by its chief executive, Mohan Emmanuel, is an expanding multidisciplinary bio-engineering company dedicated to manufacturing excellence in the arthroplasty, trauma and spinal implant sectors.

The Dlyte machine is being used to manufacture Implants International's ROTOglide artificial toe joint, which requires perfect mirror-like finishes and was designed by Implants International and Professor Hakon Kofoed and launched in 1998 in Denmark.

The implant is used in patients who suffer from Hallux Rigidus, arthritis of the big toe and symptoms include stiffness, pain and significantly reduced extension in the great toe joint, leading to diminished function and lateralisation of foot pressure. The implant is the only 3-part artificial mobile meniscus toe joint in the world and is an uncemented,

non-hinged, surface-replacement arthroplasty, which mimics the normal torque and mobility of the 1st Metatarso-Phalangeal Joint. It is designed to restore optimal anatomical movement whilst preserving as much primary bone stock as possible. The articular surfaces of the metal implants require a super-polished surface and are made from cobalt chrome.

The global market for 1st MTP joint surgeries is potentially huge. In most or all developed countries in the West, the prevalence of hallux rigidus indications is around 2.5 percent of adults over 50 years of age. In the US alone, that suggests a potential of 400,000 patients presenting each year, most of whom would benefit from a safe and effective replacement toe joint. The condition hallux rigidus is gender biased, roughly 80 percent female and 20 percent male. 99 percent of patients with severe pain and mobility issues, diagnosed with hallux rigidus, settle for fusion of this important joint because conservative orthopaedic surgeons around the world over the last 50 years have tried other designs and discovered that they were all failing within 2 to 3 years. Implant



Tamas Felfodi - Manufacturing Chargehand at Implants International with their Dlyte Machine.

International's ROTOGlide part is a proven long-term solution with an unchanged design for over 25 years.

Dlyte's polishing machines are used across most industries and medical applications remain one of the largest for them. Unlike traditional polishing, Dlyte's technology preserves the important original shape of components whilst creating a highly polished homogeneous finish across the entire surface. It does so without leaving any micro-scratches on the surface, can process complex geometries and delivers brilliant mirror-like finishes in a single step.

This is all made possible by Dlyte's patented DryLyte technology, which is the world's first and only dry electropolishing process that uses a dry media rather than any liquid. The process has proven biocompatibility and has been tested and shown to be non-cytotoxic, making it ideal for the medical device sector, which requires clinically proven processes that guarantee compliance with the most demanding safety regulations.

The DryLyte process enables best-in-class surface finishes, whereby roughness can be reduced by over 80 percent compared with liquid electropolishing, which is unable to reduce surface roughness by more than 50 percent without generating unwanted side effects such as an orange peel-type surface or surface pitting. Liquid electropolishing also typically involves the use of chemical solutions, which can be hazardous to workers and can generate hazardous waste products. Dry electropolishing does not involve the use of any chemicals and does not produce any hazardous





waste products, which can make it a safer and more environmentally friendly option. Depending upon the part material and the surface finish generated from a previous process such as milling or grinding, Dlyte machines can generate a final polished finish of 0.05um Ra or lower.

In considering Implants International's application, AGS proposed Dlyte's extremely compact 10l HF machine that has a general working envelope of 140 mm in diameter x 75 mm high, which is more than sufficient to polish multiple ROTOglide toe implants at the same time. The machine itself is only 820 mm long x 675 mm wide and therefore takes up very little floor space. Various other machine models are available, including larger versions such as the Dlyte Pro500 that can polish, for example, 24 artificial knee implants at the same time.

Working closely with Implants International and GPA Innova's application engineering

department HQ in Barcelona, AGS arranged for tests to be conducted to prove out the process, with the majority of the work actually being done by Implants' own engineers on their machine, which they installed themselves. The machine has been in production since the start of this year and has proven to be very successful in meeting the very fine polished surface criteria that is demanded.

GPA Innova, led by its CEO and co-founder, Pau Sarsanedas, is a relatively new company with the DryLyte process being developed and patented in 2016. In 2020, GPA Innova was ranked 76th in Europe and 7th in Spain in the Financial Times FT 1000 rankings of the fastest-growing companies in Europe and in 2024, it is recognised as the leading mechanical engineering company in Spain for the fifth consecutive year and the 12th fastest-growing company in Europe in its field. Headquartered in

Barcelona, GPA Innova has facilities in the USA, Hong Kong, China, Mexico and Poland and is supported in the UK by Advanced Grinding Solutions and globally via a network of distributors and agents.

AGS will be displaying a wide range of medical components manufactured on the Dlyte polishing machines and other machinery on its stand no 49 at the forthcoming Medical Technology Ireland show on 23rd and 24th September in Galway.

For additional information see:

www.advancedgrindingsolutions.co.uk

UK Agent:

Advanced Grinding Solutions

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Email: info@advancedgrindingsolutions.co.uk

<https://advancedgrindingsolutions.co.uk/>



Before



After

The basis for success for precise STUDER grinding machines

For half a century, machine bases made of Granitan have formed the foundation for reliable STUDER precision in cylindrical grinding.

There is a focused working atmosphere as employees in overalls carefully prepare the mould. They install pipes, cables, plates, threaded dowels and rails. Then a powerful machine pours in the viscous mixture, which is mixed according to a closely guarded recipe, with various sizes of aggregate. This is a mineral casting mixture that will harden into a high-performance machine base in less than a day. For 50 years, this composite material, Granitan®, has been the foundation for the renowned accuracy and reliability of STUDER cylindrical grinding machines.

"It was a groundbreaking innovation in machine tool manufacturing when the RA5, the first series-produced cylindrical grinding machine with a Granitan machine base, was launched in 1976," says Lennard Vorwerk-Handing, development engineer at STUDER. The iron-based gray cast iron that was commonly used until then could only be formed at very high temperatures and required extensive reworking. Granitan, on the other hand, can be shaped at room temperature, similar to concrete. In fact, some manufacturers had previously experimented with cement-based machine bases. "Cement-bound concretes exhibit significantly greater shrinkage and tend to absorb moisture. This meant that the required absolute long-term stability could not be achieved," explains Lennard Vorwerk-Handing.

Finally, the development team of experts from STUDER and several partner organisations came up with the decisive idea: instead of cement, epoxy resin was used as a two-component binder that is stable in the long term and does not absorb water. The mineral casting material, christened Granitan, was suitable for precision parts and could also be moulded quickly and efficiently in-house. Without time-consuming post-processing, it can be used to manufacture near-net-shape machine components and integrate structures and lines directly into the mould in the cold casting process. Compared to gray cast iron, the more energy-efficient manufacturing process

also has a positive effect on the sustainability balance of the entire machine.

Granitan also revolutionised precision in the grinding process. One of its outstanding advantages is its damping behaviour, which is about fifteen times better than that of gray cast iron. Vibrations are quickly absorbed by the material. "This is because the contact surfaces between the rock grains and the binder matrix efficiently destroys the vibration energy," explains Lennard Vorwerk-Handing. This is particularly important in precision cylindrical grinding, where even the smallest vibrations can lead to surface marks. Thanks to Granitan, STUDER customers achieve higher product quality and can operate the precision cylindrical grinding machines without special foundations.

The outstanding thermal properties of Granitan are no less important. Compared to gray cast iron, it can absorb twice as much heat energy before the temperature changes by one degree Celsius. Heat is also transferred up to 13 times more slowly in the machine base. At the same time, it has a similar expansion behaviour to steel or iron, which means that no stresses occur at the coupling points to metal machine parts. The advantages for customers are enormous: Granitan is robust against the temperature fluctuations that are common in everyday production in factory halls and enables reproducible grinding precision even in rooms that are not precisely air-conditioned.

Modern STUDER cylindrical grinding machines are high-tech systems with extensive digital capabilities, sensitive sensor technology, and automation and networking features. However, Granitan is still the machine base that provides the precision and reliability for which the traditional Swiss company with over 113 years of history is known. The reason for this is continuous optimisation and further development: Today's Granitan is the result of intensive research and development activities in material composition and manufacturing technology. Since 2009, STUDER has been manufacturing its Granitan machine bases as part of a joint venture with Schneeberger in a



The casting mould is assembled with the utmost care.



The cold casting process allows, for example, the integration of pipes and lines.



Near-net-shape casting thanks to Granitan technology.

highly specialised production facility in Cheb, Czech Republic still using its own STUDER recipe and process control.

In addition, there are now Granitan recipes for specific applications: The base mixture S103 forms the solid, highly damping machine base, while fine-grained special mixtures are used for casting precision components. Granitan technology thus enables the high-precision manufacture of StuderGuide® guideways with micrometre accuracy in the company's own moulding shop.

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When engineering meets future technologies

Industrial manufacturing is undergoing profound changes worldwide. New technologies, geopolitical shifts and increasing demand for efficiency and precision require companies to be highly adaptable. Erwin Junker Maschinenfabrik GmbH, headquartered in Nordrach, Germany, addresses these challenges through technological specialisation, an international presence and a clear focus on customised customer solutions.

For more than six decades, the Junker Group has been developing high-precision grinding technologies for a wide range of industries, from automotive manufacturing to humanoid robotics and data centres. Its greatest strength lies in its flexibility. Rather than offering standardised products, the company develops customised solutions tailored to each customer's specific requirements. "We do not want to sell a customer a machine, we want to provide a solution that precisely meets their requirements," explains managing director Joachim Himmelsbach.

The foundation of this approach is a broad technological portfolio. Junker is internationally recognised especially for its CBN high-speed grinding technology. This technology enables highly precise machining of large production volumes within extremely short cycle times, while maintaining accuracy in the micrometre range. It is precisely this level of precision that makes the company's machines indispensable for many future-oriented industries.

Joachim Himmelsbach states: "We do not want to sell a customer a machine, we want to provide a solution that precisely meets their requirements."

For many years, the automotive industry was Junker's most important market. However, the company responded early to changes in the sector and successfully expanded into new business areas.

Today, humanoid robots represent one of the company's most dynamic growth markets. Junker machines are used in the production of highly precise drive components for robotic systems. The growing demand for backup power solutions in international data centres also creates new opportunities. Large engines used for these applications require crankshafts, camshafts and transmission components to be ground with the utmost accuracy, an area where Junker's grinding technologies excel. In addition, the company develops solutions for applications in the aerospace industry.

Wherever maximum precision, process



At JUNKER production facilities, highly precise grinding solutions are created for industrial applications where micrometer-level accuracy is crucial.

reliability and efficiency are required, demand for specialised grinding technologies continues to grow. Automation has played a central role at Junker for many years. The company's machines manufacture components at extremely short intervals and are therefore closely integrated with automated production processes. To support this, Junker operates its own business unit dedicated to automation solutions for both its machines and entire production lines. Artificial intelligence is also becoming increasingly important and Junker already uses initial AI applications in software and service operations, for example to accelerate fault analysis and optimise workflows.

With 1,100 people employees worldwide, the Junker Group generates annual revenue of between €170 million and €190 million. In addition to its headquarters in Nordrach, the company maintains an international network of subsidiaries and production facilities. One of its key strategic decisions was made in the 1990s, when company founder Erwin Junker integrated production sites in the Czech Republic into the group. To this day, many machines are manufactured and pre-assembled there. This international structure plays a major role in safeguarding the company's long-term competitiveness. At the same time, Junker remains firmly committed to the principle of "Engineering in Germany." Decades of experience, technical expertise and highly



skilled employees form the basis of the exceptional quality of its products.

Despite the challenging economic environment in Europe, the Junker Group remains optimistic about the future. The company continues to see strong investment activity, particularly outside Europe. Over the coming years, Junker intends to focus on sustainable growth and technological advancement.

Joachim Himmelsbach states: "We are not planning dramatic growth leaps, instead, we want to continue growing through small, stable steps." At the same time, the group aims to continue differentiating itself from international competitors through customised solutions and the highest levels of precision. Customer proximity and flexibility remain central to this strategy. Rather than relying on standardised machines, Junker continues to develop customised concepts for a wide variety of requirements and industries. This solution-oriented approach has been a key driver of the company's success for decades and will remain the foundation of its business strategy going forward. Joachim Himmelsbach summarises the group's vision in a single sentence: "Evolving technology. Connecting solutions. Inspiring precision."

Erwin Junker Maschinenfabrik GmbH
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Details make Perfection and perfection is not a detail

(Leonardo da Vinci)



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DELTA expands travelling column range with high-capacity Mini 20 surface grinding machine

DELTA S.r.l., a specialist in high-tech flat-surface grinding machines, has announced the introduction of the new Mini 20 model, significantly extending the capacity range of its popular Mini travelling-column line. Available through UK agent RK International Machine Tools Ltd, the fully automatic Mini 20 is designed for high-precision applications, offering a maximum grinding length of 2,100 mm and a max grinding width of 600 mm, or 650 mm with the 100 mm wheel option.

A heritage in grinding excellence

DELTA was established in Pavia, Italy, in 1955 by Oreste Marchesi and Pietro Ceri. Initially a precision metalworking shop, the company quickly pivoted to producing surface grinders. A fundamental step in DELTA's development occurred in the late 1960s, with the design and construction of flat-surface grinding machines that incorporated the high-accuracy Mackensen hydrodynamic spindle as a standard feature.

