

Motion

01.2021
The UNITED GRINDING Group's
customer magazine

**INDEPTH
INTERVIEW
INTERNATIONAL**

Important training: The machine and the person in front of it
What counts is trust: The exchange of machine data
Strengthened after the coronavirus crisis: EMO host Italy



*Teamwork across all brands:
CTO Christoph Plüss (third
from left) with some of the
many C.O.R.E. developers*



WE MAKE MACHINE TOOLS SMART

Move „C.O.R.E.“ to the first line:
With the innovative, cross-branding system C.O.R.E. the UNITED GRINDING Group
creates a completely new operating experience for its customers



IN THIS MOTION, YOU WILL FIND:

- 3 **WELCOME**
CEO Stephan Nell on the new machine operating system C.O.R.E. and trust in times of digitalization
- 4 **A LOOK INSIDE...**
... the new standardized control panel for machines of all company brands
- 6 **NEWS**
News from the UNITED GRINDING Group
- 8 **INNOVATION**
"Operate the machine like a smartphone." The standardized operating system C.O.R.E. takes the machines of the company groups to a whole new level
- 14 **INSIDE**
Even in the age of digitalization, you need highly skilled craftsmen - we introduce you to four of them
- 16 **INDEPTH**
Craftsmanship, technical understanding: an overview of our customer training courses. Plus: An interview with brand ambassador Titan Gilroy
- 20 **INTERVIEW**
Trust is the basis: The handling of data is based on a relationship of trust between companies and their customers. How to do this – an expert interview
- 26 **A DAY WITH...**
... Jan Krieger. The Head of Software Development at BLOHM JUNG between C.O.R.E. and customer requirements
- 29 **TOOLS & TECHNOLOGY**
A new machine from BLOHM; a PLANOMAT with vertical spindle; laser measurement technology from STUDER; the dream of an S33; a special team from WALTER; the J600 with oil package and an optimized synchronous tailstock from STUDER
- 36 **INTERNATIONAL**
Arrivederci, coronavirus! How Italy's mechanical engineering industry has recovered from the pandemic and what it expects from the EMO
- 40 **IDEAS**
Green growth after coronavirus or: How to separate economic growth from resource consumption
- 43 **INTOUCH**
The Motion calendar: Important fairs and events

EDITORIAL DETAILS

PUBLISHER United Grinding Group Management AG, Jubiläumsstrasse 95, 3005 Bern **RESPONSIBLE** Paul Kössl **PUBLICATION MANAGER** Myria Aeschbacher **CHIEF EDITOR** Michael Hopp (responsible for the purposes of press law) **ART DIRECTION** Tobias Zbell **ACCOUNT MANAGER** Sandra Leppin **PICTURE EDITING** Thomas Balke **AUTHORS** Mathias Binswanger, Björn Hartwig, Thesy Kness-Bastaroli, Heinz-Jürgen Köhler (Copy Editor), Ira Schoers **LAYOUT** Claudia Knye **PRODUCTION** Wym Korff **PUBLISHING HOUSE AND ADDRESS OF EDITORIAL OFFICE** JAHRESZEITEN VERLAG GmbH, Harvestehuder Weg 42, 20149 Hamburg **READER SERVICE** wym.korff.extern@jalag.de **MANAGEMENT** Thomas Ganske, Sebastian Ganske, Heiko Gregor, Peter Rensmann **LITHO** P-R-O-MEDIEN PRODUKTION GmbH, Hamburg **PRINTING** optimal media GmbH, Röbel/Müritz.

All brand names marked with ® are registered as basic trademarks in Switzerland or in Germany as a minimum and are therefore entitled to use the symbol.



Printed on
FSC®MIX
certified paper
(FSC® C108521).

“WITH THE
C.O.R.E OPERATING SYSTEM
WE PREPARE
MACHINE TOOLS FOR THE
DIGITAL FUTURE.”

DEAR READERS,

After more than five years of development, it is exciting to complete the first development stage of a project and have it ready for the market. We are also very excited when, with the release of this “Motion” issue, we can introduce our new **cross-brand machine operating system C.O.R.E**. With the combined expertise of all brands of the group of companies, we have developed a **software architecture** with which – so to speak – **machine tools can be prepared for the digital future**. In the cover story of this magazine, we introduce you to C.O.R.E.

The significantly improved **connectivity** of C.O.R.E. enables completely new forms of cooperation and data exchange. In the interview starting on page 20, I discussed the requirements for this exchange in the cooperation with two experts in **digital ethics and trust**.

In the second area of focus of this issue, we show how important **human skills** and **extensive training** are in digitalization. We will present our offers for **the training of** your employees in detail. And we present a few highly skilled craftsmen of our company. In these times of ever-faster-moving digitalization, it is important to remember that **precision** is still achieved **by manual skills**.

With this in mind, I hope you enjoy reading the latest issue of “Motion”!



Stephan Nell
CEO, UNITED GRINDING Group



Stephan Nell,
CEO, UNITED GRINDING Group

CORONAVIRUS PANDEMIC:

The UNITED GRINDING Group consistently adheres to the hygiene and social distancing rules and also strictly adhered to these measures in the production of the contributions for this “Motion” issue.

HOME

The Home button always takes you to your personal dashboard – just like on a smartphone

CAMERA
With the integrated camera, Customer Care can be summoned directly to the machine via video conferencing

SMART GRAPH
Make data easily visible: The Smart Graph presents machine data in a simple graphical way

FLEXIBLE TILE DISPLAY

The machine operator decides himself which information he wants to be displayed and where. This enables the screen to be adapted to the specific needs of the operator



STATUS DISPLAY

Simple and concise: Important process values such as temperature, flow rate and pressure are displayed on clear tiles

COMMAND CENTER

MACHINES WITH THE NEW C.O.R.E. operating system are recognizable by the innovative control panel. The 24 inch full HD multi-touch display with a new HMI concept is clearly laid out. With the innovative information tile system, the different surfaces can be arranged individually for each specific user. Intuitive navigation by swiping between the different screens brings the user experience of an oversized smartphone to the machine tool.

Messages, upcoming tasks and preferred applications (apps) are clearly presented on the personal dashboard. This makes it

possible to jump directly to the new remote support solution from UNITED GRINDING Digital Solutions™ with a single touch. If there is no operator in the immediate vicinity of the panel, it automatically switches to energy-saving dark factory mode. The machine condition and production progress can be read in high resolution from a distance. This means that even operators who look after several machines can quickly and remotely monitor the condition of the machines at a glance. RFID chips can be used to assign authorizations and user roles to the various machine operators.

FUNCTION KEYS

Selected hardware keys provide direct access to the machine's most important basic functions. Ergonomically integrated buttons in the recessed grip ensure safe operation of the 2-hand start

FEDRATE OVERRIDE

With the ergonomic rotary switch, the machine operators have the axis feed rate and cycle start under control at all times

The illustration is a schematic representation to show the functionalities of the panel.



MIAMISBURG/USA

SCHOLARSHIP ANNOUNCED

UNITED GRINDING NORTH AMERICA highlights the importance of good training in mechanical engineering with a newly announced scholarship. As part of the "Gearing up for the future" program, four students from the fields of manufacturing or engineering were awarded grants. The funds can be used for tuition fees or books. The scholarship is part of a comprehensive training campaign of UNITED GRINDING North America. Within this framework, several series of videos will also be launched on the company's own YouTube channel. In the first, "In The Shop", machine operators receive help on how to overcome challenges that often occur in production.

GÖPPINGEN/GERMANY

SERVICE FOR SCHAUDT AND MIKROSA

BLOHM JUNG GMBH will take over the service activities for machines from SCHAUDT and MIKROSA from now on. They include the supply of spare parts, replacement parts and accessories, maintenance and inspection, machine and assembly overhauls, conversions and retrofits as well as application development. "We will support SCHAUDT and MIKROSA customers with the level of quality they are accustomed to," emphasizes Wolfgang Benz, CSO Surface & Profile.

