GRINDING HUB
Brings solutions to the surface.

PRESS RELEASE

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VDW

Presenting ingenious ideas to an expert audience

GrindingHub introducing innovative young companies in the Start-up Hub

Frankfurt am Main, 12 April 2022. – Two years into the pandemic, two years without trade fairs – Iris Münz, Managing Director of ultraTec Anlagentechnik Münz is clearly looking forward to the GrindingHub in Stuttgart (May 17 to 20, 2022): "We had just got our prototype up and running in October 2019 when the coronavirus came along," she says. "Now we are really looking forward to demonstrating our ultrasonic deburring system to a broader audience of experts." The company from Laupheim in Baden-Württemberg is participating in the joint Start-up Hub, taking advantage of an offer which GrindingHub organizer VDW (German Machine Tool Builders' Association) hopes makes it easier for young companies to enter the market.

Start-up scene recovering after pandemic dip

As the VDW notes in its trade fair announcement, trade fairs have a special significance for start-ups – by helping them to meet new customers and build a strong, reliable brand, for instance. The new GrindingHub trade show is coming at just the right time. There is a positive mood in the scene right now, confirms Marvin Kaes, Head of the RWTH Innovation Entrepreneurship Center. There are many interested investors and evidently also plenty of capital in the market right now. The German Startup Monitor (Deutscher Startup Monitor - DSM) of Berlin-based "Startup Verband" shows that the business climate for young companies has recovered significantly since the start of

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the pandemic and is back at pre-crisis levels. 2,013 start-ups were reported in Germany last year alone. However, this should not obscure the fact that many companies founded shortly before the pandemic have had much to contend with. Statistically, around two thirds of all start-ups are self-financed and are launched independently. In cases where there were no sales figures from previous years to serve as a comparison, no financial aid was forthcoming.

Ultrasonic deburring: efficient and resource-saving

This was the case for the company that Iris Münz founded together with her husband Dieter in 2019. Everything had got off to such a good start. The original idea for the ultrasonic deburring system came from a project successfully entered by Münz's son Jonas and a friend in the "Jugend forscht" young scientists' competition. The company ultraTec Anlagentechnik Münz GmbH was founded three days before Jonas won the top award, the "Prize of the Federal President for Extraordinary Work". Dieter Münz, production technician and industrial engineer, had coached the two young researchers. His priority then shifted to taking the process through to market maturity and preventing it from "landing in the back of some drawer". The company sought to protect its novel and highly innovative ultrasonic deburring process by applying for two patents – which have since been granted.

Stimulated by the ultrasonic generator, the sonotrode in the process water tank oscillates over 0.1 mm 20,000 times per second, explains Iris Münz. If the edges and holes of a component to be deburred are guided along the sonotrode tip at a defined angle, the burrs can be raised and carefully removed. According to Münz, what is special about the process is that it can be used on almost any material and even on sensitive surfaces. Complex geometries, microcomponents or sharp edges can also be processed automatically in the validatable process. It has no impact on the mechanical-technical properties. The ultrasonic process also has very strong environmental credentials. According to Iris Münz, it uses 5 percent less energy than thermal deburring or high-pressure water jet deburring systems. The process water can be drained without difficulty, as the detached burrs are filtered out, with no addition of chemicals which then need to be specially disposed of.

Turning cylindrical grinding upside down

Resource efficiency is also high on the list of priorities at G-Elements GmbH based in Wallisellen, Switzerland. The company was founded in 2016 by two mechanical engineers, Florian Hänni and

Thomas Sigrist, who literally turned the concept of the cylindrical grinding machine on its head. Applying the *pure grinding* approach, all peripheral equipment was removed from a cylindrical grinding machine and mounted on the X axis. The new axis concept allows the machine to make use of gravity during high-precision grinding at tolerances down to ± 2 µm. Nevertheless, it has a footprint no more than the size of a Euro pallet. The lightweight unit (440 kg) can be moved on three casters. "We roll the machine to the work, not the other way around," says Global Sales Director Helmut Gaisberger. Start-up and changeovers are designed to take as little time as possible. Barely an hour is needed from delivery to the first chip, according to the company, and the operation itself is "super-easy". There is a video tutorial which gives tips on use. For this reason alone, the machine is ideal for training workshops, prototyping and zero series production, or "simply for all those who are fed up with frequent changeovers," says Gaisberger.

The novel device requires a simple 230 V household socket as a power source and consumes no more energy than a coffee machine. The machine's cost-effectiveness is enhanced by its standard equipment, which includes structure-borne noise insulation, free software, programmable spindle speeds and two measuring channels for Tesa probes. An offline programming station is also included. The control system was developed in-house. In addition, the machine is prepared for automation and networking solutions.

From research to market

In Germany, almost half of all start-ups are engineering-based. In addition, a quarter of all start-ups (26 percent) come from the research/university sector, according to DSM. This is also reflected in the GrindingHub Start-up Hub. The Fraunhofer societies regard the Area as an "integral part of their own utilization efforts", while the Office of Technology Assessment at the German Bundestag (TAB) sees it above all as an opportunity to prepare the groundwork for future successes. Spin-offs are expected to generate rapid growth, to contribute to structural change and to be a major source of new ideas for technology transfer and job creation.