In the early 1980s, DELTA pioneered the use of the travelling column design in large-size surface grinders, the Maxi family, a structure previously seen mainly in milling and boring machines.

The company successfully scaled this technology to the smaller end of the market with the introduction of the Mini family in 2005. Today, DELTA manufactures its machines at its modern headquarters in Cura Carpignano, near Pavia, Italy and is recognised as a leader in the production of travelling column grinding machines.

Mini 20 technical specifications and features

The Mini 20 is a high-precision, fully automatic horizontal-spindle plane-surface grinding machine designed for both mass-production and single-piece precision applications. The core innovation lies in its rigidity and movement systems:

1. Meehanite travelling column structure:

The machine's foundational structures, including the base, table, column and wheel-head, are constructed entirely from high-quality, stress-relieved Meehanite cast iron. This structure, optimally designed using finite element analysis in collaboration with the Mechanical Engineering Department of the Polytechnic of Milan, provides maximum stiffness and high vibration absorption. The

travelling column design eliminates the "overhang" error and stability problems typically associated with moving-head grinding machines, ensuring flatness.

2. Hydrostatic axes:

The Mini 20 features hydrostatic ways on all axes, X, Y and Z, utilising a closed-loop pressurised oil delivery system. This provides significant operational advantages, including "zero wear", maintaining the machine's original geometric accuracy throughout its life and zero sliding friction, thereby enabling optimal exploitation of the installed power. The hydrostatic support eliminates "stick-slip," guaranteeing extremely smooth and highly accurate movements with superior repeatability. The large table, measuring 2,000 mm by 500 mm, always rests fully on the basement during longitudinal travel due to this full grip slideway system.

3. Mackensen hydrodynamic spindle:

The spindle is supported on the wheel side by an oversized Mackensen-type hydrodynamic bearing. The hydrodynamic principle ensures no metal-to-metal contact, resulting in extremely long life, quiet operation, zero wear and superior surface finish capability.

4. Control system:

The machine is offered with three levels of automation: Diastep, CN Plus Touch Screen and CNC. The standard Mini 20 Diastep model utilises the proprietary Diastep control unit, which is an intuitive, teachable grinding system developed entirely in-house by DELTA. This user-friendly control allows operators to manage surface, continuous or step-by-step, or plunge grinding cycles, rough and finish passes and automatic wheel dressing with



compensation. Full machine operation is guaranteed after only a half-day of training. The Mini 20 is suitable for handling substantial workpieces, supporting a maximum admissible load of 1,500 kg on the table and the machine has an approximate net weight of 7,000 kg.

UK representation

RK International Machine Tools Ltd, the UK agent for DELTA, has been appointed to handle the introduction of the Delta Mini 20 to the UK and Ireland.

Simon Rood, director at RK International Machine Tools states: "With a 15-year relationship between DELTA and RK International Machine Tools, we are seeing a growing number of customers become aware of the build quality and attention to detail. Where customers are demanding more accuracy from their grinding machine, the DELTA range performs to the highest levels."

Today, DELTA is still under the watch of the Ceri and Marchesi families, with two members from each family running the facility's daily operations in Italy.

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Flexible, accurate & reliable high precision grinding solutions

Known worldwide for leading-edge automotive camshaft and crankshaft processing systems, Fives is also a leader in centreless grinding and single and double disc grinding as well as lean and flexible CNC grinders for a wide range of shaft-type components for various industries. With a strong heritage based on the legacy names: Bryant, Cincinnati, Cranfield Precision, Daisho, Gardner, Giustina and Landis, Fives offers a complete range of grinding machines, plus a comprehensive line of systems, grinding accessories and GrinderCare service program for lifecycle support.

High precision centreless grinding

Cincinnati centreless grinding machines have been leaders in the centreless sector for more than 100 years. These machines support a multitude of industries, all over the world. Customers rely on them to make exceptionally precise components in the shortest possible amount of time. With decades of engineering experience behind it, there is the expertise to engineer a centreless grinding solution that will fit your needs.

Cincinnati grinding machines are engineered for exceptional stiffness and rigidity. This means faster production rates, but it also means that grinding is achieved to very tight tolerances in the first pass. With compensation adjustments of 0.001 mm, they can guarantee higher precision parts and better surface finish, with less wheel wear.

The machines have the capability to operate both super-abrasive (CBN) as well as conventional wheels. Cincinnati centreless grinders can grind a wide range of materials, including exotic metals.

Through-feed and in-feed grinding

Cincinnati centreless grinders can accommodate through-feed or in-feed grinding,

depending on your production needs. These machines are capable of grinding 1.2 mm to 300 mm diameters. Also, these machines can accommodate workpieces up to 12 m+ in length using the through-feed method, or 660 mm with the in-feed working method. High machine stiffness ensures optimum accuracy, with the fastest possible production rates and high stock removal.

Cylindrical grinding

The range of machines provides accurate, reliable, flexible and productive grinding solutions for a variety of cylindrical applications. Whether you need OD plunge or peel grinding, the ultimate flexibility of a compact twin-turret multi-spindle machine, or a single spindle solution, there is a machine to meet your requirements.

Reliable, flexible and productive solutions

Whatever the application, one thing remains constant: the reliability of Fives grinding machines to produce high-precision parts with a high production rate. The cylindrical grinding machines are ideal for cylindrical components including camshafts, crankshafts, transmission components and bars. With a reference list in the hundreds, these machines prove their value on a daily basis, supporting a multitude of businesses in the global market.

ID/OD grinding

The Bryant and Landis line consists of dedicated ID and OD grinders for high precision and production, as well as combination ID/OD grinders for OD, ID, raceway and face grinding. These grinders are suitable for various applications and are available in different sizes. These machines are designed to achieve exceptional stiffness, high thermal stability and accuracy. They feature hydrostatic infeed slides, composite beds, and linear motors. Most importantly, with different machine configurations for slides, grinding spindles, dressing spindles, tools and fixtures, grinding experts will find a solution that meets your specific needs.

Ultra-precision machining

Cranfield Precision machines are used in some



of the most advanced ultra-precision machining applications in the world. Ranging from the highest quality optical film to semiconductor wafer lithography and mirrors for space telescopes. With an international reputation for quality, our machines achieve high levels of precision through exceptional stiffness and damping, excellent thermal stability, and state-of-the-art machine tools.

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Freeform optical grinding

The Cranfield Precision OGM delivers ultra-precision freeform grinding of large optic components. Featuring ultimate stiffness and thermal stability, the OGM has the flexibility to meet the needs of your high-end optics application for components up to 2,500 mm.

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The group's comprehensive technological expertise ranges from surface and profile grinding to cylindrical grinding, tool machining, additive manufacturing, milling, EDM, laser texturing, laser micro-machining, spindle manufacturing, and solutions for automation and digitalisation.

Through innovative solutions and the continuous development of these technologies, the company is setting new standards in the industry. Its goal is to offer customers tailor-made, forward-looking solutions that optimise their production processes and make them even more successful: United For Your Success.

Surface and profile grinding



Magerle has stood for high-end flat and profile grinding technology for decades. The product portfolio includes 5/6-axis grinding centres, flat and profile grinding machines, vertical grinding centres and special grinding machines for large and very large workpieces.

Blohm offers a wide range of flat and profile grinding machines for the efficient machining of demanding workpieces in small batches and the highly productive manufacture of large batch sizes.

Jung is a long-established manufacturer of high-quality flat and profile grinding machines. The portfolio ranges from standardised solutions to customer-specific, fully automated production systems.

Cylindrical grinding

Studer is one of the market and technology leaders in the development and manufacture of high-precision cylindrical grinding

machines. The portfolio includes standard machines and customised system solutions for universal, external, internal and non-circular grinding for the machining of small and medium-sized workpieces.

Schautt supplies machines with cutting-edge technological solutions for cylindrical, non-circular and cam profile grinding for the efficient machining of crankshafts, camshafts, gear components and other rotationally symmetrical workpieces.

Mikrosa has been building customised centreless external cylindrical grinding machines for over 130 years, ensuring maximum precision and reliability. The machines are designed for high quantities, tight tolerances and economical series production.

Tool machining

Walter develops and manufactures CNC machines for grinding and eroding, as well as for laser machining of metal, woodworking and PCD tools and rotationally symmetrical production parts and optical CNC measuring machines.

Ewag has its origins in the supply of precision tool machining machines for the Swiss watch industry. The brand stands for the highest surface quality, precision and efficiency in the machining of the smallest tool geometries.

Additive manufacturing

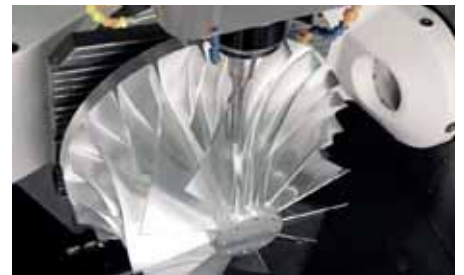
IRPD develops and sells the first industrial additive machine tool "Made in Switzerland." It also offers comprehensive services such as consulting, seminars, workshops and, in particular, contract manufacturing of high-quality metal components.

EDM

Agie Charmilles is known as a premium brand and innovation leader in wire, die-sinking and hole-drilling EDM. Its automation-ready solutions are used in mould making and the production of high-end components, offering Swiss precision, reliability and performance.

Milling

Mikron Mill is a leading expert in vertical milling and the inventor of high-speed milling. Its automation-ready machines are renowned



for their dynamic precision and free-form accuracy, delivering top performance in complex applications.

Liechti is one of the world's leading suppliers of 5-axis milling solutions for the aerospace and energy generation industries. With a strong customer focus, it delivers both standardised and customised solutions tailored to specific production requirements.

Laser technologies

As one of the world's leading suppliers in the fields of surface texturing and micro-machining, Charmilles supplies advanced nano and femtosecond laser systems for demanding manufacturing tasks.

Spindle manufacturing

Step-Tec is one of the leading brands for high-precision, high-performance motor spindles and offers a wide range of products and services to support the industry in the fields of milling, turning and grinding. Step-Tec spindles, which are developed with in-house expertise, are renowned for their durability, precision and reliability.

Automation

As an expert in zero reference systems, automation and software systems, System 3R provides comprehensive solutions for the entire manufacturing industry, optimising manufacturing processes and increasing efficiency.

United Grinding and United Machining offer comprehensive automation solutions aimed at optimising manufacturing processes and increasing efficiency.

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GrindDialog 2026 brings research and industry together



Its focus will be on the latest developments in manufacturing technology, including grinding technology, digitalisation, automation, advanced materials, metrology and Artificial Intelligence (AI).

Industrial manufacturing is undergoing a profound transformation. New quality requirements, shorter development cycles, increasing automation and data-driven processes are reshaping the way production is planned, controlled and continuously improved. Individual technologies can no longer be viewed in isolation. What matters today is the effective interaction between machines, tools, materials, data, processes and people.

This is where GrindDialog comes in. The event is not conceived as a traditional conference or product showcase, but rather as a platform for professional exchange between research and industrial application. Its goal is to evaluate technological developments at an early stage and discuss their implications for manufacturing practice.

Previous editions of GrindDialog have revealed a clear trend: grinding processes are increasingly being viewed as an integral part of interconnected manufacturing systems. Rather than focusing on individual influencing factors, attention is shifting toward the interactions between technology, data, expertise and industrial application.

The 2026 event continues to build on this approach. Contributions from both academia and industry are expected to bring together the latest research findings, technological developments and practical application challenges. In this way, GrindDialog is aimed at professionals who seek to view manufacturing not only from the perspective of individual processes, but also within the broader context

of interconnected systems and future developments. On 12th and 13th November 2026, GrindDialog will take place at Adelbert Haas in Trossingen, Germany. The two-day event is aimed at professionals from academia, research, technology development and industrial practice.

of interconnected systems and future developments.

The unique character of the format lies in its open exchange of ideas. While many events focus on presenting solutions, best practices, or specific applications, GrindDialog starts earlier in the innovation process with the questions, assumptions and interrelationships from which new solutions can emerge. Presentations are not intended solely to convey knowledge, but rather to serve as a starting point for discussion, reflection and further development.

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Norton to showcase advanced grinding solutions and high-performance abrasive technologies at IMTS 2026

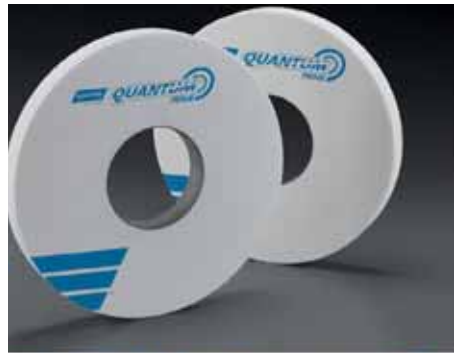
Saint-Gobain Abrasives, one of the world's largest abrasives manufacturers, will showcase a broad range of advanced abrasive grinding technologies and high-performance solutions at the International Manufacturing Technology Show (IMTS) in Chicago, USA, from the 14th-19th of September 2026.