MIAMISBURG/USA

STRONG PERFORMANCE

HE IS A LEGEND in US mechanical engineering and is a prime example of the American dream like no other, which anyone can achieve through hard work: Titan Gilroy was a boxer and prisoner. There, in the legendary San Quentin State Prison, he acquired his own knowledge of CNC machining and later founded an e-learning platform once in freedom. Titan is now using his enthusiasm for machining and competent training as a brand ambassador of the UNITED GRINDING Group. More about Titan Gilroy on page 19.



THUN/SWITZERLAND

FRITZ STUDER AWARD PRESENTED

FOR THE SIXTH TIME, the Fritz Studer Award was presented for creative ideas and solutions in the machine industry. Graduates from European universities and technical colleges were able to apply. The Fritz Studer AG Award endowed with 10,000 Swiss francs went to Dr.-Ing. Mirko Theuer from the Institute for Manufacturing Technology and Machine Tools at Leibniz University Hannover. He was awarded the prize for his work "Continuous generating grinding of cutting tools," in which he transfers theoretical and practical findings from the field of continuous generating grinding of gears to the conditions of a 5-axis tool grinding machine.

THUN/SWITZERLAND

THE ART OF GRINDING

STUDER HIGHLIGHTS its many years of experience in grinding with this claim.

An impressive symbol of this campaign is an S31 designed by Swiss artist Ata Bozaci. "Grinding is an art, not everyone can do it in terms of precision and quality," emphasizes CSO Sandro Bottazzo.



LJUBLJANA/SLOVENIA

NEW REPRESENTATION

STUDER IS NOW REPRESENTED BY **TEXIMP** in all states of the former Yugoslavia - from North Macedonia to Slovenia. The company takes care of the sales and first-level service of STUDER machines in these countries. "We wanted a partner who knows mechanical engineering, offers a professional service structure and has show-rooms in the Belgrade, Ljubljana and Zagreb metropolitan areas," says Dalibor Dordic, Sales Manager North East Europe. Teximp met all requirements.

SHANGHAI/CHINA

SECOND MACHINE LIFE

UNITED GRINDING CHINA has created a tailor-made machine overhaul program for its customers, specifically for machines with a service life of 15 years or more. As part of the "United Grinding China Overhaul Business," machines from STUDER, BLOHM, WALTER and EWAG are thoroughly overhauled in terms of hardware and software. "This means that they are at the same level of precision as new machines," stresses Zhang Tao, Vice General Manager, Technology, UNITED GRINDING China.





C.O.R.E developer: Marcus Köhnlein, Joel Amstutz, Christoph Plüss, Christian Josi, Michael Schwitter and Stefan Aepli with the new control panel (clockwise, starting at top right)

"OPERATE THE MACHINE LIKE A SMARTPHONE"

With the C.O.R.E. project, the brands of the UNITED GRINDING Group not only standardize the operating system and the control units of their machines. They also take the software to a whole new level

TEXT: Heinz-Jürgen Köhler

PHOTOGRAPHY: David Schweizer

FINGERS QUICKLY GLIDE over the control panel of the grinding machine, access the job list, and activate the desired machining program on the next screen. What follows is, with the only physical touch of a button in the process, the program start. And the parameters of the current production cycle, from the spindle load display to the axis speed, are immediately displayed clearly on various tiles.

The new multi-touch panel is the visible element of the C.O.R.E. program of the UNITED GRINDING Group. C.O.R.E. does not only refer to the core of the machine itself. It is also an acronym for Customer Oriented REvolution. Or, as Marcus Köhnlein, Head of Digital Business, puts it: "C.O.R.E. is the future of software." Does this make sense? No? Then let's start from the beginning.

PROJECT START 2015

"C.O.R.E. dates back to 2015," says Christoph Plüss. The Chief Technology Officer is the driving force behind the project. As Industry 4.0 became more and more popular in public debate, the question arose as to how the corporate group intends to deal with



"WITH C.O.R.E. SOFTWARE DEVELOPMENT CAPABILITIES ARE BUNDLED. THIS INCREASES THE DEVELOPMENT SPEED."

*Daniel Leuenberger
Head of Department of Product Engineering
Hardware/Software STUDER*

it. "That was easy to answer at first: definitely together." That is how the idea of a group-wide operating system came about, following the uniform machine design introduced in 2013.

Developing a machine operating system together with eight company brands from two countries and three different technology groups was a complex process that occupied the group of companies for several years. Before the Corona year 2020 slowed down the development, the brand and multi-country teams had been working 2019 very intensively on C.O.R.E. using the agile Scrum method. "A significant part of the research and development budget went into the project that year," explains Plüss.

SHARING THE BURDEN

Teamwork between the brands was not only a challenge, but also an opportunity. "Nowadays it is hardly possible for a company to develop software on its own – except for large corporations," emphasizes Stefan Aebi, Head of Software Development at EWAG and the project's Scrum Master. "With C.O.R.E. we are dividing this task be-

tween all the brands, and everyone benefits." And after machines were presented for the first time at EMO 2019 in Hanover, which delivered data to a central data hub via the umati interface – a preliminary stage to C.O.R.E., the first next-generation machines with C.O.R.E. will now be presented at the upcoming metalworking trade show 2021 in Milan.

These machines are externally recognizable by a C.O.R.E. sticker and the new control panel. The 24-inch full-HD multi-touch display is not only an eye-catcher, but also a major innovation itself.

"Much more than a classic operating unit, it is an intelligent, clear command center for the respective operator," explains Christian Josi, who is responsible for hardware. "This will prepare us for the digital natives," emphasizes Marcus Köhnlein. The intuitive design of the elements and the almost exclusive operation via touch represent a completely new way of controlling the machines. "The operating experience is state-of-the-art, I can practically operate the machine like a smartphone," adds Christoph Plüss. The CTO also sees this as a necessary investment in the future: "The

next generation of machine operators, are our children." And they grow up with smart devices.

SUSTAINABLY EXPANDABLE

Orientation towards the operator's experience was always at the forefront of development. Feedback was provided by customers and their own application engineers. "The user experience was central from the start, everything else was secondary to it," explains Michael Schwitter, Application Engineer at STUDER and Project Architect at C.O.R.E. In addition to the control element, a high-performance industrial PC is the other hardware component. This local digital platform expands the classic IT (Information Technology) to the OT (Operational Technology) and establishes a secure connection from the customer's network to the inner workings of the machine.

In the background of the pure operating software, a so-called middleware runs on the PC, which establishes the connection to the existing applications that are still working



"WITH C.O.R.E. WE'RE GETTING READY FOR THE DIGITAL NATIVES."

*Marcus Köhnlein
Head of Digital Business, UNITED GRINDING Group*

Hardware discussion: Christoph Plüss, Marcus Köhnlein, Joel Amstutz, and Christian Josi (from the left)





The latest requirements also in terms of security: A modern RFID chip reader replaces the previous key switch

in the background. "In the subsequent releases, we will then standardize these between all brands," says Köhnlein. And at the very bottom of the software architecture, the individual machine controls run, depending on the Siemens or Fanuc brand.

This phased structure not only enabled a release at this point in time. "Flexible and sustainable expandability is also a great advantage. New features will be added on an ongoing basis," explains Christian Josi, Head of Digital Engineering at UNITED GRINDING Group.

STORED ROLES

User roles are stored in the operating software, according to which the panel is individually configured: machine operators, setters, maintenance personnel, service technicians. The machine operator, for example, then only sees the processing programs, the maintenance personnel sees the diagnostic programs. This reduces complexity for the individual, simplifies handling, and thus reduces the susceptibility to errors.

In addition to the new operating experience, C.O.R.E. introduces many other advantages. The training costs are reduced - anyone who can operate a machine from the UNITED GRINDING Group can also operate all others. This even helps to counteract the growing shortage of specialists.

The same applies to the application service. "If the customer needs support with software maintenance, the brand makes no difference," summarizes Joel Amstutz, Software Developer at MÄGERLE.

In addition, the standardized hardware helps to reduce the number of spare parts required. The UNITED GRINDING Group also offers numerous advantages: "We have an easier-to-maintain system here," explains



Marcus Köhnlein, “and we can respond more quickly to customer requirements during development.”

