

PRESS RELEASE

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Eine Messe des | A fair of


Innovations with great potential

Young companies to present a wide range of solutions for grinding technology at GrindingHub 2024

Frankfurt am Main, 02 May 2024 - "The first GrindingHub two years ago was brilliant for us thanks to the many new contacts that we made," emphasized Helmut Gaisberger, Global Sales Director of the Swiss mechanical engineering company G-Elements, which has developed a completely new cylindrical grinding machine. "For us, this trade fair is the perfect platform with its clear focus on grinding technology." He is therefore greatly looking forward to the upcoming second edition of GrindingHub which the German Machine Tool Builders' Association (VDW) is staging in cooperation with Messe Stuttgart from May 14 to 17, 2024. According to Gaisberger, Stuttgart is "an excellent location, also because it is so centrally located in the Germany-Austria-Switzerland region."

His company is once again taking advantage of the VDW's offer to present itself at the Startup Hub, a joint stand for young companies. Through this offer, VDW is helping the companies on easy terms to gain a foothold at the "hub of international grinding technology". This opportunity is also available on the directly adjacent "Innovation Made in Germany" booth where the German Federal Ministry for Economic Affairs and Climate Protection is also supporting start-ups, which are less than ten years old, with an attractive package for their presence at the trade fair.

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Even if this applies to a large extent to the trade fair as a whole, exciting innovations and services run like a common thread through the joint booth.

Small and easy: Completely new concept for cylindrical grinding

This also applies, for example, to the cylindrical grinding machine from G-Elements, which, unlike conventional models of its kind, is aligned vertically. According to the Swiss company, this not only saves space, as its footprint is the size of a Euro pallet, but also provides a good view of the grinding gap. It requires no foundations and can be positioned anywhere on a workbench. Weighing just 475 kilograms, it is portable, especially since it can be plugged into any 230 volt household socket.

The machine is also characterized by its extremely high energy efficiency. "Our cylindrical grinding machine requires less than 0.5 kilowatts under full load, i.e. less than a coffee machine," emphasized Gaisberger. "The main power goes into the chip and not into the hydraulics or pneumatics because the new machine requires no peripherals. The machine is therefore sustainable and the very long service life also contributes to this fact. The alternative concept of the new cylindrical grinding machine is pioneering in terms of user-friendliness. The in-house developed software enables customer-specific alignment, but also works as simply as an app," said Gaisberger.

With its innovation, G-Elements is particularly appealing to customers who want to produce prototypes, individual parts or small batches. It is also suitable for fully automated large-scale series production. However, this is not the focal point as it only has one grinding wheel. What is interesting is the required investment volume, which is only half that of many other machines on the market. And it is capable of processing workpieces up to 200 millimeters in diameter and 300 millimeters in length. "Although the machine is small, it can also do a great deal," emphasized Gaisberger.

Quick and automated: Procurement and quotation costing

Large is also the keyword for the production platform for CNC turned and milled parts from Spanflug Technologies from Munich. The *Spanflug Buy* procurement solution enables mechanical engineering companies to perform highly efficient purchasing from a prototype to a series part. Based on CAD models and technical drawings, companies receive a quotation in the shortest possible time, which they can order online or from the connected ERP system. Spanflug manufactures the required parts via a network of 300 affiliated partners who have over 6,000 CNC

machines in Germany and Austria. More than 30,000 users now use this innovative procurement platform.

Spanflug only commissions its suppliers once a specific order has been placed. This also offers these partner companies security and efficiency. This is because an average of 80 percent of quotations prepared by manufacturing companies do not usually result in an order. This is different when working with the production platform where the offer prices are already stored and the order is placed without further offers. However, customers also enjoy a high degree of security since Spanflug's procurement solution ensures reliability in their supply chains in volatile situations. More than 750,000 components have already been manufactured and delivered since the platform was launched in October 2018.

Spanflug will exhibit for the second time at the GrindingHub Startup Hub where it will highlight its *Spanflug Make* solution for CNC manufacturers. "We now have an excellent opportunity here to position our calculation software in the field of grinding technology and thus present it to an even wider audience from manufacturing industry," said Dr. Markus Westermeier, CEO and co-founder of Spanflug. The new solution enables machining companies to calculate and quote production times and offer prices for turned, milled and ground parts on the basis of CAD models and technical drawings in just a few seconds.

Greater efficiency thanks to optimum cutting edge preparation

When these parts are produced, rounding of the cutting edge of the cutting tools used is extremely important. That's because this cutting edge preparation has a significant influence on precision, flexibility and cost-effectiveness. The better the cutting edge of a milling cutter, drill, step drill or even a reamer is prepared, the better results can be achieved and the longer the tool life and therefore the greater the cost-effectiveness of the tool. A key criterion here is the K value which defines the shape of rounding on a cutting edge.