Among the technologies highlighted at the show will be Norton gear grinding wheels, featuring advanced VS3PN bond technology engineered to deliver exceptional profile retention, burn-free grinding and improved part quality in demanding gear manufacturing applications. Designed for today's high-efficiency gear grinding environments, the wheels provide superior form holding and consistent performance in worm, profile and bevel gear grinding operations where tight tolerances and productivity are critical.

Norton will also feature Paradigm® Diamond Wheels for aerospace grinding applications. Designed specifically for grinding difficult-to-machine aerospace materials, the wheels combine advanced abrasive grain technology with a highly engineered bond system to deliver improved material removal rates, longer wheel life and excellent part quality. The technology is ideal for turbine blades, aerospace engine components and other hard-to-grind materials commonly used throughout the aerospace industry.

Also being highlighted at IMTS are Norton Paradigm Plus Diamond Wheels for round tool grinding. Featuring premium grain technology combined with a brittle metal bond system, Paradigm Plus wheels provide high grinding efficiency, reduced grinding forces and significantly improved wheel life for carbide round tool manufacturing applications. The wheels are designed to help manufacturers achieve higher material removal rates and greater process consistency while maintaining precise tool geometries and surface finishes.

For high-performance external and internal grinding applications, Norton Vitron7™ vitrified cBN grinding wheels will also be showcased. Featuring a high-precision vitrified bond system, Vitron7 wheels deliver exceptional wheel life, thermal stability and consistent grinding performance in demanding



automotive, bearing and precision grinding operations. The technology is particularly well-suited for applications involving camshafts, crankshafts and other hardened steel components requiring high levels of dimensional accuracy and productivity.

In addition, Norton Quantum™ Prime grinding wheels will be featured at the show. Utilising proprietary nano-crystalline ceramic grain technology, Quantum Prime wheels offer exceptional grinding efficiency, improved part quality and significantly longer wheel life compared with traditional ceramic abrasives. Designed for a broad range of grinding applications, the wheels help manufacturers increase productivity while reducing overall grinding costs across a variety of industries and operations.

"Norton continues to focus on delivering innovative abrasive technologies that help manufacturers improve productivity, consistency and process efficiency," says Ryan Johnson, director of technical business development. "IMTS provides an ideal opportunity to demonstrate how our latest



grinding solutions can help customers address the increasing demands of today's advanced manufacturing applications."

About Norton Saint-Gobain

Founded in Worcester, MA, USA, as a small start-up in 1885 by seven entrepreneurs, Norton has grown into a global leader in the abrasives industry, culminating in being acquired by industrial giant Saint-Gobain in 1990. Norton offers the widest portfolio of grinding, cutting, blending, finishing and polishing solutions for all markets, materials and applications with the most advanced and affordable technology. So, as your needs evolve, its access to the global expertise of Saint-Gobain becomes even more valuable to making a difference in your day-to-day needs. You do not have to look far for more localised expertise with its largest research centre located nearby in Northborough, MA.

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TYROLIT

Cohersa Industries UK Ltd appointed official UK representative for Roxor Netherlands

Cohersa UK has announced its appointment as the official UK representative for Roxor Abrasives Netherlands, as of May 2026. This strategic partnership strengthens Cohersa's position within the abrasives industry and enhances its ability to provide UK manufacturers with high-quality technical bonded abrasive solutions supported by local expertise and responsive service.

For over 50 years, Cohersa with its headquarters and manufacturing facilities located in Barcelona, Spain has been delivering advanced precision grinding solutions to customers across a diverse range of industries, including automotive, aerospace, wind energy, construction and general manufacturing. Through a combination of technical expertise, innovative products and value-added services, the company has established a reputation for helping customers improve grinding performance, productivity and process efficiency. Cohersa Industries UK was established in 2019, operating in the industrial wholesale trade industry in Northamptonshire.

The appointment brings together two companies with a shared focus on technical expertise, product quality and customer support. Known for its technical bonded abrasive products, expert application support, competitive value and fast delivery times, Roxor has built a strong reputation across international markets. Through the new partnership, UK customers will now benefit from direct access to the Roxor product range, backed by the technical knowledge and local support offered by Cohersa UK.

Operating from its facility in Northamptonshire, Cohersa UK will offer selected stock items and tailored stocking programmes designed to support customers' specific operational requirements. This local presence will help reduce lead times, improve product availability and provide customers with greater confidence in their supply chain.

Further strengthening the partnership is the appointment of Lee Wells as technical sales representative for Cohersa UK. He brings extensive experience within the abrasives industry, having worked across manufacturing, sales, technical support and application engineering. His broad industry knowledge and practical understanding of



Lee Wells offers support to Cohersa UK's customers as technical sales representative.

grinding processes built over a number of years in various roles at Jowitt Abrasives will play an important role in supporting customers and further developing the Roxor product range throughout the UK market.

The Roxor portfolio complements Cohersa's existing capabilities and includes a comprehensive range of technical bonded abrasive products for demanding grinding applications. Among the key product groups are duplex and single-face grinding wheels, designed for precision face grinding operations and available in a variety of mounting configurations. The range also includes segments and cylinder wheels for flat surface grinding applications, offering solutions from heavy stock removal through to fine finishing requirements. In addition, Roxor manufactures cylinder, cup and ring wheels that combine efficient cutting performance with excellent surface finish characteristics across a wide variety of industrial applications.

What distinguishes the partnership is not simply the availability of quality abrasive products, but the combined technical expertise behind them. Both companies share a strong focus on helping customers optimise grinding performance rather than simply supplying consumables. By working closely with customers to understand their processes, challenges and production objectives, Cohersa and Roxor can recommend

solutions that improve efficiency, extend wheel life and enhance finished component quality.

This approach aligns closely with Cohersa's broader service offering. Beyond supplying abrasives, the company provides a range of technical and operational support services including commodity management, product quality control, abrasive transformation, process optimisation and application engineering. These services are designed to help customers achieve measurable improvements throughout their manufacturing operations.

As manufacturing industries continue to face increasing pressure to improve productivity, reduce costs and maintain consistent quality, access to reliable technical partners has never been more important. The collaboration between Cohersa UK and Roxor brings together decades of industry knowledge, proven abrasive technologies and a shared commitment to customer success.

The appointment as Roxor Netherlands' official UK representative marks an exciting milestone for Cohersa UK and reflects the company's ongoing investment in expanding its capabilities and strengthening its support for customers across the UK. With the addition of the Roxor product portfolio and the expertise of Lee Wells, Cohersa is ideally positioned to deliver high-performance bonded abrasive solutions supported by responsive local service and technical guidance.



Roxor offer a wide range of abrasive products such as face grinding wheels with and without nut-inserts, flared-back, back-spigot and glued to backplate.



and exceptional service across a wide range of industries, including automotive, aerospace, wind energy, construction, and general manufacturing. Its established brand and comprehensive portfolio of high-quality grinding solutions enable the company to support customers in improving performance, productivity and process efficiency. Cohersa UK, established in 2019 and based in Daventry, Northamptonshire, operates within the industrial wholesale trade industry, providing customers in the UK with access to Cohersa's advanced abrasive solutions and expertise.

Roxor Abrasives, based in the Netherlands, is a specialist manufacturer of bonded abrasive products with a strong reputation for technical expertise, product quality and reliable customer support across international markets. Through its focus on precision grinding solutions, expert application knowledge, competitive value and fast delivery times, Roxor has established itself as a trusted partner for customers across a wide range of industrial applications.

Cohersa UK would like to thank its customers, suppliers and industry partners for their continued support and looks forward to building on this new relationship with Roxor Netherlands to deliver even greater value to manufacturers throughout the UK.

Cohersa Industries UK, headquartered in Barcelona, Spain, has over 50 years of experience delivering advanced precision grinding solutions to customers worldwide.

The company has built a strong reputation for technical expertise, innovative products

Cohersa Industries UK

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Microfinishing & polishing film: The future of surface perfection

Precision drives performance

In the automotive industry, precision is not just a preference; it's a necessity. The demand for high-performance vehicles has escalated the need for consistency and accuracy in manufacturing critical components. Abrasive tools play a pivotal role in this landscape, ensuring that each part meets the stringent requirements for performance, longevity and safety. From crankshafts to transmission parts, the use of abrasive tools is integral to achieving the desired surface finish and dimensional accuracy.

Key automotive components requiring finishing:

Crankshafts and camshafts

Crankshafts and camshafts are the heart of an engine and their performance is crucial for vehicle efficiency. Microfinishing these components enhances fatigue life and oil retention, reducing wear and tear over time. Abrasive tools ensure that these parts maintain their precision, contributing to the overall reliability of the engine.

Transmission parts

In the realm of transmission, the polishing of gears is essential to minimise wear and noise. Abrasive tools are used to achieve a smooth finish that reduces friction, thus enhancing the efficiency and lifespan of the transmission system.

Brake and steering components

Flat surface grinding and lapping are critical for brake and steering components. These processes ensure that the components meet the necessary specifications for safety and performance, providing drivers with a reliable and smooth driving experience.

Fuel injector and valve bores

High-precision honing is employed for fuel injector and valve bores to ensure smooth flow and effective sealing. This precision is vital for the optimal performance of the engine, directly impacting fuel efficiency and emissions.

Abrasive solutions in action

Kayson Green offers a range of abrasive solutions tailored to the needs of the automotive industry:



Polishing film rolls: Ideal for camshaft and crankshaft lines, these films provide a fine finish that enhances component performance.

Honing stones: Used for valve and injector seat finishing, honing stones deliver precision and consistency.

Cup wheels and mounted points: These tools are perfect for fine detail work and edge deburring, ensuring that every component is finished to perfection.

Lapping discs: Essential for creating flat sealing surfaces, lapping discs provide the smoothness required for effective sealing.

Meeting automotive standards and surface specs

Meeting industry standards is crucial in automotive manufacturing. Abrasive tools help achieve the required Ra/Rz surface specifications for different components. Their compatibility with robotic and CNC automation ensures that finishes are repeatable and process-controlled, which is essential for modern production lines.

Why leading automotive manufacturers trust Kayson Green

Kayson Green has become a trusted name among OEMs and Tier 1/2 suppliers because it provides high-spec abrasives that deliver consistent surface results, every time. Its application expertise and technical support are invaluable to production lines looking to optimise their processes. Kayson Green even has a mobile demo vehicle for trials and process optimisation, allowing you to experience the benefits of its products firsthand and see how they can improve your own production line.



Future-proof your finishing needs

Abrasive tools are indispensable in the automotive industry, contributing to the performance, safety and longevity of modern vehicles. For manufacturers looking to enhance their production capabilities, consulting with Kayson Green can provide the insights and solutions needed to upgrade existing tooling and achieve superior results.

Kayson Green 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 often the choice for industrial firms seeking optimal grinding solutions.

Customer focus

To service its customer base, in addition to the sales team located at its 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.

Kayson Green Ltd

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Email: sales@kaysongreen.co.uk

www.kaysongreen.co.uk

A Practical Guide to Precision Grinding



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

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

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

Costs per copy: £71.00 with free delivery



The book is now on stock in the UK at:

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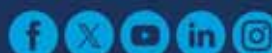
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Look out for our new video series on social media!



The Hands of Heritage, The Arms of Automation:

delapena bridges the gap between time-honoured precision and peak industrial efficiency

In the landscape of British manufacturing, few names carry the weight of delapena. Since its founding in 1927, the Cheltenham-based company has been more than just a machinery manufacturer; it has been a cornerstone of precision engineering. For nearly a century, "to delapena" has often been used as a verb in workshops across the globe, a synonym for the highest standard of honing. This legacy was built on the tactile skill of the operator, the "physical intuition" of engineers who could feel the micron-level adjustments through their fingertips. However, as we move further into the 21st century, the industry faces a new set of challenges: the need for relentless consistency, higher throughput, and enhanced operator safety.

The introduction of the SpeedHone, integrated with FANUC robotic automation, represents the latest chapter in this storied history. It is a transition that delapena describes not as a rejection of their manual roots, but as their ultimate refinement. By merging the legendary integrity of British engineering with the world-class intelligence of a FANUC "Yellow Robot," delapena has bridged the gap between the traditions of the past and the high-demand requirements of tomorrow's factory floor.

A legacy reimagined

The original SpeedHone was a revolution in its own right, a compact powerhouse that brought precision honing to tool rooms and batch production lines everywhere. For decades, it relied on the synergy between man and machine. The operator was the heart of the process, managing the "stop-start" flow of manual loading and making the subtle adjustments required to achieve a perfect finish. While this manual craft produced exceptional results, it was inherently limited by human fatigue and the inevitable variations in manual handling.

The SpeedHone EAS changes that equation



by delegating the repetitive, high-frequency tasks to automation. FANUC is globally recognised for its reliability, and when paired with delapena's honing expertise, it guarantees a level of continuous operational flow that manual systems simply cannot match. This isn't just about moving faster; it's about moving smarter. The robot's ability to perform high-speed, repeatable loading and unloading cycles ensures that the SpeedHone is always fed, creating a seamless production rhythm that eliminates downtime.