All C.O.R.E. machines are equipped with umati interfaces. This improved connectivity – also with third-party machines – in turn opens up a wealth of optimization possibilities by means of more efficiency in the process and more transparency in production. Comprehensive predictive maintenance is also possible. This means that planned maintenance and repairs can be carried out, where the spare parts are already available and you don’t have to wait long for them.

And of course, UNITED GRINDING Digital Solutions™, such as the Production Monitor or the Service Monitor, can also be easily integrated.



Intuitive touch operation: Daniel Leuenberger on the C.O.R.E. panel



Technical discussion in the machine assembly: Christian Josi, Joel Amstutz, Michael Schwitter (from the left)



“WITH C.O.R.E. NEW TRENDS IN DIGITALIZATION CAN BE IMPLEMENTED MORE QUICKLY AND MADE AVAILABLE TO CUSTOMERS.”

*Stefan Aebi
Head of Software Development EWAG*

NEW RELEASES EVERY YEAR

From EMO 2021, C.O.R.E. will first of all be launched with basic functionalities. “This will create a basis that we will build on in the future,” explains Köhnlein about the vision of C.O.R.E. “Development continues steadily, there are always new releases.” These are also developed on the basis of customer feedback.

When it comes to the other digital possibilities that C.O.R.E. offered, CTO Christoph Plüss and Head of Digital Business Marcus Köhnlein rave about it. The possibilities range from camera-supported facial recognition, which identifies people on the machine and automatically sets their role in the system, to further support in the cooperation between man and machine, the so-called

Human Machine Teaming. Artificial intelligence in the machine could enable features such as a virtual assistant or a self-optimizing machine, in which the system itself takes over operation and maintenance support, as well as process control tasks.

“And the central interface to the customer could be a customer portal,” outlines Plüss. Not only could this be used to record and maintain the master data of the machines. An app store could also be integrated to allow customers to easily download updates or upgrades without wasting time. With the next version of C.O.R.E. it probably doesn't exist yet, but there are still several releases to follow. “Our journey”, emphasizes the CTO, “has just begun.” ◦



C.O.R.E. AT A GLANCE

The components and benefits of the new machine operating system

C.O.R.E. ELEMENTS

Core system

- Machine operating system
- Powerful industrial PC
- Ethernet connectivity
- Various interfaces and protocols
- Data security

HMI

- Uniform, intuitive operation
- User-specific configurable interface
- 24-inch multi-touch display

MACHINE CONTROL

- Control C.O.R.E. OS compatible with all CNC controls
- Easy to switch to native CNC interface

BENEFITS OF C.O.R.E.

- User-friendly, intuitive and uniform operation
- Standardized data collection
- Intelligent data handling
- Consistent use of modern software solutions
- Use of modern IoT and data applications
- Problem-free data exchange even with third-party systems
- Direct access to UNITED GRINDING Digital Solutions™- products

THE ART OF CRAFTSMANSHIP

Digitalization and automation have not made manual labor redundant. Precise craftsmanship continues to be hugely important in mechanical engineering. Here we introduce four employees of the UNITED GRINDING Group, all with a particular degree of finesse and skill

“SKILLED MANUAL LABOR IS STILL IMPORTANT.”



JOSEF GREC

POSITION:

Acceptance Engineer, Walter Kuřim s.r.o.,
Kuřim, Czech Republic

CONTACT: josef.grec@walter-machines.de

“EVEN TODAY, CRAFTSMANSHIP PLAYS A DECISIVE ROLE,” stresses Acceptance Engineer, Josef Grec. Setting the measuring probe, the alignment of the zero points of the axes and much more: Grec estimates that a third of the work involved in machine acceptance is manual work. The technician has been working at WALTER in Kuřim for 17 years. Grec, who has always been passionate about programming in his private life, started as an application tester in the software department and then switched to machine acceptance. Through training and guidance from older colleagues, he acquired the required manual skills. In addition, he has also programmed and developed a program for measuring the acceptance parts for HELICHECK machines.



“I’VE ALWAYS BEEN THE CRAFTSMAN TYPE.”



SIMON HULLIGER

POSITION:

Team leader spindle assembly, Fritz Studer AG,
Thun, Switzerland

CONTACT: simon.hulliger@studer.com

“THE GRINDING SPINDLE IS THE HEART OF EVERY GRINDING MACHINE,” explains Simon Hulliger, the team leader of spindle assembly at STUDER. “Each individual grinding spindle is measured and then individually ground in and adapted.” Good analytical skills and networked thinking are important here – as are manual skills. “Even as a young boy, I was more of a manual type,” explains the Swiss-born. After an apprenticeship as a polymechanic, a stay abroad, and a position in the plastics industry, Hulliger joined STUDER in 2005. He particularly appreciates the precise work and the exchange with colleagues there. Under his leadership, spindle production has been greatly optimized. “We have achieved great process reliability with high productivity.” And this is important, because the heart of the machine is, of course, also a crucial part of the entire machine production in Thun. “And that is where the following processes can count on us,” says Simon Hulliger.



“I COME INTO PLAY FOR THE FINE TUNING.”



FARUK SENTÜRK

POSITION:
Scraper, Mägerle AG Maschinenfabrik,
Fehrltorf, Switzerland

CONTACT: faruk.sentuerk@maegerle.com

“IT IS A GOOD FEELING WHEN the machine meets all the accuracy specifications and the customer is satisfied with the machine acceptance,” explains Faruk Sentürk. He processes guideways and base surfaces for other components and does this manually. On the machine bed of the MÄGERLE machines, these are, for example, the supporting and locating surfaces for the linear guideways. These are measured electronically and where deficits in straightness, angularity and evenness are found, Sentürk reworks with pull or push scrapers. In 2012, Sentürk moved to assembly at MÄGERLE from a company where he had learned the trades of scraping from scratch. “My good visual perception certainly helps me when I scrape,” explains the expert. “The manufacturing tolerances of the individual components play an important role in the final accuracy of the grinding machine,” says Sentürk. He cannot imagine that the fine-tuning of these components will in future be done by a machine. And so machine acceptances continue to be a personal sense of achievement for Faruk Sentürk.



“I STAND FOR THE PRECISE MACHINE GEOMETRY.”



ZHU JIANGUO

POSITION:
Assembly Manager, United Grinding (Shanghai) Ltd.,
Shanghai, China

CONTACT: zhu.jianguo@grinding.cn

“THE CHALLENGE OF SOLVING PROBLEMS APPEALS TO ME.” That’s what Zhu Jianguo says. As an Assembly Manager, he is responsible for the machines delivered from STUDER and WALTER in China. To guarantee their precise geometry, he also uses a scraper himself. In many hours of manual work during his 25 years of experience in mechanical engineering – 14 years of which were spent at UNITED GRINDING China – he acquired this intricate skill. “A WALTER HELITRONIC G200 has an accuracy of plus/minus five thousandths of a millimeter,” explains Zhu, who completed extra training courses for installation and machine geometry at WALTER in Tübingen. So far, he has ensured the build of more than 400 machines. And he still hasn’t had enough of it: “The best thing is solving machine geometry challenges together with team colleagues.”



Customer training: Henning Hols and Michael Düppmann from KORDEL Gear and Drive Technology with course leader Fabian Wirz (from left)

MANY QUESTIONS, MANY ANSWERS

Well-trained employees for high-precision machines: All companies in the UNITED GRINDING Group offer their customers training in operation, set-up, programming, maintenance, and much more. "Motion" attended a course at STUDER

TEXT: Heinz-Jürgen Köhler

PHOTOGRAPHY: David Schweizer

THE GRINDING WHEEL IS SET UP, the dresser is applied, the workpiece is measured, and machined: "We did everything on the machine and went through the entire production process," explains Henning Hols. He is the master of the grinding shop at the German gear specialist KORDEL. He and his machine setter, Michael Düppmann, attended a training course at STUDER. "We bought an S33 with the StuderWIN software, and because we had not yet worked with either, we booked the training in Thun." For three days, instructor Fabian Wirz taught the theoretical basics and practical handling of the machine and answered many questions.

KORDEL is a specialist in special gears. "We develop and produce gearboxes for agricultural and construction machinery, as well as for industrial vehicles such as forklifts," explains Henning Hols. The traditional company based in Dülmen, North Rhine-Westphalia, 60 kilometers north of Dortmund, operates a larger machine park, including five other cylindrical grinding machines from STUDER, but as yet none of them an S33.