The company oculavis, which emerged from the Fraunhofer-Gesellschaft and RWTH Aachen University in 2016 and will also be taking part in the Start-up Hub, fits this pattern. Its mission is to transform customer service, maintenance and repair processes. At GrindingHub, the Aachen-based company will present its modular augmented reality platform oculavis Share, which aims to "transmit technical knowledge to anywhere in the world," as Marketing Manager Daniel Mirbach emphasizes. oculavis has won no fewer than 18 awards to date, including the 'Gründerpreis NRW'

new business award. The company, which now has a staff of just under 70, is likely to have benefited considerably from the Covid-19 pandemic.

"Our software platform redesigns service processes at the interface between man and machine," explains Mirbach, "by accelerating the availability of technical information and machine-relevant expert knowledge through the use of augmented reality." Particularly in times of skilled worker shortages, but also following the onset of the pandemic, more and more European companies are refraining from sending expensive service technicians on long trips to customers in places like India or Australia. Digital solutions are increasingly being sought which help deliver high service quality while maintaining maximum machine availability. Three young companies focusing on digital services will be taking part in the Start-up Hub of the GrindingHub. In addition to oculavis, the Swiss companies Rimon Technologies (a spin-off of ETH Zurich) and AtlasVR will also be there, presenting software for production and production planning. They also offer virtual reality and augmented reality solutions.

Smart services bringing together startups and grinders

Various smart services can be realized on the modular augmented reality platform oculavis Share, including remote acceptance, commissioning, training and troubleshooting. The platform provides virtual guidance and instruction to employees at their place of work via their smartphones, tablets or even data glasses. This guidance helps them decide whether a new system needs to be set up, the tractive force of a spindle checked or a defective component inside a machine replaced, for example. Digital workflows including step-by-step instructions can be used for standardized activities such as maintenance, servicing and repair tasks. Encryption technologies and authorization management ensure the necessary data security.

According to Daniel Mirbach, it is particularly important to produce technical documentation of all service cases in the form of screenshots and video recordings. The *white label option* also allows for individual corporate branding. "Equipment manufacturers can then offer their own remote service platform," says Mirbach, "which also represents an attractive business proposition with regard to new, service-related business models." Visitors to GrindingHub will find an example of this on the stand of Vollmer Werke from Biberach. The international machine and plant manufacturer will be providing insights into its new digital services including Visual Support, which was set up as a subscription model based on the oculavis system.

The Start-up Hub of GrindingHub, an international meeting place for the grinding technology industry, offers the best launch pad for future technologies and data-driven processes or key technologies such as artificial intelligence, Industry 4.0 and the Internet of Things (IoT). The communication opportunities offered by the trade fair are of great appeal to young companies. As Daniel Mirbach puts it: "We want to impress the grinders with our ideas."

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Spin-off Strategy

Three questions for Marvin Kaes, Head of the RWTH Innovation Entrepreneurship Center

A spin-off from RWTH Aachen University will be taking part in the joint Start-up Hub at the GrindingHub. That is surely no coincidence. RWTH Aachen University is the top German university for spin-offs. Why is that?

As a business incubator, we are affiliated with the university but enjoy a great deal of creative freedom. In line with our vision to become Europe's leading tech incubator, we have developed a three-tier strategy. This begins with mobilization, in which we introduce students to the option of starting their own business. We do this through lectures, start-up roundtables and other events. In the second phase, students can then approach us. What we want to get across is that no-one should have to work alone on their idea. That is why we offer coaching and workshops to provide the best possible support in the period before and after the actual launch. The third phase involves joining a community of around 500 startups which can provide contacts to mentors, external experts and investors.

What are the biggest hurdles for aspiring startups?

Firstly, researchers tend to spend too much time on the prototype, wanting to perfect it as much as possible before involving potential customers. We try to convince them to adopt an 80/20 strategy that leaves them enough room to respond to customer needs. The second major challenge lies in establishing a good team and network. It is very important here to consider aspects such as the go-to-market strategy and recruitment at an early stage.

How much did the startup movement suffer during the pandemic?

There was a minor dip in 2020, but at the moment we are registering strong interest. We are always conducting plenty of research, which can then lead to patents. The challenge lies in motivating researchers to take their research into the business world. Our job is to give them the support they need. More than 100 start-ups a year are currently being launched from RWTH Aachen. I am confident that we will see a further increase this year.

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Author: Cornelia Gewiehs, freelance journalist, Rotenburg (Wümme)

Background GrindingHub 2022 in Stuttgart

The first ever GrindingHub will be held in Stuttgart from 17 to 20 May 2022. It is the new trade fair and the new center for grinding technology. It is scheduled to be run every two years by the VDW (German Machine Tool Builders' Association), Frankfurt am Main, in cooperation with Messe Stuttgart and the "Machine Tools" industry sector of Swissmem (Association of the Swiss Mechanical, Electrical and Metal Industries) as institutional patron. Grinding is one of the top 4 manufacturing processes within the machine tool industry in Germany. In 2021, the sector produced machines to the value of 805 million euros, according to VDW estimates. Just over 80 per cent were exported, with about half going to Europe. The largest sales markets are China, the USA and Italy. The VDW has world market data up to and including 2020. China, Germany and Switzerland head the list of top global producers. The grinding technology sector produced 4.3 billion euros worth of machines in 2020.

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