Safety through design

One of the most significant drivers behind this change is a commitment to the "human element." In the traditional workshop, the repetitive physical demands of manual part handling is a persistent risk of strain and injury. By integrating a FANUC robot, these risks are effectively engineered out. The robot takes over the monotonous and physically taxing loading and unloading of parts, allowing

the technician to move from a role of manual labour to one of process oversight.

The SpeedHone EAS operates within a fully enclosed, interlocked safety environment.

This design shift ensures that while the machine achieves peak industrial efficiency, the workspace remains protected. It reflects a modern understanding of manufacturing: that the health of the workforce is just as vital as the health of the balance sheet. By automating the "danger zones" of the honing process, delapena ensures that their heritage of quality is matched by a modern standard of safety.

A secure financial bet

Upgrading to robotic automation is often viewed as a daunting leap for traditional workshops. However, the SpeedHone EAS is designed to be a remarkably safe long-term financial bet. With nearly 100 years of history, delapena's expertise in tooling, abrasives, and process trials is unmatched. When combined with FANUC's worldwide presence, customers are assured that parts, service, and technical expertise are always within reach, regardless of where they are in the world.

"The flexibility of the SpeedHone EAS



remains one of its greatest assets. It can handle bore diameters from 1mm to 80mm with a tolerance of a single micron, making it ideal for everything from valve bodies and con rods to aerospace components. The integration of Siemens digital HMI controls further de-skills the process, allowing new operators to be trained in a fraction of the time it once took to master manual honing," explains Paul Lane, Global technical sales manager.

Transformation, not just evolution

delapena's journey from a 1927 bench hone to the robotic SpeedHone EAS is a testament to the endurance of British engineering. It proves that staying true to your roots does not mean standing still. The "Hands of Heritage" provided the foundation - the quality, the precision, and the reputation. The "Arms of Automation" now provide the future - the speed, the safety, and the consistency.

For manufacturers looking to modernise, the message is clear: don't just evolve. The SpeedHone EAS offers a total transformation of the production line. It allows you to maintain the world-class finish that the delapena name guarantees while achieving the unmatched efficiency that the modern market demands. It is the ultimate collaboration, delivering a legacy reimagined for the robotic age.

As the industry looks toward the high demands of the future, delapena stands ready, bridging the gap between time-honoured precision and peak industrial efficiency. With the SpeedHone EAS, the heritage you trust meets the speed you need.



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Complete grinding, lapping & polishing systems



Engis Corporation is a third-generation privately-owned US-based manufacturer of high-performance superabrasive lapping, grinding, honing and polishing products and related machinery and accessories.

The company began in 1938, with offices in the US and UK, as a trading company for precision measuring equipment and industrial machinery. The company entered the abrasives market in the 1940s with the development of its Hyprez Diamond Compounds for precise polishing of critical components for defence and aviation industries. Since that time, Engis expanded its range of superabrasive products, applications and industries served to be recognised as a leader in superabrasive finishing systems.

The company's 131,000 square foot headquarters and manufacturing facility in Wheeling, Illinois, is located 15 miles north of Chicago's O'Hare International Airport. To provide sales, technical and logistical support

for multinational and foreign customers, Engis has established subsidiary companies located in Canada, the UK, Japan, Korea, Singapore, Hong Kong and China, supplemented by a worldwide network of Agents and Distributors.

Engis products are developed, customised and supported by teams of experienced research scientists, design and application engineers.

Engis UK Ltd is the European affiliate of Engis Corporation, servicing the European market. The European sales office and stock holding is located in Oxfordshire, United Kingdom. At this site there is also a laboratory consisting of a range of machines including a bore finishing and lapping machine which are used for process development and demonstration purposes.

Hyprez lapping and polishing

The Hyprez® System offers a complete solution: machine, accessories, consumables and process

development, for the most demanding surface finishing needs.

Engis is a leader in the design and manufacture of complete lapping and polishing systems and wafer grinding, that offer the highest quality finished components, processed in the quickest cycle times while minimising manufacturing costs. But the machine is just one part of the process, what really sets the company apart from the competition is its unique ability to provide process development and customer support that is second to none.

Its systems are suitable for processing a vast range of materials: metals, ceramics, glass, semiconductor substrates, plastics and other advanced materials. It has developed solutions for many industries, improving quality, efficiency and cost.

Hyprez lapping plates

Engis manufactures a complete line of lap plates, including metal composite, solid metal, and fixed abrasive options. Its applications experts can recommend the best lap plate for your application.

An efficient lapping operation requires the selection of a proper lap plate. This selection is guided by the process objective; the material being lapped and the diamond size/type used in the lapping slurry.

A composite lap plate is comprised of metal or ceramic particles in a resin matrix, allowing for efficient charging of diamond abrasive particles into the plate. This charged composite plate can significantly reduce process times and achieve a finer surface finish, often in a single step. A composite plate is also well suited for a facing device, taking the guess work out of flatness and texture control.

Engis UK Ltd

Tel: 01491 411117

<https://www.engis.uk.com/>

The Science behind

Lapping, Polishing, Grinding and Honing

The Engis logo, featuring the word "Engis" in a bold, blue, sans-serif font with a stylized blue and white graphic element to the left.

Engis UK Ltd. The European division of Engis Corporation. Tel +44 (0) 1491- 411117 www.engis.uk.com



New BOXLAM L from Lam Plan



Discover the new range of furniture designed for storing polishing discs and lapping discs up to 400 mm in diameter from Lam Plan.

Supplied with five sliding shelves mounted on rails, the BOXLAM® L is ideal for your polishing tools, offering a reliable, compact and robust protective solution. Its aluminium frame, finished with an epoxy coating, is complemented by side panels in brushed and lacquered aluminium. The wide, fully retractable transparent door, together with the tiered arrangement of the shelves, ensures optimal access to the stored items.

The BOXLAM L is the ideal companion to the M.M.9400 lapping machine for optimising your workspace.

M.M.9400 Lam Plan lapping machine

Basic Series

For this new version of the best-selling M.M.8400, Lam Plan has tried to retain the essence of this table-top trimmer/polisher by making a number of fundamental improvements.

The M.M.9400 is a solution for integrating a means of finishing flat surfaces into your workshop at a contained price. The machine's compact dimensions and ergonomic controls are still there, but it has become more rigid and even more versatile.

It can be fitted with a wide range of accessories to adapt your equipment to your needs. Integrated control of Lam Plan feeders, recipe memory and motorised drive are just some of the possibilities.

Versatility

The M.M.9400 can be fitted with cast iron, DIALAM®, NEW LAM® M'M' or FAS® platens, enabling you to achieve all types of surface finish defined in your specifications, e.g. honing, thickness adjustment, honing, polishing, etc. It is also perfectly suited to your maintenance needs on all sealing parts, e.g. lapping of flaps, safety valves or small mechanical seals.

New configuration and improvements

- More rigid welded tubular steel chassis, stainless steel tank
- Ergonomically improved controls, better visibility of screen in working position
- 4.3" touch screen
- Programme import/export on USB key
- Multiple attachment points for accessories, such as dosing devices, jib, etc
- Memory for 30 recipes
- Mobile water inlet controlled by solenoid valve
- Improved connectivity, ability to control three dispensers, remote maintenance facility

M.M.9914

Premium Series, version E and S
Offshoot of the M.M.9100 machine, the M.M.9914 is designed to meet the needs of workshops using standard 36" consumables. It is available in 3 rings, without a pressure system for the E version and with a pneumatic pressure system on a fixed stem for the S version.

M.M.9914 version E

Ø 914 mm lapping machine without pressure system.

M.M.9914 version S

Version with pneumatic pressure, comprising three double-acting cylinders mounted on a fixed stem.

Plug & play

Whether electrical or pneumatic, the connectivity of the machines has been designed to accommodate production support accessories in a simple way. When you plug in a piece of equipment, it is immediately recognised by the machine control system.

Control and programming

Take control of your honing and polishing

operations by creating new recipes and evolve them using the programming interface for the machine and peripherals.

Integrated modem

All M.M.9000 PREMIUM series machines come with an integrated modem for remote maintenance of the PLC. They are compatible with dedicated Lam Plan dosing units and can be fitted with an optional abrasive and lubricant level sensor.

Production data can be collected via the USB interface. Recipes can be imported and exported in CSV format. Recipes can be modified via Excel before being imported back into the machine.

Mechanical design

Integrating a Lam Plan lapping solution goes beyond what is offered by conventional equipment on the market. The company designs machines ready to withstand the highest stresses.

About Lam Plan

Since 1962, Lam Plan has imposed itself as a real specialist in all the polishing technologies. It provides customers with scientific competences and its technical know-how to accompany them in an ever-finer control of their lapping and polishing problematics.

From research and development to the implementation of recommended high-performance abrasive solutions, Lam Plan teams deploy each day, throughout the world, an effective and friendly process with respect to environmental problematics.

The polishing technology requires not only high-quality products, but also methods and an irreproachable service.

LAM PLAN Industries Ltd

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LK Metrology unveils CAMIO 2026 with Renishaw REVO 5-axis integration

LK Metrology has announced a major new release of its proprietary CAMIO software for programming, analysis and reporting on Coordinate Measuring Machines (CMM). The latest CAMIO 2026 R1 version advances multi-sensor metrology with comprehensive support for Renishaw's REVO 5-axis scanning probe system.

The development enables manufacturers to combine the speed and flexibility of REVO's synchronised 5-axis motion with CAMIO's advanced inspection capabilities for complex tasks, strengthening the CMM software's position as one of industry's most versatile platforms. It is capable of managing bridge, horizontal arm and gantry CMMs, together with conventional touch-trigger probes, analogue scanning probes, laser scanners and now REVO.

Within CAMIO, users can program and execute REVO inspection routines directly, enabling full use of advanced, multi-axis measurement strategies such as sweep scanning and head-touches. The software optimises probe motion and measurement paths to significantly reduce inspection time while maintaining exceptional measurement accuracy. Its intuitive interface and offline programming capabilities simplify inspection program development, allowing users to create, verify and optimise routines before deploying them on the CMM, thereby improving productivity and minimising machine downtime.

Jonathan Rich, CAMIO product manager says: "Our goal has always been to give manufacturers the freedom to choose the right metrology hardware for every application, without changing the way they program and inspect parts.

"Support for the REVO 5-axis system is another important step in delivering a truly open metrology platform that adapts to the user's manufacturing environment.

"Our customers can now unlock the full capabilities of REVO 5-axis scanning probes, while continuing to benefit from CAMIO's familiar workflows and advanced inspection capabilities."

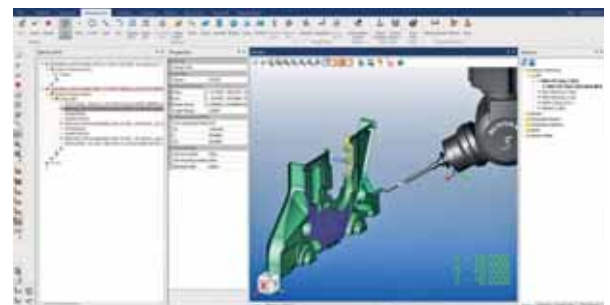
Some CMM OEMs do not offer a full range of machines, others do not offer REVO and most major software houses cannot provide such inspection machines at all. LK Metrology therefore stands out by being able to supply a complete solution consisting of the 5-axis

scanning software alongside a broad range of REVO-enabled CMMs. This gives manufacturers a single source for high-speed, high-accuracy, 5-axis inspection, reducing integration complexity while ensuring optimal performance and support.

CAMIO's plug-and-play interoperability with REVO-equipped CMMs enables manufacturers to deploy a single inspection software platform across mixed-brand CMMs, providing a consistent programming and inspection environment regardless of the machine being used. This simplifies deployment across multiple machines and sites, reduces software lock-in and maximises the value of existing metrology assets. Compatibility with any REVO-equipped CMM is achieved through the industry-standard I++/DME client/server architecture, with CAMIO operating as the I++ client over a standard TCP/IP network and communicating directly with the I++ server of the UCC controller. This standards-based approach eliminates the need for proprietary software or hardware modifications, making integration straightforward while preserving existing metrology infrastructure.

LK Metrology is renowned for its innovative industrial metrology solutions. The company's portfolio includes a comprehensive range of CMMs, advanced multi-sensor technologies and industry-leading metrology software platforms. Its precision technologies support the entire product lifecycle, from design and development through production, assembly and quality assurance, serving global industries including automotive, aerospace, defence, energy, medical and electronics.

Headquartered in the United Kingdom, LK Metrology operates offices in the UK, USA, Belgium, France, Germany, Italy, Poland, Mexico, Japan, India and China. Supported by a global network of subsidiaries, distributors and authorised service partners, the company



provides installation, calibration, training and technical support services worldwide. This international network enables LK Metrology to deliver responsive local expertise and consistent customer care, helping organisations maximise the performance, reliability and operational life of their metrology solutions.

Committed to innovation, engineering excellence and quality, LK Metrology draws on more than 60 years of expertise to develop advanced technologies that help customers accelerate product development, improve manufacturing quality, increase productivity and achieve their business objectives. LK Metrology is part of the International Metrology Group (IMG).