OVER 25 DIFFERENT COURSES

"The StuderWIN course is one of our most popular," explains Stephan Frei, Head of the Customer Center at STUDER. Ten machines are available for training in the customer center; nine highly qualified and continuously trained instructors are responsible for run-

ning the courses. STUDER offers over 25 different training courses for its customers, from the basic course on cylindrical grinding to courses on operation and programming, as well as training for maintenance and repair. Most of them – depending on the level of knowledge of the participants – are offered as a basic, advanced or expert course.

THE STUDER ACADEMY

In addition to training courses, grinding tests and demonstrations take place in the Customer Academy. It is one of the three pillars of the STUDER Academy in Thun, the others are the Service Academy for STUDER's own service technicians and the Sales Academy for sales staff. "Training our



**"WE RAN THROUGH
THE ENTIRE PROCESS ON
THE MACHINE."**

*Henning Hols
Head of the Grinding Department KORDEL
Gear and drive technology*

TRAINING COURSES COVERING THE ENTIRE MACHINE LIFE

All brands of the UNITED GRINDING Group offer training for their customers' employees. They take place either in the company's seminar rooms or on site at the customer's premises. Digital training was also increasingly offered throughout the pandemic

MÄGERLE

"Basically we don't have any standard training courses," explains the Training Manager Michael Klaus, as practically all MÄGERLE machines are adapted to specific customer requirements. With offers for operation, programming, production support, as well as mechanical and electrical maintenance, customers are accompanied by training courses throughout the entire machine life. Most of them take place directly at the customer's site.

BLOHM JUNG

BLOHM and JUNG offer maintenance, operator and application training. Around two thirds of the new machines sold would require customer training, estimates Wolfgang Benz, CSO Surface & Profile. They are carried out by the company's grinding specialists, partly directly in the factory at the machine acceptance, but partly also on site at the customer's premises. In addition, refresher courses are offered on new functionalities and features for new customer employees. Courses are also available for SCHAUDT and MIKROSA machines.

WALTER EWAG

WALTER and EWAG offer modular training courses for grinding, eroding, lasering or measuring. 15 machines are available in the demo center in Tübingen, 2 in Etziken. In many cases, however, the training courses are also carried out with the acceptance part during machine acceptance at the customer's site. There are also digital offerings. "They are very well-received, especially in the field of measuring technology and software," explains Jochen Weiss, Head of Application Technology at WALTER.

Henning Hols (M.) is particularly interested in the retrofitting of the machine



customers' employees is certainly one of our most important tasks," emphasizes Frei. Before the coronavirus pandemic, around 200 customer training courses were held in the Customer Center each year. During the pandemic, it was significantly less. "We are also working on online offers," says Frei. "It works well with software training, but work on the machine is difficult to map digitally."

Henning Hols and Michael Düppmann's training began with a theoretical part on the computer. Training manager Wirz first explained the basics, then it was time to program a workpiece. "The machine's user

interface is installed on our training PCs," explains Stephan Frei. This allows operation and programming to be directly understood.

FREQUENT RETOOLING

The second day was spent on the machine, which was particularly exciting for the participants. "We produce special gearboxes in small series," says Hols. In contrast to the highly automated production in the automotive industry, in the production of agricultural machinery gearboxes for example, the same workpiece is not machined for months in a row, but rather for a significantly shorter period of time. The machines are retooled on average twice a day, says Hols. And this is the work of machine setter Michael Düppmann: "It was very exciting to experience the entire process, from the preparation to the actual grinding."

Hols and Düppmann are very pleased with their course. "We had a lot of questions and got an answer to them all," says the machine setter. "The training was very intensive and really packed with information," emphasizes Henning Hols. And if there is one thing they could do differently for the next course – it would perhaps be to book it for an extra day. ◦

Instructor Fabian Wirz explains the settings on the control panel



FOUR QUESTIONS FOR: TITAN GILROY

From prison inmate to CNC trainer: Titan Gilroy has undergone an exemplary transformation. Today, he reaches 140,000 apprentices online with his Titans of CNC Academy. From now on, he is also using his enthusiasm for machine tools as a brand ambassador of the UNITED GRINDING Group

“A GOOD EDUCATION IS MORE IMPORTANT TODAY THAN EVER BEFORE.”

With automation and digitalization in mind:

How important is training in machining nowadays?

More important than ever. The tasks in machining today are really multifunctional. Jobs such as machine operator, engineer and application designer used to be strictly separated and now more and more are blended together. Today, people can do so much - and they could do a lot more.

What specific goals do you pursue with your Titans of CNC Academy?

We have two main goals. Firstly, we give people real, high-quality training. Industrial manufacturing is changing at an incredible pace. By the time conventional schools have adapted their curriculum, it will be out of date again. We bring people

closer to the latest technologies online. Second to that, we are drawing attention to industrial professions and getting the public excited about learning the latest technologies. Not all people are made to be bankers or lawyers. Many want to build things with their hands and their minds - and we give them this opportunity. And we offer both for free!

You help prison inmates with training and want to promote industrial production in the United States. How would you specifically describe your personal mission?

I believe that we need to teach ex-prisoners skills, so that they can support themselves and their families. This also protects our citizens. We should focus on providing qualified training for people, so that many have a chance to work in manufacturing. My mission is not just aimed at the United States, but at all countries, to cover all humanity. Manufacturing, i.e. industrial manufacturing, offers great jobs for everyone. And every country should use our Titans of CNC Academy offers and train their citizens, so that everyone is successful and all can support their families.

What does it mean to you to be a brand ambassador of the UNITED GRINDING Group?

It's a big deal and an absolute honor for me. But even more importantly, we want to work tirelessly together to bring free education and more opportunities to people and businesses around the world.

Photo: Dave Cox





Cornelia Diethelm, Evangelos Xevelonakis and Stephan Nell (from the right) meeting at MÁGERLE in Fehraltorf/Switzerland. Because all participants were tested for coronavirus, the conversation took place at a distance, but without wearing masks

TRUST IS THE BASIS

For regulated data exchange between machine manufacturer and machine operator, one thing is fundamental: trust. How to earn and maintain this. An expert interview

TEXT: Michael Hopp
PHOTOGRAPHY: Natalie Bothur



“WE WOULD DESTROY LONG-TERM CUSTOMER RELATIONSHIPS IF WE DIDN'T STICK TO THE MUTUAL AGREEMENTS.”

Stephan Nell



The exchange of data between providers and customers is a matter of course today, and is often a fundamental business model. In the consumer goods sector, there is a lot of attention on data protection. What about data protection and trust in the B2B area and capital equipment?

Stephan Nell: I think you have to make a distinction. On the one hand, there is personal data. The European General Data Protection Regulation (GDPR) applies to personal data. On the other hand, there is process data. As a machine manufacturer, we develop processes with the customer, and we have developed a concept for this with a Data Protection Officer. This means that we definitely do not remove any personal data from the systems. And with machine data, the firm principle applies that we can only

access the machine if the customer allows access. So let's suppose there is a service request that the customer submits digitally. Then they actively establish the connection to us, which is automatically severed again after the remote service has been completed. By the way, such remote operations are nothing new. We have been able to do this for decades. In the past, the modem used to be slower and more cumbersome.

Mrs Diethelm, your field of research is digital ethics. You complain about dark patterns, i.e. unethical behaviors. Has mechanical engineering already become noticeable for you in this regard?

Cornelia Diethelm: No, the mechanical engineering has not yet become noticeable. That certainly has to do with the fact that the

focus is on the consumer. And dark patterns are more common, because more people have direct experiences.

Stephan Nell: The situation in our business is different. We have long-standing relationships with our customers. We sell capital equipment, not consumer goods, and our business is based on trusting partnerships. We would destroy long-term customer relationships if we did not adhere to the mutual agreements - whether analog or digital. In addition, we not only sell machines, but also process solutions, complex, individually tailored solutions. You can't do this over the internet.

Mr Xevelonakis, you are the Head of a Data Science University Center. What is your opinion: What tensions are experienced between companies and customers when it comes to handling data?