Only very few processes can influence this with high precision. The options are more than limited, especially for some processes such as microblasting, vibratory finishing, wet blasting or magnetic finishing. AT-Robotics from Stuttgart, on the other hand, which will also be represented at the Startup Hub, has developed a hitherto unique automated process that can clearly determine the K-value of a cutting edge and influence it precisely. With a total of six different robot axes, the tool can be moved through a rotating diamond brush at different inclinations. Rounding is carried out with a

precision of a few thousandths of a millimeter, i.e. in dimensions that are far smaller than the diameter of a human hair.

The result of this high-precision cutting edge preparation is a significant extension of the life cycle of the cutting edge. "Thanks to the longer service life and the associated cost-effectiveness, the use of our system pays for itself within six to nine months," said Tomislav Anic, founder and Managing Director of AT-Robotics. Other advantages of the automated process include greater process reliability and higher precision. Since the system also has program templates for various milling, drilling and reaming tools, it enables correspondingly short set-up times. "Another key strength of our system is the machining of step drills. That's because the robot technology enables different cutting edge radii to be applied to different steps," added Anic, who is already looking forward to convincing interested parties of the benefits at GrindingHub.

Diamond-coated tools ensure higher performance

The Potsdam-based company Weber Technologies, which was founded in 2018, also has high expectations of the trade fair. The declared aim of the still young company is to become one of the technology leaders in the field of diamond coatings for cutting tools and wear parts. These are used, for example, in the dental industry and mold making, but also in the aviation industry and the automotive industry where carbon fiber-reinforced materials, graphite, dental ceramics and aluminum alloys are processed, for example. The diamond coating on solid carbide tools such as milling cutters and drill bits protects them against wear and increases performance when milling and drilling. Diamond-coated tools increase the cutting performance and tool life many times over compared with uncoated tools.

The utilized process enables Weber Technologies to achieve very high purity of the diamond coatings. "One of our special features is that we can scale the crystallite sizes in the process," emphasized Dr. Frank Weber, Managing Partner of the company. "This is possible from microcrystalline structures in the range of one to five micrometers to nanocrystalline structures where we can achieve sizes of 10 to 20 nanometers in one coating process."

AI-based predictive maintenance saves enormous costs

The Hamburg-based start-up ai-omatic also has a unique position on the market. Founded in 2020, the company has developed AI-based maintenance software for predictive machine maintenance. This solution offers customers across all industries a digital maintenance assistant

that automatically monitors machines of all kinds, detects failures in advance and predicts the optimum maintenance time. "Against the backdrop of severely limited machine availability due to possible downtimes, companies can save immense costs through predictive maintenance," said Anna Weirauch, Customer Success Manager at ai-omatic solutions. "Only four percent of all companies exploit this potential by determining the right time for maintenance." Because if maintenance is carried out too early, resources are wasted; if it is only carried out in response to a failure, it is often associated with high costs.

The ai-omatic solution combines the expertise of an engineer in the customer company with a powerful AI system. After collecting sensor and process data on the normal behavior of the machine and the expert knowledge of the operator, the software defines a normal state. An algorithm developed in-house constantly compares this with the data in live operation and reports any deviations. The ai-omatic method is quickly scalable and can be applied to any machine.

The fact that a visit to the Startup Hub is worthwhile will therefore probably apply to most visitors to GrindingHub. Because they will learn there about very different solutions that grinding companies can use to increase their efficiency and performance and reduce costs.

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Background to GrindingHub in Stuttgart

GrindingHub will be held for the second time in Stuttgart from May 14 to 17, 2024. It is staged every two years by the German Machine Tool Builders' Association (VDW), Frankfurt am Main, in cooperation with Messe Stuttgart and the Grinding Conference (Schleiftagung). The promotional supporter of GrindingHub is the "machine tools" industrial sector of Swissmem (Association of the Swiss Mechanical Engineering, Electrical Engineering and Metal Industries). In Germany grinding technology is one of the top 3 production processes in the machine tool industry. According to official statistics, the industry produced machines to the value of 1,1 billion Euros in 2023. 79 percent was exported, around half of which went to Europe. The largest sales markets are China, the USA and India. In addition to Germany, China and Japan lead the world rankings. In 2023, the global sanding technology sector produced machines worth around 4.8 billion euros.

You can find texts and photos relating to GrindingHub in the press section at:

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