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Hexagon and FIM join forces to streamline racing motorcycle measurement and compliance checks

Hexagon and Fédération Internationale de Motocyclisme (FIM) have kicked off a partnership to modernise how it validates and verifies racing motorcycle designs. The multi-year agreement is helping FIM improve and standardise technical homologation and compliance processes using measurement equipment from Hexagon's Manufacturing Intelligence Business Area for the FIM Superbike World Championship (WorldSBK).

For the 2026 race season, FIM is using Hexagon's portable measuring arms for its measurement and homologation work on road-legal production motorcycles competing in the FIM Superbike World Championship. All WorldSBK motorcycles need to follow strict rules that ensure these bikes are built to design guidelines and fine tolerances in conformity with FIM's technical regulations, which stipulate tight limits on adaptation from the production bikes on which the race bikes are based.

To simplify and professionalise its measurement and homologation processes, the FIM sought faster, more precise evaluation of motorcycle designs using the latest portable inspection and digitalisation technologies. FIM technical assessors now rely on Hexagon's Absolute Arm 7-Axis portable measuring arm and Absolute Scanner AS1 laser scanner to measure various motorcycle dimensions and individual parts that are tightly controlled and

determine compliance with FIM regulations in force. The homologation work of FIM guarantees a level playing field for competitors in WorldSBK and other international motorcycle championships under the FIM's authority where the same approach is being considered.



The Absolute Arm with AS1 scanner enables the quick creation of detailed point cloud models of complete motorcycles and individual parts. FIM inspectors can now easily scan and compare the real-world measurement data against each manufacturer's homologated CAD and tolerances, using Hexagon's Inspire metrology software, ensuring repeatable measurements and digital traceability from every check.

FIM began rolling out the new homologation process at its FIM Technical Laboratory in FIM HQ, in Mies, Switzerland and from factory to factory during its rigorous WorldSBK pre-season testing. As the 2026 season gathers momentum, FIM assessors will take the Hexagon portable measurement solution to make spot checks throughout the remaining four rounds. On-site assessors can quickly deploy the portable measurement arm in any pit to accurately measure a variety of components, from small high-precision engine parts to full frames and chassis and the complete aerodynamic package.

In the coming months, FIM will also use the

arm and scanner to homologate several upgraded 2026 race bikes and begin FIM homologation of motorcycles for the 2027 season.

While WorldSBK is the most visible example of motorcycle homologation, the principle is used by FIM in other circuit racing championships: eligible bikes must be homologated series-production models to ensure a common technical foundation across multiple championships. Homologation ensures that the racing machines are based on genuine production, road-legal models, not one-off works bikes.

After fully rolling out its new WorldSBK homologation process together with the manufacturers, the FIM will look to expand the use of the Hexagon portable measurement solution to other circuit racing championships under its jurisdiction, such as the Endurance World Championship (EWC) and Supersport World Championship (WorldSSP), which also require full FIM homologation of the base motorcycle.

The eighth race of the 2026 Motul FIM Superbike World Championship took place in the Donington Park Circuit on July 10-12. The series continues with four other rounds in Europe, concluding in October with the final race weekend at the Circuito de Jerez, Angel Nieto in Spain.

The International Motorcycling Federation (Fédération Internationale de Motocyclisme) or (FIM) is the global governing body of motorcycle sport. It defines the technical and sporting regulations for racing championships, homologates eligible motorcycles, oversees rider safety and sporting integrity.

Hexagon

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Thermal cutting is faster, cleaner, and more precise than ever. Whether utilising high-powered fibre lasers, plasma torches, or advanced punching systems, modern fabricators can process sheet metal parts at breathtaking speeds. However, extreme localised heat introduces an invisible problem onto the shop floor: internal material stress.

When a thermal cutter or punch hits a sheet, the resulting temperature gradient disrupts the material's internal balance. Stresses already latent within the steel are released, while hardened edges and steep heat gradients lock in new tension. The second the cut component cools, these internal forces pull it out of shape.

Feeding warped, high-tension parts to downstream operations is the manufacturing equivalent of fitting budget tires to a supercar. The stress doesn't simply vanish, it reveals itself later through inconsistent press brake bending, thermal distortion during welding, and assembly lines where components stubbornly refuse to fit.

For fabricators relying on automated welding cells or robotic assembly, precision fit-up is mandatory. If your operators are spending valuable time manually compensating for bowed stock or reworking parts at the press brake, your cutting speed gains are being eroded at the back end.

Eradicating tension at the source

To achieve true shop floor efficiency, stress must be eliminated before parts reach assembly. Traditional flattening methods may force a part to appear flat temporarily, but they



fail to address the core problem. True precision roller levelling works differently: it cycles the sheet metal through alternating plastic bends, permanently neutralising internal tension and returning the material to a stable, predictable state.

This is why GE Machinery is proud to announce its official new partnership with ARKU, a world leader in precision levelling technology.

By bringing ARKU's decades of German-engineered levelling expertise to its portfolio, it

is helping UK manufacturers correct flatness deviations and stress-relieve material right at the source, ensuring flawless repeatability for CNC bending, laser welding, and automated manufacturing.

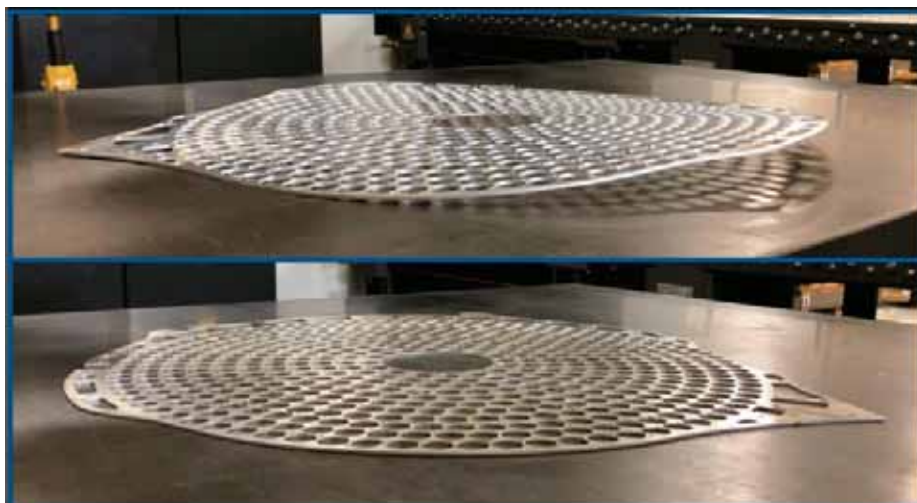
A proven winner in the UK:

The ARKU EcoMaster

Among ARKU's industry-leading lineup, the EcoMaster® series (such as the EcoMaster 30 showcased recently at IMTEX 2026) has quickly emerged as a standout solution for fabricators looking for fast, reliable and energy-efficient sheet metal levelling.

Designed specifically to deliver dead-accurate results across a wide range of material types and thin-to-medium sheet thicknesses, the EcoMaster takes the stress out of both your parts and your process. It provides the tight tolerances modern production demands, eliminating costly rework and maximising throughput across the entire shop floor.

The market response in the UK speaks for itself. It has already seen rapidly growing demand, with four to five EcoMaster units now actively operating across the UK. Most recently, it secured an order to supply an EcoMaster to a major UK defence manufacturer, a sector where



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Steel uncertainty puts greater focus on finishing efficiency

As Britain's manufacturers grapple with a more uncertain steel market, attention is increasingly turning to how every tonne of material can be used more effectively. With import restrictions, fluctuating prices and ongoing supply chain pressures affecting procurement strategies, reducing waste has become as important as securing supply.

For many engineering businesses, that means looking beyond the purchasing department and examining every stage of production to ensure valuable materials are not lost through unnecessary scrap, rework or rejected components.

Lye-based surface finishing specialist Midland Deburr & Finish believes finishing processes have an increasingly important role to play in helping manufacturers protect margins during a period of material volatility.

The comments come as industry bodies continue to warn that changes to UK steel import arrangements could make certain grades more difficult or expensive to source, particularly for manufacturers serving sectors such as aerospace, automotive and precision engineering.

Chris Arrowsmith, managing director of Midland Deburr & Finish, explains that manufacturers are becoming far more focused on the lifetime value of every component entering production: "Material costs have become a much bigger conversation over the past few years," he says. "When manufacturers are paying more for steel, aluminium and other specialist materials, they naturally expect to recover as many finished components as possible from every production run.

"That puts greater emphasis on processes that improve consistency and reduce the likelihood of parts being rejected later in the manufacturing cycle."

While machining and fabrication often receive the greatest attention, Chris Arrowsmith believes deburring and cleaning should also be viewed as critical quality processes rather than secondary finishing operations.

Even minor burrs, sharp edges or surface contamination can affect assembly, coating performance or inspection, potentially resulting in expensive rework after significant manufacturing value has already been added.

Chris Arrowsmith continues: "By the time a component reaches the finishing stage, a



considerable amount of time, machining and material has already been invested. If a part fails because it hasn't been properly deburred or cleaned, the cost extends far beyond the finishing process itself."

Midland Deburr & Finish works with manufacturers across aerospace, automotive, defence, electronics and general engineering, providing vibratory deburring, vapour degreasing, solvent degreasing, ultrasonic cleaning and component impregnation services.

The company has seen growing demand from customers looking to introduce greater repeatability into finishing operations, particularly where higher production volumes make manual processing increasingly difficult to control.

According to Chris Arrowsmith, vibratory deburring offers manufacturers a practical way to improve consistency while reducing the variability often associated with manual finishing methods: "Consistency becomes incredibly valuable when margins are under pressure," he said. "A controlled vibratory deburring process produces repeatable edge quality across large batches of components, helping customers reduce secondary operations and maintain the standards their own customers expect."

Component cleanliness is also becoming a greater priority as manufacturers work to improve quality assurance throughout increasingly complex supply chains.

Residual machining oils, swarf and other contaminants can interfere with coating adhesion, assembly processes and final inspection, making effective cleaning an essential part of modern manufacturing.

Midland Deburr & Finish continues to support

customers with both solvent degreasing and vapour degreasing processes that remove contaminants from precision-engineered components before they progress to the next stage of production.

"Cleanliness is no longer simply about presentation," says Chris Arrowsmith. "Many of the industries we support have increasingly demanding quality requirements, so manufacturers need confidence that components are consistently clean before coating, assembly or inspection.

"As the value of every component increases, preventing failures further down the production process becomes even more important."

Although uncertainty surrounding steel availability continues to concern many manufacturers, Chris Arrowsmith believes it also reinforces the importance of investing in efficient production processes that maximise material utilisation and minimise avoidable waste."

He concludes: "British manufacturers have always been exceptionally good at adapting to changing market conditions. Whether material prices rise or supply becomes tighter, businesses that focus on process control, quality and productivity will always be in the strongest position.

"Finishing may be one of the final stages of production, but it has a significant influence on product quality, manufacturing efficiency and ultimately the value manufacturers achieve from every component they produce."

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Mastercam 2027 deburr enhancements

More control, smoother motion, faster results



Deburring is often the final step between a machined part and a finished product, making efficiency, consistency and control critical. In Mastercam 2027, the Deburr toolpath receives several significant enhancements designed to streamline programming, improve tool motion and give users greater flexibility when tackling complex edge finishing operations.

Whether you are programming simple chamfers or managing intricate multi-sided deburring applications, these new capabilities help reduce programming time while delivering cleaner, more efficient toolpaths.

Smarter machining direction control

One of the most impactful updates in Mastercam 2027 is the addition of automatic and user-defined machining direction controls within Deburr 3-axis and Deburr toolpaths.

Previously, users were limited to selecting either Climb or Conventional cutting. While effective in many situations, this could create challenges when using specialty tooling such as lollipop cutters for undercut deburring. To maintain the specified cutting direction, toolpaths would often be broken into multiple segments, resulting in less efficient motion.

With the new enhancement, Mastercam can now:

- Automatically determine the optimal machining direction based on selected contours
- Prioritise continuous motion to reduce unnecessary segmentation
- Improve overall toolpath smoothness
- Reduce interruptions in cutter movement

For users who prefer complete control, Follow Curve Chaining allows Mastercam to follow the exact chain direction selected during geometry creation. The result is the best of both worlds: intelligent automation when you want it and precise manual control when you need it.

Benefits

- Smoother tool motion
- Reduced toolpath segmentation
- Better performance with lollipop and undercutting tools
- Greater programming flexibility
- Optimised start points to minimise rapid travel moves

Spiralise Closed Contours for continuous motion

When deburring closed contours, multiple offset

passes can often create excessive linking moves and unnecessary direction changes between cuts. The new Spiralise Closed Contours option addresses this challenge by transforming multiple offset passes into a single continuous spiral motion.

Rather than repeatedly starting and stopping between individual passes, the tool transitions smoothly through the operation in one uninterrupted path.

Benefits

- Reduced retract and linking motions
- Smoother machine movement
- More efficient cycle times
- Improved surface consistency
- Better results for chamfering, filleting and deeper burr removal applications

For shops focused on balance between quality and efficiency, this feature creates cleaner motion while minimising unnecessary machine movements.