Evangelos Xevelonakis: We have a clear area of tension here. On the one hand, we have companies like the UNITED GRINDING Group that try to develop new products based on data, to identify weak points and, in general, to make processes more efficient. On the other hand, we have customers who are suspicious: What actually happens to our data? Let's take a look at the topic of process management, for example. So, why do we have problems with a machine? Because employees can't operate them properly? Or do we have a machine fault? When it comes to employees, it can be tricky. We have carried out various studies, not in the B2B, but in the B2C area, and they have shown the following: If there is transparency, if the employee knows what is happening with the data, the probability is very high that they will accept it.

Stephan Nell: Here we must make a distinction again. What do we do as a machine supplier, what does the customer do? We are responsible for the machine and its performance. The customer is responsible for their own employees. You also have to see that most of the machines are CNC-controlled,



IN DISCUSSION

CORNELIA DIETHELM

As the owner of Shifting Society AG, Cornelia Diethelm is actively shaping the digital change at the interface between business, science, and society. In particular, this includes the establishment of the Center for Digital Responsibility (CDR), an independent think tank for digital ethics in the DACH (Germany/Austria/Switzerland) region

EVANGELOS XEVELONAKIS

Xevelonakis is a professor at the HWZ University of Applied Sciences in Zurich and Managing Director of the management consultancy firm Swiss Valuenet. He teaches and researches in the fields of Business Intelligence, Data Science, and Machine Learning

STEPHAN NELL

Stephan Nell joined STUDER in 2003 as Sales Manager and was also a member of the management from 2005 to 2011. As Chief Executive Officer, he has been in charge of the UNITED GRINDING Group since 2012



“TRUST IS CREATED IN THE INTERACTION ALONG THE ENTIRE VALUE CHAIN.”

Cornelia Diethelm

which means that the processes are more or less fully automated. Of course, you could do a lot. If you go to a manufacturing trade fair, you will see that everything can be queried in purely theoretical terms and any process data can be evaluated. However, the question arises: What is essential and relevant, what are the benefits for the customer? For example, we offer the Production Monitor, which makes the productivity of a machine or the entire production process transparent and therefore also shows optimization potential. But evaluating this and creating the rules for it is the job of the company, not ours.

Evangelos Xevelonakis: I could imagine that predictive maintenance plays an important role for you.

Stephan Nell: Absolutely. However, from a technical point of view, we have machine availabilities that are very high. There is not much that can be optimized there. However, I can support the customer in planning the operation and maintenance of their machine better. What is also important here: it must add value for the customer. Predictive maintenance helps customers to optimize production efficiency. To achieve this, we rely on data and our vast experience. So we try, for example, to schedule the replacement of a spindle as late as possible. The aim is to reduce production costs, increase production reliability, and minimize downtimes. These are the key parameters for our customers.

Evangelos Xevelonakis: Do you use forecasting models for this?

Stephan Nell: We are in the process of developing them. For individual sub-assem-

blies for example, you can see from the tolerances how wear is developing. Or you can see the condition of bearings with temperature sensors.

Mrs Diethelm, to what extent can responsibilities be divided, or how do manufacturers and customers need to work together?

Cornelia Diethelm: I think it's a collective effort. Ultimately, this is an interplay along the entire value chain. It is of no use to me if I am responsible, but I've got a manufacturer who is not. With this in mind, I am convinced that responsible manufacturers are a benefit for responsible companies. It really is a partnership, a cooperation.

Stephan Nell: It simply needs transparency. You have to be open and say how to behave. If you are a global company, you will encounter different rules and cultures. There is no such thing as a solution, but we have to work this out individually with the customer in each country. Perhaps even more than in other industries, a basis of trust is needed in the capital equipment business. This

business is based on trust, whether you are working with data or not. It is crucial for the customer that their production process remains stable in the long run. That's why they must be able to rely on us to be able to support them in the long term with spare parts, software and assistance. Consider this: The installed base of our machines today comprises around 50,000 systems worldwide. Many of them are older than 25 years.

Evangelos Xevelonakis: In this context, perhaps a small psychological digression. There is the phenomenon of the intention-behavior gap. This refers to the discrepancy between what I say and how I act. So if for example there is someone who does not reveal their data for fear of abuse – but who is privately active on social media. This means that we see a gap between intention and action. And it would certainly be important for this person to know what advantages they would benefit from if they were to share their data. In other words, in addition to transparency, it is important to quantify the benefits. This should be done where possible in monetary units.

Stephan Nell: We ask ourselves the same question. We invest a lot in developing such solutions. To achieve this, what we offer in the digital sector must bring about measurable added value for the customer.

How important are internal ethical rules for trusting customer relationships?

Cornelia Diethelm: Very important, that's for sure. You do it to give your customers security and trust, and perhaps to make yourself stand out from the competition. That is why internal information awareness is definitely of the utmost importance. The world is becoming more and more data-driven, and so the culture simply needs to evolve. Nevertheless, I think we shouldn't panic when discussing privacy and ethics. In addition to all the risks, we should always see the benefits of working with data. Because if we do not judge based on data, it is definitely a blind flight. But I think culturally, it is sometimes easier to see the risks rather than the opportunities and possibilities. That may be because of our European culture, wouldn't you say?

Stephan Nell: Perhaps it's also a generational question. When I look at my children, they deal with topics like this very differently.

Cornelia Diethelm: Ultimately, we are in a transitional phase in which the actors have different values and different levels of knowledge. I have a feeling that companies are aware of this and sometimes even act more responsibly than individuals who may also get lazy. But the focus remains on companies, and they have a lot to lose. And trust is an asset you definitely don't want to lose.



“IT IS IMPORTANT TO QUANTIFY THE BENEFITS OF THE DATA, PREFERABLY IN MONETARY UNITS.”

Evangelos Xevelonakis



“IF WE DO NOT JUDGE BASED ON DATA, IT IS DEFINITELY A BLIND FLIGHT.”

Cornelia Diethelm



Does trust change if you only communicate digitally with customers, as is now the case in the pandemic?

Cornelia Diethelm: In principle, trust is something that operates between people. Trust is an emotional value. Digital tools are human tools. But people do business, and trust takes place between people.

Stephan Nell: I agree with you in that, trust is a human value. Existing relationships can certainly be continued digitally in a trustworthy manner. However, in the case of new, emerging relationships, I am skeptical about whether they can be built on with the same degree of trust on digital channels.

Cornelia Diethelm: As far as the quality of communication is concerned, I completely agree with you. But maybe this will change over time. And trust also increases over time, it is not achieved instantly, but there are several channels over a longer period of time.

Mrs Diethelm, to what extent has the coronavirus pandemic changed the expectations that stakeholders and customers have of large companies?

Cornelia Diethelm: I think it's more the expectation that digitalization will advance faster now. We have all experienced that much more is possible than we originally thought. Dealing with the pandemic was in some ways a social experiment.

Mr Xevelonakis, you work with the term process mining. What does that mean? And can you reconcile process optimization and customer orientation?

Evangelos Xevelonakis: Strictly speaking, data is the product of processes. It develops over time, over the course of processes. And I can analyze processes to see whether they contribute to customer satisfaction. This is process mining. I can develop a model that uses machine learning and algorithms to predict when a customer will be satisfied. Then there is the term customer effort. This indicates how much effort a customer has to make for their question or problem to be solved satisfactory. Process mining should, however, be implemented as a sociotechnical system. Technical and social aspects

should be integrated into a uniform system with regard to the interaction between people, technology and organization, so that synergy effects work in favor of increased competitiveness.