Preserve User-Selected Edge Order

Not every deburring job can be automated entirely. In many situations, programmers need specific edges machined in a precise sequence to meet process requirements, maintain tolerances, or support downstream operations. Mastercam 2027 introduces Preserve User Selected Order, giving users explicit control over machining sequence directly within the Deburr operation.

Instead of creating multiple Deburr operations to force a desired order, programmers can now simply select edges in the sequence they want them machined.

Benefits

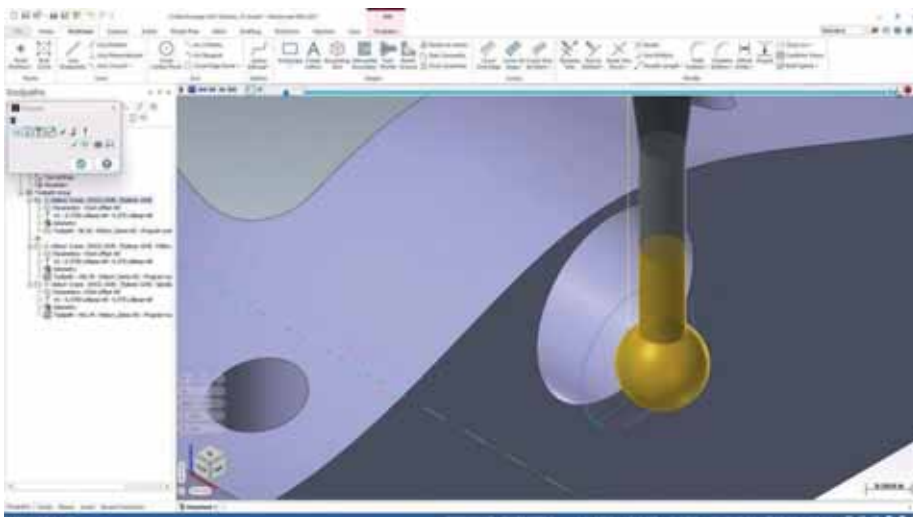
- Full control over edge-by-edge machining order
- Fewer operations required
- Simplified programming workflows
- Better support for critical tolerance features
- Improved process consistency

This enhancement makes it easier to program complex parts while keeping toolpath organisation simple and efficient.

Expanded support for Backside Chamfer tools

Mastercam 2027 also increases tooling flexibility with new Backside Chamfer Support within Deburr toolpaths.

By leveraging chamfer geometry available on slot mill tools, Mastercam can now support



deburring using both the top and bottom chamfer surfaces of the cutter.

Previously, only the bottom portion of these tools were utilised for deburring operations. Now, both cutting edges can be used effectively.

Benefits

- Access to both top-side and back-side edges
- Increased tooling versatility
- More efficient deburring strategies
- Reduced need for additional tool changes
- Expanded capabilities for complex part geometries

For manufacturers working with parts that require access from multiple directions, this enhancement opens new opportunities to maximise existing tooling investments.

Faster edge selection with new Edge Filtering

Auto Detect has long been a powerful productivity feature for Deburr users, helping programmers quickly identify machinable edges. However, many users found themselves manually removing unwanted edge selections before generating toolpaths.

Mastercam 2027 solves this challenge with new Edge Filtering capabilities found within the Advanced Edge Options dialog.

These filters automatically exclude common edge types that are often unnecessary for deburring operations.

Available filters

Vertical edges

Automatically removes vertical edges commonly detected during 3-axis deburring operations with certain tool types.

Circular holes

Filters out planar circular hole edges that are often more efficiently machined using spot drills or chamfer drills.

Benefits

- More accurate Auto Detect results
- Reduced manual cleanup
- Faster programming workflows
- Improved setup efficiency
- Better focus on the edges that actually require deburring

With more efficient geometry filtering, programmers can spend less time managing selections and more time machining parts.

A more efficient deburring experience

The Deburr enhancements in Mastercam 2027 focus on a simple but important goal: helping users create better toolpaths with less effort. From intelligent machining direction control and continuous spiral motion to user-defined sequencing, backside chamfer support and smarter edge detection, these updates provide meaningful improvements for both productivity and part quality.

Whether you are programming high-volume production work or complex precision components, Mastercam 2027 gives you more

control over how deburring operations are created and executed, allowing you to program faster, machine more efficiently and achieve better finishing results every step of the way.

Download Mastercam 2027 today or speak with your local Mastercam representative to learn more.

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A Pattern of Invention: De Boer Tool



A Pattern of Invention: For IMTS 2026, UNITED MACHINING SOLUTIONS is marking the occasion with A Pattern of Invention, a celebration of the pioneering spirit that permeates the company, as well as the inventive and innovative manufacturing prowess that UNITED MACHINING SOLUTIONS customers have.

De Boer Tool is one of those customers.

From one-off custom tools to entire product lines, the innovation never rests at this cutting tool manufacturer. And neither do the WALTER grinders.

If it's a round cutting tool, chances are De Boer Tool has made it.

Based in Mississauga, Ontario, De Boer Tool is Canada's largest manufacturer of standard and specialty solid carbide cutting tools. While De Boer specialises in drills, end mills and thread mills, they also produce an array of specialty tooling, including reamers and porting tools. Standard sizes run from half a millimetre all the way up to 38 mm.

Founded in 1996 as a home shop sharpening tools on a manual grinder, De Boer Tool has steadily expanded to grow into an 18,000 square foot, state-of-the-art manufacturing facility with a fleet of automated WALTER cutting tool grinders, advanced HELICHECK inspection equipment and an in-house tool coating centre.

"We provide the performance and the tool life of the big global cutting tool brands at a competitive local manufacturing cost and we can support our customers more than the big brands can," says Matt De Boer, technical sales and application specialist.

For three decades, De Boer Tool has pushed themselves and the North American cutting tool industry forward, all while focusing on

uncompromising quality. This makes them ideal for UNITED MACHINING SOLUTIONS' A Pattern of Invention IMTS campaign.

On innovating and inventing: how it's done at De Boer Tool

The process of developing custom cutting tools at De Boer begins with a deep dive into customer requirements. By analysing tool or part drawings, the team can figure out the necessary tool geometry while considering critical factors such as the material being cut, fixturing and toolholding.

"We work closely with our customers to understand their needs and we focus on the

specific application and provide the best possible solutions for that application," says Matt De Boer.

Every aspect of the tool, including its geometry, coatings and edge preparation, is evaluated. The engineering department then develops a tool drawing, allowing for a collaborative back-and-forth with the customer to refine the design. Once finalised, the project moves into TOOL STUDIO.

"TOOL STUDIO is the only cutting tool design software I've used, but we love it here," says James De Boer, production manager. "I still do a little programming and our programmers love it, too. It's very versatile. For certain



product types, if there's not a wizard, you can work your way through and make something unique just by massaging the data sets. It's easy to take an existing tool and modify it quickly into what you're looking for."

Once the tool is programmed, it moves on to one of De Boer's almost two dozen WALTER cutting tool grinders for manufacturing. From the initial request to final delivery, the standard lead time typically ranges from three to four weeks, although it can be longer or shorter depending on the customer's needs.

De Boer maintains incredibly tight tolerances throughout their product lines. "For finishing tools like radius or ball nose end mills, the tolerances are at the micron level," says James De Boer. "We measure that with our HELICHECK machines and hold pretty incredible tolerances wherever we need to."

Challenging applications welcome

Sometimes a layman or even an experienced machinist can't tell the difference when comparing two different cutting tools. But in the application, the micro and macro geometries and coating selection can make all the difference.

"We recently had an aerospace application where the customer was cutting a forged Inconel part that was fixtured very poorly by necessity due to part geometry," says Matt De Boer. "It was an older machine, a tough fixture and forged material. They initially came to us asking about one of our off-the-shelf tools, but we knew we could do better."

"So we used a tough grade of carbide that could withstand that application, and made the geometry with the largest core diameter possible, a lower rake angle, a very large edge prep and a very tough and wear-resistant coating."

And in the end? "We increased tool life by around 60 percent on that one application." The customer's tooling cost savings for this application alone was approximately \$200,000.

De Boer inventions

When asked about what inventions they were most proud of, the De Boer brothers immediately came back with their Pro-Drill line: their collection of high-performance solid carbide drills.

"As our production of solid carbide drills increased, we recognised the need for a standardised line," says Matt De Boer. Our initial target was the tool and die sector, where demand for this product was highest. While customers were happy with the big name brands, the high price points were a barrier. We set out to provide that same level of



premium quality at a much more competitive price."

"Our team conducted extensive development and testing to perfect the tool geometry and edge preparation. We launched the Pro-Drills in 2020 and we spent the following years building an expansive inventory to support a wide range of SKUs. We brought in several new WALTER grinders to help us ramp up production."

Made of premium grade submicron carbide and featuring a polished nanocomposite PVD coating, Pro-Drills come in popular imperial and metric sizes in flute lengths of 3xD, 5xD, 8xD and 12xD. Coolant-thru and standard drills are available from stock and the line was expanded to include Pro-Drill Reamers for pressing in dowel pins.

"Since bringing these drills to market, the success has been remarkable," Matt De Boer says. "While we focused on ISO P materials and steels initially, the ProDrill has also proven incredibly effective in high-temperature alloys like titanium and Inconel, as well as aluminum. Any job shop should be using this drill."

Automation for the win

Over their 30 years in business, there has always been a WALTER tool grinder on the shop's floor. They currently have 21 WALTER grinding machines in production, with more on the way. Five HELICHECK tool measuring machines provide complete measurements of even the most complex cutting tool geometries.

And every WALTER machine at De Boer Tool is automated.

"We don't buy any machines unless they're automated," says James De Boer. "Every grinder has a loading robot. That's part of our culture, we automate everything we can."

When asked what the biggest leap they were able to make with WALTER over the last

30 years was, James De Boer replies that it was "100 percent the pick-and-place robots on the WALTER MINIs back in the day. We went from loading by hand to running pallets, and that was when we went to the next level. We were an early automation adopter with WALTER. I'd actually go in as a kid and run the machines at night."

De Boer runs six shifts a week and often lights out, and product quality and consistency from their WALTER grinders is something that they continue to rely on. "Batch to batch consistency for us is incredible. We run the same product across different machines, and it'll always come out the same."

Keep on keeping on

Over the years, as De Boer has expanded in Canada, they've been able to develop their presence into other markets as well. "We have a growing presence in the United States; it's one of our fastest growing markets," says Matt De Boer. "We're doing business with clients in Columbia, Brazil and Europe as well."

Consistency and attention to detail has been a big part of De Boer Tool's success over the last three decades. Its investments in automation have helped them to keep up with the demands of volume manufacturing while still maintaining the flexibility to respond swiftly to customers' needs.

There has been a lot of change since De Boer Tool started as a small shop sharpening tools on a manual grinder. Yet its dedication to supporting customers and its relentless drive to do it better remain the bedrock of its business. It hasn't changed in 30 years and it won't be changing anytime soon.

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From blank to finished tool in one setup: a closer look at MX7 Linear from ANCA

Could combining blank preparation and cutter grinding help reduce lead times, handling and production costs?

Traditionally, tool manufacturers have used separate machines for blank preparation, tool grinding and finishing operations. While this approach remains suitable for many applications, every additional machine, setup and handling stage adds time, work-in-progress and another opportunity for variation.

As lead times shorten, batch sizes decrease and demand for special tools grows, manufacturers are asking whether a cylindrical blank can be taken through to a finished cutting tool on one machine and in one setup.

For the right application, the answer is yes. Combining blank preparation and cutter grinding can reduce handling, re-clamping and operator intervention while improving process consistency and creating greater opportunities for unattended production. Whether it is the right approach depends on tool geometry, tolerances, batch volume, diameter range and the amount of cylindrical grinding required.

The case for an all-in-one process

Moving from a cylindrical blank to a finished tool in one setup can reduce:

- Separate blank-preparation operations
- Handling and re-clamping
- Setup and changeover time
- Work-in-progress
- Operator intervention
- Variation between processes

This is particularly valuable in mixed-batch production, where manufacturers need to move efficiently between standard tools, specials and short production runs.

ANCA's MX7 Linear is designed for flexible, high-precision production. It combines a six

wheel-pack changer, automation options and a permanent-magnet spindle delivering up to 38 kW or 51 HP peak power.

Why headstock capability matters

Blank preparation requires more than grinding spindle power. Cylindrical and peel grinding may involve extended operation at higher headstock speeds. The MX7's direct-drive headstock operates at up to 3,000 RPM and supports cylindrical grinding, peel grinding, wheel dressing and truing within the same cycle as tool grinding.

Depending on the tool and machine configuration, operations completed in one set-up may include cylindrical and peel grinding, back taper, fluting from solid, OD relief, step-tool features, end-face grinding and in-process measurement and compensation. ANCA's ToolRoom software supports these varied manufacturing cycles, helping manufacturers move between different tool families without excessive setup time.

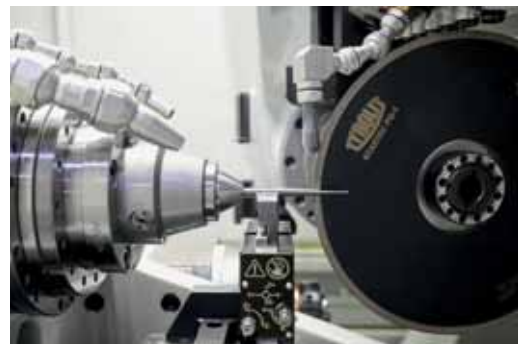
Automation strengthens the opportunity

The business case becomes stronger when blank preparation and tool grinding are combined with automation. Loading options such as RoboMate and FastLoad allow the MX7 to continue through batches with minimal operator intervention. When combined with in-process measurement and compensation, this can extend production beyond normal attended hours.

The benefit is not simply that one machine may replace two. It is that one machine can reduce handling, improve consistency and make better use of available production hours.

When a dedicated OD grinder remains the better choice

A CNC tool grinder will not replace every cylindrical grinder. For high-volume cylindrical production, extremely tight OD tolerances, long blank-preparation cycles or specialised applications, a dedicated OD grinder may remain the more productive option. Machine selection should reflect the manufacturer's regular workload. The MX7 supports tools up to 25 mm or 1 inch in diameter, while the heavier-duty TX7+ supports tools up to 32 mm or 1¼ inches. The decision



should be based on the tools produced every day, not only the largest tool a manufacturer may occasionally need to quote.

Building the business case

Manufacturers should assess the complete production process, including:

- Cycle and setup time
- Labour and handling savings
- Scrap and rework reduction
- Unattended production potential
- Changeover requirements
- Inspection and compensation needs
- Tool size and geometry range
- Future workload

Application trials are essential. Testing representative tools including the smallest, largest, highest-volume and most challenging parts can confirm cycle time, quality, setup requirements and automation performance before investing.

Can one machine do both?

For the right production mix, yes. A modern CNC tool grinder can combine blank preparation and cutter grinding in one setup, reducing handling and supporting more flexible, consistent and automated production. With its spindle power, wheel capacity, ToolRoom software, automation options and enhanced headstock capability, the MX7 platform is designed to support this approach.

The more important question is whether it can do both productively and profitably for your tools, tolerances, batch sizes and future production plans. An application assessment using your real tools is the best place to find out.

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Katthöfer is growing with VOLLMER

Steady innovation, state-of-the-art grinding technology and personal customer support are the cornerstones of success for the family-owned company Katthöfer Cutting Tools. Based in northwestern Germany, the medium-sized company has evolved from a traditional HSS specialist into a modern precision partner for carbide-tipped (HW) circular saw blades and continues to expand its range of services for new industrial sectors. A key milestone on this journey is the investment in the fully automated CS 860 grinding machine, including the ND 320 handling system, supplied by sharpening specialist VOLLMER from Biberach. With VOLLMER technology, Katthöfer Cutting Tools can respond more flexibly to new market demands and provide its customers with expert technical support at all times.

"Our location in Selm, North Rhine-Westphalia, offers a strategic advantage thanks to its proximity to the steel industry in the Ruhr region as well as to key suppliers in the automotive and manufacturing sectors. Our customers benefit from short distances, fast response times, and a high degree of flexibility," says Daniel Katthöfer, managing director of Katthöfer Cutting Tools.

Customers primarily come from the steel industry

Individual consulting, customer-specific solutions for sawing processes and a modern machine fleet make Katthöfer Cutting Tools a



Using the VOLLMER CS 860 grinding machine and the ND 320 handling system, Katthöfer Cutting Tools can process circular saw blades with diameters ranging from 80 to 860 mm unattended and around the clock.

sought-after partner for the maintenance and procurement of HSS and carbide-tipped (HM) saw blades. Around 95 percent of the company's annual revenue of €800,000 is generated from industrial customers in the steel, tube, profile and aluminum industries. In addition, the company is increasingly serving businesses whose applications involve wood processing and non-ferrous metal machining.

"Our long-term strategy also includes close collaboration with manufacturers to actively

contribute to the further development of HSS and HM saw blades," states Daniel Katthöfer. "At the same time, professional resharpening of circular saw blades is becoming increasingly important due to rising material costs for HSS, carbide, and tungsten. With our customised services, we can provide customers with an economical and sustainable solution that significantly extends tool life."

VOLLMER grinding machine delivers greater precision

To further improve the refurbishment and performance of carbide-tipped circular saw blades, Katthöfer Cutting Tools invested in a fully automated VOLLMER CS 860 grinding machine together with the ND 320 handling system. The fully CNC-controlled machine from the Swabian sharpening specialist was commissioned at the beginning of 2026 and is used to process circular saw blades with diameters ranging from 80 to 860 mm.

Integrated measuring systems perform fully automated setup and operating procedures. The measuring cube determines tool compensation values, ensuring maximum process reliability. An integrated probe provides highly accurate 3D measurement, while acoustic sensor technology optimises setup operations.

On the software side, the CS 860 already includes a wide range of predefined programs and geometries. The optional oscillation



Since the beginning of 2026, Katthöfer Cutting Tools has been using the VOLLMER CS 860 grinding machine together with the ND 320 handling system for the fully automated processing of carbide-tipped circular saw blades.

program and adjustable cutting speed offer greater flexibility when machining carbide-tipped circular saw blades. The feed pawl automatically detects broken teeth and tooth pitches, eliminating manual input and preventing operator errors. Combined with intuitive control via touchscreen or keyboard, the CS 860 accelerates the entire circular saw blade processing workflow.

Using the ND 320 handling system, Katthöfer Cutting Tools can operate the CS 860 unattended around the clock. Its robust dual gripper enables rapid changeovers of saw blades weighing up to 11 kg.

Katthöfer opens up new markets in the carbide segment

"For us, precision has a name: VOLLMER. VOLLMER technology impresses us with outstanding repeatability, excellent reliability and exceptional functionality in daily operation," adds Daniel Katthöfer.

"The investment in the CS 860 marks an important milestone in our company's development. It enables us to grind carbide-tipped circular saw blades with significantly greater precision and opens the door to new markets. For our customers, this

means not only longer tool life for their saw blades, but also consistently high cutting quality and therefore tangible cost advantages."

Katthöfer Cutting Tools has been a customer of the VOLLMER Group for many years and already operates around a dozen sharpening machines from LOROCH, a subsidiary of the VOLLMER Group. Overall, Katthöfer Cutting Tools values its collaboration with the sharpening specialist, which is characterised by technical expertise, practical advice and a partnership-based exchange. In particular, the company appreciates VOLLMER's rapid support, high reliability and shared commitment to precision and quality.

"Katthöfer Cutting Tools is an excellent example of how small and medium-sized sharpening service providers can continue to generate growth through targeted investments," says Tobias Trautmann, managing director of the VOLLMER Group. "With our fully automated sharpening machines and digital solutions, VOLLMER is able to optimise the machining of circular saw blades and other tools while supporting our customers' growth strategies over the long term."

About the VOLLMER Group

With its comprehensive range of machinery, the VOLLMER Group, which has sites in Germany, Austria, Great Britain, France, Italy, Poland, Spain, Sweden, the USA, Brazil, Japan, China, South Korea, India and Thailand, as well as representative offices in Taiwan and Indonesia, enjoys global success as a tool machining specialist in the areas of both production and service. Its range of products includes the most advanced grinding, eroding, laser and machining tools for rotary tools and circular saws in the woodworking and metalworking industries, as well as for metal-cutting band saws. In offering this, VOLLMER draws heavily on the company's long-standing expertise and its strengths: Local contacts for efficient communication channels, quick decisions and rapid action by a family-run company. The company invests around eight to ten percent of its turnover in the research and development of new technologies and products. The VOLLMER Group is a reliable partner and provider of technology and services to its customers.

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VIA Oberflächentechnik continues to count on perchloroethylene for the future

VIA Oberflächentechnik was founded in Lennestadt, Germany, in 1996 as a joint venture of 12 medium-sized, family-owned automotive suppliers specialising in vibratory finishing. Since then, VIA Oberflächentechnik has developed into a well-known specialist in precision and industrial parts cleaning.

The cleaning requirements of the company's customers, from sectors including automotive, medical technology, electrical engineering and the furniture industry, with more than 5,000 different items, are met using more than 10 different cleaning systems. Around 500 tonnes of material are cleaned every day, 60 percent of which is degreased with perchloroethylene (PERC) before being sent either to the fine cleaning stage, directly to the customer, or for further processing such as coating.

Maximum efficiency with consistent quality

After focusing on vibratory finishing and manual

sanding in its early years, VIA Oberflächentechnik purchased two closed degreasing systems in 2002 and 2004 and filled them with DOWPER* N, a highly stabilised perchloroethylene from SAFECHEM.

The perchloroethylene is supplied in the SAFE-TAINER™ System, a closed-loop, state-of-the-art solvent handling system. Developed by SAFECHEM, this safety system enables effective management of product-specific solvent risks. In combination with closed cleaning systems, it is considered the best available technology for safe and sustainable transport, storage and handling of solvents.

Kai Lechner, managing director technical management and part of VIA Oberflächentechnik since the very beginning, explains: "Each of these two degreasing systems has already completed around 300,000 batches over more than 100,000 operating hours. The two cleaning systems can now go into retirement." This step is not due to

cleaning performance, however: "In principle, the machines still do a good job, but spare parts are no longer available," explains Kai Lechner.

When asked how often DOWPER* N was replaced over the entire period, Kai Lechner continues: "Never, we have, of course, always had to top up the system, as solvent losses are unavoidable due to natural emissions and distillation. But a complete bath change has never been needed."

This is made possible, among other things, by the unique distillation capabilities of DOWPER* N. In a modern closed cleaning system, the solvent can be recycled almost completely through continuous integrated distillation. This routine recycling results in highly economical solvent consumption, as very little solvent needs to be replaced while continuous distillation consistently provides solvent of fresh-product quality. This leads to cost savings not only through lower solvent consumption, but also in terms of time,



labour and administration thanks to minimal waste.

The highly efficient recycling process at VIA Oberflächentechnik results in less than 5-7 percent solvent residue in the waste stream and therefore low refill requirements. This also contributes to the company's enhanced reputation and improved environmental footprint.

The relatively high boiling point and high vapour density of perchloroethylene also generate a large amount of solvent condensate during vapour degreasing, helping to achieve consistently high cleaning quality.

Chemical properties and service elements support maximum cleaning performance

According to Kai Lechner, another advantage of perchloroethylene is its excellent compatibility with virtually all metalworking oils, e.g. critical additives, evaporation oils and chlorine-containing forming oils, with very few exceptions, as well as its straightforward stabilisation.

Every day, VIA Oberflächentechnik receives 40 to 60 lorry loads of parts contaminated with a wide variety of forming oils, around 500 different types in total. "And the oils aren't getting any easier to handle either, but so far we're managing everything with PERC," adds Kai Lechner.

As the stabiliser concentration in the solvent gradually decreases during normal operation, particularly under heavy use, re-stabilisation is required in most cases to protect both the cleaning system and the parts being cleaned from corrosion. It also helps maintain high cleaning quality and extends solvent life.

DOWPER* N contains a specially formulated stabiliser package developed for removing modern high-performance lubricants in closed cleaning systems, where particularly high concentrations of contaminants are removed. Its high stability makes the product especially suitable for demanding cleaning tasks under challenging conditions, as well as applications requiring the removal of large quantities of oil. The comparatively large difference in boiling point between perchloroethylene and oils also makes them easier to separate by distillation than with many other solvents.

In consultation with SAFECHM, Kai Lechner chose the most powerful stabiliser package available at the time because of the demanding cleaning requirements. This has helped maintain solvent stability within a safe operating range over a long period despite the large number of highly additised oils.

To ensure a reliable process, regular solvent checks are essential. For periodic testing, SAFECHM supplies MAXICHECK™ Test Kits specifically designed for DOWPER* N. The test kit enables simple on-site monitoring of stabiliser

concentration, e.g. acid acceptance, alkalinity and pH value, helping to minimise the risk of solvent acidification and corrosion of the cleaning machine.

The analysis results are recorded in an electronic operating logbook and forwarded to SAFECHM. By providing an external view of the processes and solvent use and consumption, SAFECHM is able to supply valuable insights that contribute significantly to high process reliability and efficiency.

Perchloroethylene will continue to meet the highest quality standards in the future

Between 2009 and 2016, VIA Oberflächentechnik purchased three additional PERC cleaning machines. Kai Lechner is well aware of the discussions surrounding the future of perchloroethylene: He states: "Of course, PERC is always a topic of discussion, but in the last 10 years I haven't had a single customer who explicitly wanted cleaning without PERC. So, we'll continue to use perchloroethylene in the future. At the moment, I don't see a replacement for PERC in our pre-cleaning process."

The solvent's excellent penetration properties are another important advantage: Kai Lechner says: "We have customers with huge parts, but often also parts with complex structures and

geometries. As soon as spaces become tight, modified alcohols, for example, reach their limits. We need perchloroethylene to meet both our own quality requirements and those of our customers. Every cleaning medium has its place here and we need them all, including perchloroethylene."