Stephan Nell: This means that we are now moving away from machines and data and towards the overall structure of the company. We have the PuLs program, precision and passion, for this comprehensive approach. It is a corporate philosophy that aims to eliminate waste from all processes. This requires transparency in all departments. For optimization, the entire process chain from sales to production to customer care must be considered. PuLs is primarily aimed at process stabilization and optimization. We want visible results for our customers, such as delivery reliability and constant machine quality. And with that we can ultimately make our customers more successful. ◦

“WE DEVELOP SOLUTIONS FOR CUSTOMERS”

As Head of Software Development at Blohm Jung GmbH, Jan Krieger does not only work for the C.O.R.E. project. Together with his team, he also develops customer-specific applications

TEXT: Heinz-Jürgen Köhler PHOTOGRAPHY: Dennis Williamson

“HALF OF OUR CUSTOMERS don’t want standard production machines, but rather customized solutions for their specific requirements,” says Jan Krieger. And that’s where the qualified electrical engineer and his team come into play. Based on the specific workpiece that a customer wants to process, they develop an adapted software solution. “To do this, we work closely with the project planning department,” says Krieger, who started out as a Programmer at Blohm Jung GmbH in 2006. And sometimes he also engages in discussions with customers himself. Another major task that has defined Krieger’s work over the past two and a half years was the C.O.R.E. project. “The cross-brand operating system offers many advantages for our customers,” said Krieger. He himself works as part of the project’s management team, two of his nine employees are currently engaged *full-time* with C.O.R.E.

CONTACT:
jan.krieger@blohmjung.com



8.30 A.M.

START OF WORK

Jan Krieger on his way to the office in the Hamburg-Bergedorf plant. Although he is currently working a lot from home, he has meetings with his employees on this particular day



9.00 A.M.

CALL IN THE C.O.R.E. TEAM

But first of all there is a video call with colleagues from the C.O.R.E. team. The employees of the various brands in Switzerland and Germany work together according to the SCRUM method. Today, the result of a so-called sprint is being discussed



10.00 A.M.

MEETING

With his programmers York Müller and Dominik Lehnberg (from the left), Krieger discusses the functionalities of the new panel. The Head of Software Development is convinced that the intuitive touch operation will take machine handling to a new level

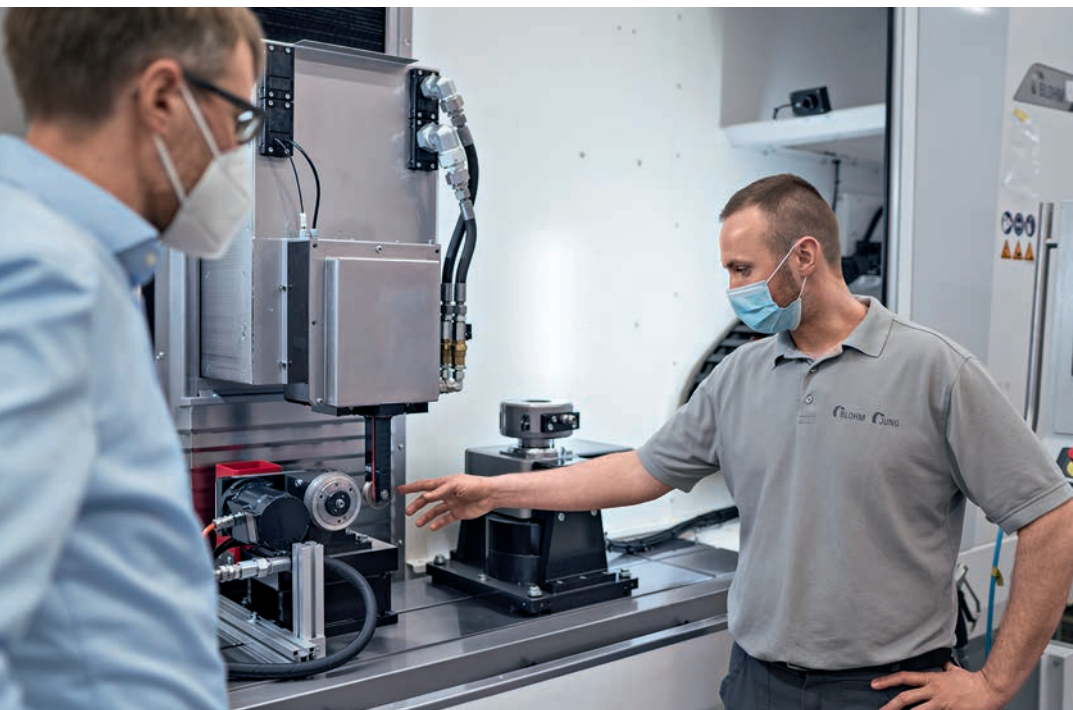


12.00 P.M.

TUNING

Phone call: Jan Krieger is needed in the workshop. The special version of a BLOHM machine must be adapted from the software side

“C.O.R.E. IS NOT JUST A PROJECT – IT'S THE FUTURE OF SOFTWARE.”



12.15 P.M.

MEETING

The BLOHM PLANOMAT XT is now also available with a vertical spindle. Krieger discusses what this means for the software with Application Engineer Michael Haberkorn



4.30 P.M.

TECHNICAL LAB

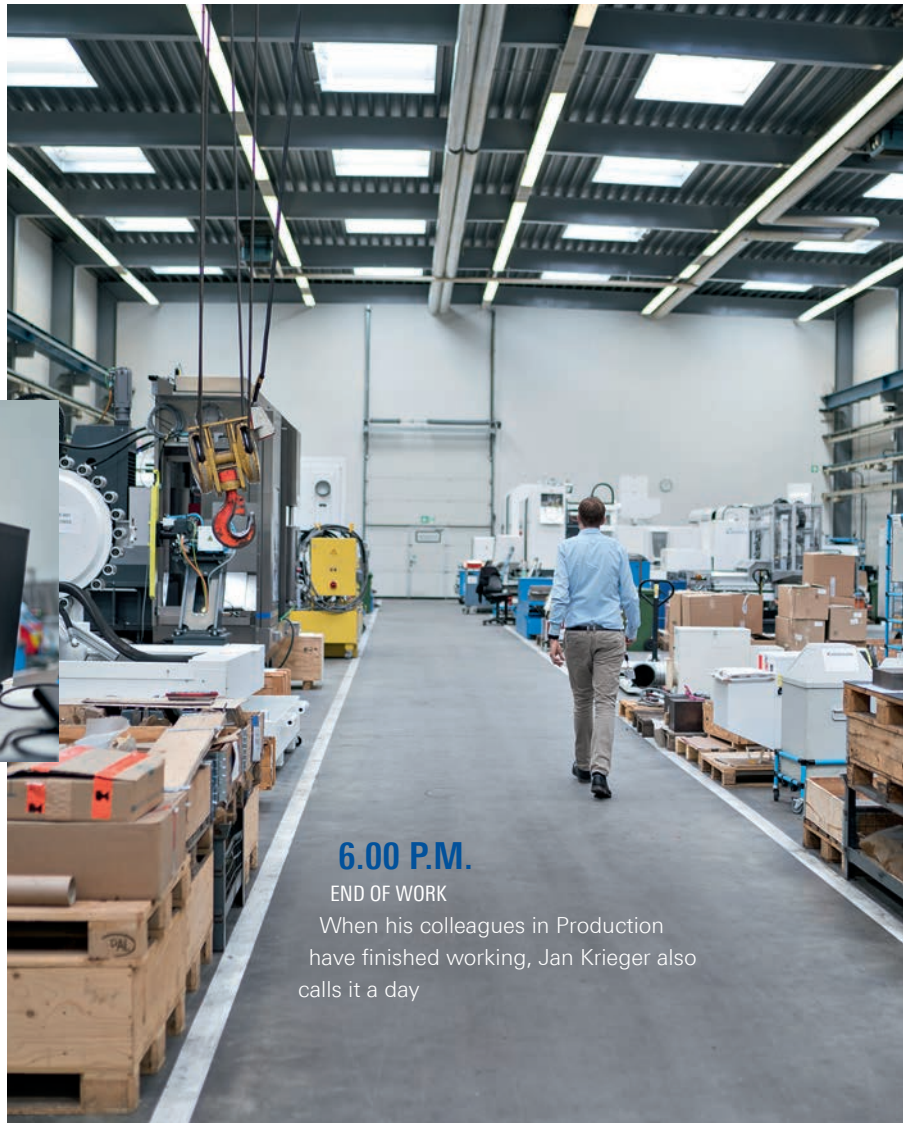
In a test environment for machine controls, Krieger checks a specific application that one of his employees has developed for a customer



3.00 P.M.

WORKSHOP

A BLOHM PROKOS XT should receive a customer-specific application. Jan Krieger studies the traveling distances directly on the machine



6.00 P.M.

END OF WORK

When his colleagues in Production have finished working, Jan Krieger also calls it a day

TOOLS & TECHNOLOGY

NEWS FROM THE UNITED GRINDING GROUP

CONTENTS

- 30 **BLOHM**
PLANOMAT XT Essential: new surface grinding machine for the entry-level segment
- 31 **BLOHM**
PLANOMAT XT now with vertical spindle
- 32 **STUDER**
LaserControl: non-contact measurement with laser technology
- 33 **STUDER**
DREAM COME TRUE: a Serbian tool manufacturer and the S33
- 34 **WALTER**
The Customer Solutions team develops customer-specific solutions
- 35 **JUNG**
Oil-based cooling lubricant for the J600
- 35 **STUDER**
Even more precise:
the synchronous tailstock 2.0

STUDER LaserControl: non-contact measurement of precision tools using laser technology



PLANOMAT XT Essential: optimized for the requirements of surface grinding

EVERYTHING YOU NEED FOR SURFACE GRINDING

With the entry-level machine PLANOMAT XT Essential, BLOHM developed an economical 3-axis machine with defined scope of supply for high-precision surface grinding

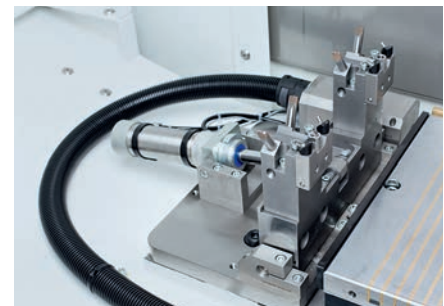
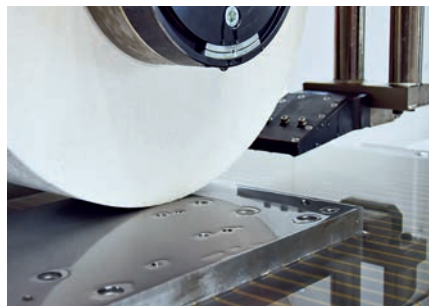
A SURFACE GRINDING MACHINE in the entry-level segment – that is what many customers want. “This was confirmed by a survey at our representative offices,” says Stefan Springer, Head of Product Management at BLOHM JUNG. This is now available with the PLANOMAT XT Essential. BLOHM optimized the competitive entry-level machine to meet the requirements of surface grinding using the traverse and creep feed methodology. The Hamburg-based surface and profile grinding specialists are therefore specifically aimed at those users who value excellent grinding quality, but for whom the PLANOMAT XT surface and profile grinding machine is oversized in their technical equipment.

OPTIMIZED EQUIPMENT

For the new surface grinding machine, not only were axis speeds and drive power adapted to the requirements, but reduced machine equipment was also defined that

meets the requirements of high-precision surface grinding. For example, the PLANOMAT XT Essential has a simple manual coolant supply with flexible nozzle for a pressure of up to three bar. The coolant is cleaned by a band filter cleaning system with a flow rate of 100 liters per minute. The coolant tank holds 500 liters.

In addition, the machine is equipped with an electro permanent magnetic chuck (DQ18, optional DQ13) for a load of up to 1500 kilograms and a diamond holder with a single point diamond and prepared for the use of an optionally available manual balancing unit. The usual pneumatic equipment for the machines of the PLANOMAT series is



The reduced machine equipment was adapted to the requirements of surface grinding, the options include a universal swivel-in dresser with pneumatic equipment (right).

LET GRAVITY WORK

BLOHM now offers its surface and profile grinding machine PLANOMAT XT in a special version with vertical spindle especially for grinding inner profiles and bearing ring slots



Instead of a horizontal grinding arm, a vertical arm (right) is integrated in conjunction with an indexing unit with vertical axis (above)

KEY DATA AT A GLANCE

- Size: 600 x 1200 mm
- X axis: Speed
30...30,000 mm/min
- Y/Z axis: Speed
4...2,000 mm/min
- Grinding spindle drive 11 kW, max.
3500 rpm
- Grinding wheel dimensions
400 x 100 x 127 mm
- Maximum table load 1500 kg
- Band filter coolant system 100 l/min
at max. 3 bar, 500 l tank

no longer required. The entry-level machine is controlled via a Siemens Sinumerik MCU 1720 and BLOHM single piece production with graphic user guidance. With its modified hardware configuration, the small control cabinet of the PLANOMAT XT Essential takes into account equipment and options.

EXTENSIONS ON REQUEST

In addition to automatic central grease lubrication for guideways and ball screws, the options available also include linear scales for the Y and Z axes, a manual balancing unit and an exhaust device for coolant mist. Also available on request: a universal swivel-in dressing unit including pneumatic equipment as well as various rotating profile dressing attachments.

With the PLANOMAT XT Essential, BLOHM is primarily targeting European customers from tool and mold making. The new machine was first presented at a trade fair at EMO 2021 and complements the very successful PLANOMAT series.

CONTACT:
stefan.springer@blohmjung.com

ON A NORMAL PLANOMAT HP with a horizontal spindle, the spindle and workpieces must be aligned against gravity during the internal profile grinding of the external rotors (stators) of hydraulic GE-ROTOR motors and pumps. The inner profiles are usually broached and paired with the inner rotors. Although this method is comparatively inexpensive, it is also less precise. Many customers want to save the pairing and at the same time increase the component quality. That's why BLOHM developed the PLANOMAT XT with a vertical spindle arm.

EASIER SET-UP AND LOADING

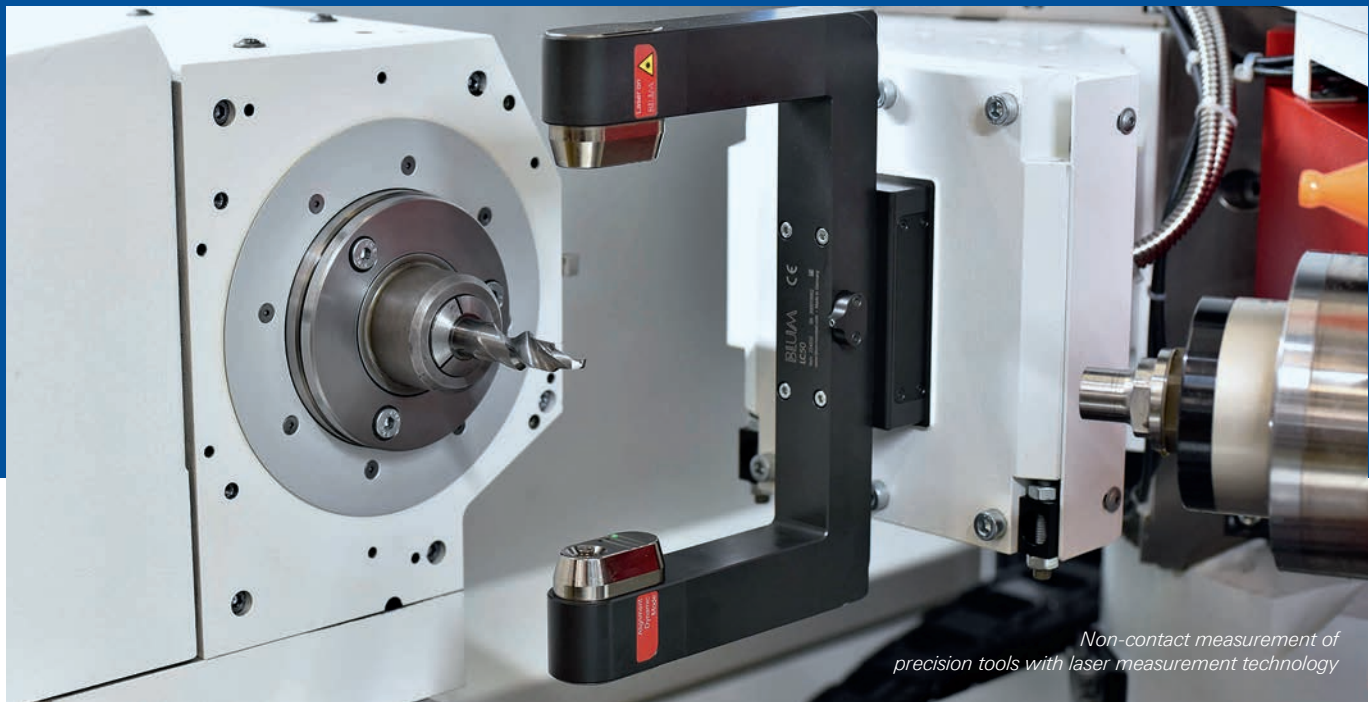
By rotating the grinding spindle arm by 90 degrees and using an indexing unit with a vertical axis, the user can stack the workpieces on top of one another and let gravity do the work for them during the process. "Setting up and loading the machine is much easier than before thanks to the rotation of the spindle and the slightly different design of the machine," explains Stefan Springer, Head of Product Management at BLOHM JUNG.