Kai Lechner believes that cleaning with perchloroethylene will continue to be indispensable as quality standards continue to rise. He concludes: "There are certainly many applications where you can manage without PERC, or where there are even better alternatives. In fine cleaning, for example, we focus much more on the surface itself, which is why we consciously chose other media such as modified alcohols or aqueous solutions. We also see greater capabilities in these media when it comes to particle removal."

However, perchloroethylene delivers the best degreasing performance and remains the "workhorse" at VIA. As a result, it continues to play an indispensable role in the company's pre-cleaning process.

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UTM invest in MecWash MWX600 to double cleaning performance

MecWash Systems worked with training ammunition specialists, UTM (Ultimate Training Munitions) Ltd to increase productivity. Following significant investment in advanced manufacturing equipment at its factory in Suffolk, UTM identified an opportunity to further optimise its production by purchasing a new component cleaning system.

Having previously invested in two MecWash Midi systems which had delivered reliable performance over many years, UTM was confident in MecWash's technology. With increasing production demands, the business required a more advanced solution capable of increasing throughput while introducing greater automation to the cleaning process.

Paul Jarratt, sales manager at MecWash, worked alongside UTM to identify the MecWash MWX600 as the ideal system for their requirements. He states: "We worked alongside UTM to successfully maintain the Midi Systems for 19 years. With the substantial increase in volume required, UTM required a more advanced system capable of increasing throughput with added automation.

"We decided the MWX600 was the best choice for the application at UTM. It is the largest and most powerful of the component cleaning systems made here at MecWash and represents the ultimate flexible parts washing and degreasing system available for manufacturers today."

John Talbot, vice president of operations at UTM is pleased with the impact of the system: "Effective parts washing is a critical stage in the cleaning process at UTM. It is essential the components are free from oil and grease so that



downstream automated systems, such as bowl feeders, can operate smoothly without parts sticking or causing costly interruptions.

"Offering a substantial increase in capacity, the MWX600 features a chamber measuring 600 mm wide x 600 mm high x 800 mm deep. This means we can process up to four baskets of shell cases per cycle which is double the capacity of the previous Midi system.

"Since installation, the MecWash MWX600 has increased the volume of parts cleaned by 100 percent, immediately improving production flow and supporting higher output targets. To further enhance productivity, the MWX600 was designed with an automated load and unload solution, providing enhanced wash functionality and remote monitoring."

He continues: "The contaminated parts are now loaded into baskets on a conveyor in one room, before being automatically transferred through the washing and drying process and

delivered ready for the next stage of manufacture.

"This not only improves efficiency and consistency but also reduces manual handling and streamlines workflow between production areas. By upgrading to the MWX600, UTM has increased its cleaning capacity, improved the process reliability and strengthened the efficiency of its operation."

John Pattison, managing director of MecWash, comments: "As with many of our customers, we have a longstanding relationship with UTM. We understand the application at UTM and have successfully supported the Midi over the course of its lifecycle. Paul and the team worked closely with the UTM team to develop the exact process to wash and dry the shell casings thoroughly. The MecWash team has formidable experience in building parts washing systems for the defence sector. I am confident the upgrade to the MWX600 will help



to ensure that UTM is well positioned for its planned growth for years to come."

For more information about the comprehensive range of cleaning solutions for the manufacturing industry by MecWash, visit mecwash.com

Established in 1993, MecWash Systems Ltd specialises in the design and manufacture of a complete range of aqueous parts cleaning and degreasing systems for metal and plastic engineering components. Its capabilities include laboratory analysis of complex component cleaning issues and specifying or developing specialist detergents, plus the ability to design special processes and parts washers for particularly difficult cleaning challenges.

MecWash parts washers are used in the aerospace, automotive, defence, general engineering and medical industries. It specialises in achieving high cleanliness standards for components with intricate geometries, difficult substrates or tenacious contaminants. Its parts washers support the full range of engineering processes, including machined castings, forgings, turned parts, pressings, extrusions and mouldings.

Harrison Silverdale boosts productivity with MecWash Duo

MecWash Systems installed a Duo 400 parts washing system at leading fastener specialists, Harrison Silverdale Ltd, adding a brand-new cleaning facility following sizable investment in machinery.

Harrison Silverdale has serviced the manufacturing industry since 1982 with high quality, engineered fastening solutions. After purchasing a new Star Micronics machine, Harrison Silverdale contacted MecWash to scale its cleaning capacity in order to keep up with growing demand for its custom designed fasteners.

Mark Harrison, managing director of Harrison Silverdale, comments: "Our core products are fasteners for plastic and sheet metal. We supply to over 37 counties with an average of 10 million parts per month dispatched from our warehouse in Dronfield.

"One of the things that sets Harrison Silverdale apart from other distributors is the fact that we have a design service where we develop special parts for customers applications. We have three qualified CAD engineers and rapid prototyping facilities on site which include 3D printing and 5-axis machining. These specialist parts are covered by ISO 9001:2015.

"Manufacturing these bespoke fixtures requires absolute accuracy, so they must be



cleaned to a high standard. MecWash has a reputation for delivering extremely detailed component cleaning, so I contacted Alan to discuss our requirements."

Known for long-standing relationships with leading manufacturers, MecWash builds bespoke parts washing systems at its factory in Tewkesbury, Gloucestershire.

Alan Atkinson, sales manager at MecWash, worked alongside the Harrison Silverdale team to plan and commission the installation at their newly built factory extension in Dronfield, Derbyshire. He explains: "Mark, his son Max and I spoke at length to understand the requirements for the application and the contamination. It was proven through trials that the MecWash Duo 400 would be the perfect fit for the quantity of components and cleanliness requirements.

"The Duo is a general parts washing system, providing first class cleaning with detailed wash, rinse and drying. It is an exceptionally versatile aqueous cleaning system, suitable for dense baskets of various small turned parts which is the chief requirement at Harrison Silverdale.

"With a 400 x 450 x 600mm (w-h-l) wash chamber and a 100 kg maximum load capacity, the Duo 400 allows customers to clean large volumes of components efficiently. Its combination of powerful flood and spray washing, spray rinsing and hot air drying has helped Harrison Silverdale serve its customers more efficiently," states Alan Atkinson.

Mark Harrison continues: "The MecWash Duo

400 has enabled us to fulfil the growing demand from our customers. We work with leading OEM's and distributors across Europe, USA and Australasia therefore the speed of service is a critical part of our offering. The support of the MecWash team throughout the process has been first class and the detail of the approach taken."

John Pattison, managing director at MecWash, is pleased with the impact of the Duo 400: He comments: "The unique parts created by Harrison Silverdale require delicate yet thorough cleaning which the Duo excels in. It is a very popular system due to its versatility and is used across the sectors, including precision engineering where we have established a reputation with leading manufacturers.

"A MecWash customer is a customer for life. Designing and building the highest standard of component washing systems is just the initial part of the customer experience. The 'MecWash Approach' is based upon providing the customer with long-term support for the system's entire lifecycle. We have over 30 years of experience in optimising cleaning processes for our customers. This gives us great confidence when addressing any application, as we understand the small details of component cleaning which make all the difference for manufacturers."

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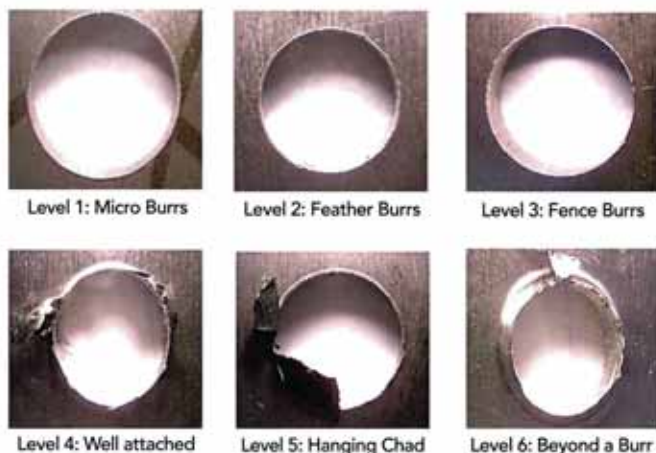
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Why wet blasting outperforms traditional deburring processes

by Ryan Ashworth, head of sales and marketing for Vapormatt

A burr that breaks off a medical implant inside a patient is not a quality issue you can go back and easily correct. The same is true of a burr that jams a hydraulic valve spool, or one on a cutting tool flute that triggers premature coating failure. In each case the damage shows up where the manufacturer will never see it. That is why the choice of deburring process matters and why wet blasting has become the process of choice for precision parts where mass finishing, hand tools and dry blasting fall short.



The problem with mass finishing

Vibratory and barrel tumbling remain the incumbent processes for most manufacturers, and for bulk deburring of robust components they remain sensible choices. Both rely on uncontrolled part to part and part to media contact, however. Tumbling tends to attack edges and round corners, does not penetrate well into recesses and carries a real risk of surface indentation as parts collide repeatedly during the cycle.

Vibratory finishing is gentler and reaches into recesses more effectively, but neither method lets an operator control a single feature, such as a flute, a cutting edge or an internal cavity, independently of the rest of the part. For a batch of brass fittings that is rarely a problem. For a carbide cutting tool, where edge radius is the whole point, or a titanium surgical tip, where micro-geometry defines function, it is.

Wet blasting treats parts individually, or in fixtured batches, using a slurry stream whose pressure, abrasive type, gun angle and component motion can each be adjusted independently. The recipe is matched to burr size and substrate rather than applied as a generic programme, which is why it suits cutting tools so well. In trials on 8 mm HSS taps, a comparable geometry, this approach removed type 1 and 2 burrs along the flute in five seconds per tap, with average edge radius held between 16 and 20 microns, confirmed by Alicona Edgemaster measurement.

The problem with dry blasting and hand deburring

Dry abrasive blasting is often seen as the cheaper alternative, but the

physics works against precision components. Without water to cushion the abrasive, peak impact energy is higher and harder to control. That suits scale removal or paint preparation well enough but sandblasting typically removes small burrs without touching heavier ones and offers little of the fine control needed to protect a cutting edge or a polished medical surface.

Manual deburring by hand depends on operator skill and fatigue, cycle times vary from part to part, and there is no reliable way to document or repeat a process the way an automated wet blasting programme can be validated for every part in production.

Where wet blasting wins

Three things set wet blasting apart from the alternatives.

Control without trade-off

Because the slurry cushions the abrasive before it reaches the surface, wet blasting removes category 1 and 2 burrs without loading the base material or significantly changing the edge radius, an outcome mass finishing and dry blasting struggle to deliver reliably on the same part.

Reach into complex geometry

Water carries the abrasive around hidden corners and into internal cavities that tumbling media often cannot access, demonstrated in trials on multi-geometry brass valve fittings using nothing more than a basic wet blasting manual machine.

Repeatability at precision tolerances

With automatic motion control, the same programme processed three titanium surgical tip geometries to a confirmed visual deburring standard, a level of consistency hand finishing cannot match.

Matching the process to the part

Tumbling and vibratory finishing remain valid choices for robust, high-volume components where edge geometry is not critical. But wherever a burr sits on a cutting edge, inside a cavity or on a surface destined for a patient, wet blasting removes it without introducing a secondary problem, with parameters that can be set, measured and repeated.

About Vapormatt

Vapormatt pioneered wet blasting technology and supply robotic, automatic and manual systems for precision industries. With more than 40 years of experience, its solutions help improve product performance, consistency and sustainability across manufacturing sectors.

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When water and blasting media work together

Wet blasting, also referred to as slurry blasting, is a particularly gentle technique for surface finishing. In this process, compressed air, water and blasting media are applied in combination to the workpieces and parts being processed. The process removes contamination and produces defined surface conditions without damaging the base material.

Water serves several functions in this process: it combines the blasting process, conventional "sand blasting" or dry blasting, with a cleaning effect, promotes more uniform distribution of the blasting media, penetrates even the smallest crevices and simultaneously cushions the blasting media like a buffer. As a result, material removal is minimal, since the water absorbs the impact energy allowing the tightest workpiece tolerances to be maintained.

The process is particularly well suited for producing easily cleanable surfaces, for the gentle cleaning of workpieces and for achieving a visually appealing surface finish.

What is wet blasting especially suited for?

Wet blasting is ideally suited for sensitive and precision-manufactured metal workpieces. The



flow of water across the workpiece surface produces a grinding-like effect. However, this method is not only gentle but also cost-effective: the cushioning water layer between the workpiece and the blasting media reduces blasting media consumption. Because dust generation and the associated contamination is prevented, very fine blasting media can also be used.

To achieve a particularly uniform blasting result and surface finish, blast nozzle control in Rösler wet blasting systems is typically handled by an industrial robot or a CNC system. Feeding and discharge are also individually adapted to your production requirements and can be automated in a variety of ways upon request.

Which blasting media can be used in wet blasting?

Depending on the desired result, blasting media such as glass beads, ceramic beads, or fine grades of aluminum oxide are used, among others. The water-based process allows very fine blasting media to be handled that would be difficult to manage in dry blasting. The key principle applies: the effectiveness of wet blasting depends on the correct combination of blasting media, its concentration, water and air pressure.

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