The ergonomically improved machine offers a clamping device for (automatic) loading and alignment of the workpieces outside the machine in a clean environment. The parts, including the device, are loaded into the machine in the clamped state. The use of two clamping devices allows the workpieces to be loaded and unloaded during machining. In addition, an optimized interface between the spindle arm and wheel head enables the arm to be changed quickly.

CONTACT:
stefan.springer@blohmjung.com

THE BENEFITS AT A GLANCE

- Higher accuracy
- Higher productivity
- Improved ergonomics
- Reduced set-up and idle times



Non-contact measurement of precision tools with laser measurement technology

INTEGRATED LASER MEASURING TECHNOLOGY

With LaserControl, STUDER enables non-contact measurement of precision workpieces using laser technology

DURING GRINDING, the highest demands are placed on dimensional, form and positional accuracy, as well as the surface quality of the workpiece. As measuring on external measuring machines increases the processing time of the parts, especially with small batch sizes, the demand for efficient process assessment on the machine is increasing. What is needed are solutions that are flexible for different workpiece ranges. Laser measurement technology opens up entirely new possibilities here.

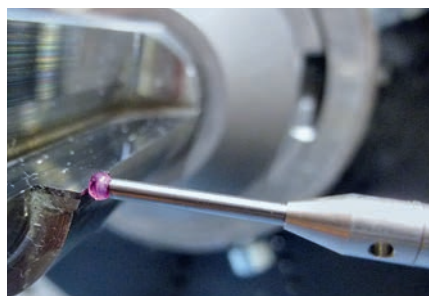
STUDER has more than ten years' experience in basic research on the use of machine-integrated laser measuring technology to measure grinding wheels or workpieces. Based on this experience and the very latest laser measuring technology, the Swiss cylindrical grinding specialists have now further developed tool monitoring systems from other industries for the measurement of workpieces on grinding machines.

HIGH-PRECISION LASER OPTICS

The resulting laser measuring system with its highly precise laser optics can be adapted to the workpiece diameter and is mounted on the B-axis, which also carries the grinding spindle. The measuring system generates

many thousands of measuring points on the rotating workpiece for evaluation, which significantly shortens the measuring time and significantly improves the machine efficiency. With the new laser measuring system, it is not only possible to carry out precise control measurements on diameters of different sizes, but also on "interrupted" diameters such as shafts with keyways or longitudinal grooves as well as on the external diameter of gears.

The measuring cycle can be selected as required after each processing or at the end of the grinding process. The STUDER software logs the measured values per diameter after each measuring cycle. This allows the operator to see the quality of the ground component at a glance.



Tactile measurement of cutting tools

The measuring system, which can be optionally integrated into the STUDER machines S41, S31, S33 and S22, is also ideal for machining PCD tools in small batches, as the PCD cutting edges are often very sensitive to tactile measurements. Also, now possible with the new technology, is the detection of a desired taper on cutting tools by rotating the part and taking measurements at different positions along the cylinder.

CONTACT:

antonio.bottazzo@studer.com

THE BENEFITS AT A GLANCE

- Non-contact measuring in the machine
- Measurement of multi interrupted and non-interrupted diameters
- Evaluation and calculation within the control system with STUDER measuring cycles
- Logging and printing of the measurement data possible, display on the control screen

TYPICAL MEASURING CYCLES

- Workpiece external diameter
- Tapers on workpieces
- Length measurement of workpiece contours possible depending on the case
- Largest and smallest cutting edge diameter for cutting tools
- Optional: flute diameters

DREAM COME TRUE

Serbian tool manufacturer Alatplast increases quality and performance by using the CNC universal cylindrical grinding machine S33 from STUDER



*The pride of Lojzije Dulić:
a STUDER S33*



THREE QUESTIONS FOR LOJZIJE DULIC

Owner of Alatplast d.o.o.

What tools do you manufacture at Alatplast?

Our portfolio covers a wide range of tools for punching and injection molding, as well as tools for vacuum molding. There are also machine parts and tools for aluminum foil extraction, as well as tools for wind turbines.

Why did you choose the S33 from STUDER?

I wanted to be in the next league in terms of tool quality and productivity. To do this, I had to replace our old manual grinding machine. Of course, there are other manufacturers of cylindrical grinding machines. But I've always been won over by STUDER, so it was clear to me: it had to be a STUDER S33. This machine has the necessary stability and cutting speed to be able to grind high-alloy steels with CBN wheels productively and with high precision.

Has your decision paid off?

Absolutely. Since word got out among my customers that I'm working with a STUDER machine, the orders have grown exponentially, and I can hardly keep up with the work.

A LONG TRIP, a sailboat or simply spending more time with your grandchildren? There are many things you can wish for in old age. Lojzije Dulić didn't want any of this. Instead of enjoying his retirement, the 67-year-old owner of the small tool manufacturing company Alatplast d.o.o. in Subotica, Serbia, had his own very special dream come true in 2020: a STUDER S33. In the contract manufacturing of tools and machine parts, the CNC universal cylindrical grinding machine now complements his machinery park consisting of wire EDM, milling machine and lathe.

FLEXIBLE MACHINE

The very well-equipped standard machine with a center distance of 1000 millimeters and a center height of 175 millimeters has two external grinding wheels and an internal grinding spindle. The flexible machine is based on the STUDER T-slide concept and has an extended stroke of the X-axis. An innovative machine base temperature control ensures optimum dynamic and thermal stability of the machine. The dresser sits on the double T-slot of the longitudinal slide, which reduces the set-up and realignment effort

and is therefore a decisive factor in terms of flexibility. The machine is equipped with the standard MT3 tailstock.

For use at Alatplast, the S33 is equipped with the StuderThread software option for thread grinding. Since Dulić mainly processes high-alloy tool steels on the machine, a dressing spindle for vitrified CBN grinding wheels is also part of the equipment. In this configuration, the machine easily meets the high requirements in tool making, and Lojzije Dulić was able to increase productivity in grinding many times over.

CONTACT:

dalibor.dordic@studer.com

THE BENEFITS AT A GLANCE

- Center distances: 400/650/1000/1600 mm
- Thermal stability through innovative base temperature control (center distance 650 mm (25.6") to 1600 mm (63"))
- Double T-slot for dressing systems
- Numerous wheelhead variants
- StuderWIN programming software with StuderTechnology
- Can be easily automated

SPECIAL REQUESTS ARE YOUR BUSINESS

When it comes to special customer inquiries, the WALTER Customer Solutions team is on hand

SOLUTIONS FOR EVERYTHING TO DO WITH TOOL PROCESSING based on the extensive product portfolio of grinding, eroding and measuring machines have long been part of the WALTER range. The demand for customer-specific solutions - such as software or hardware tailored to the respective customer application - has significantly increased in recent years. In order to be able to process such inquiries even faster, WALTER has installed the Customer Solutions team as an interface between sales and internal specialist departments.

As specialists for special requests, Team Leader Friedhelm Konzelmann and Project Engineer Damir Hadzic, both with many years of experience in the use of WALTER machines, have devoted themselves to the development and implementation of customer-specific solutions and services. They take on special inquiries, clarify the specific customer needs with the sales force or with the customer directly and then the feasibility with the specialist departments. They take over the quote preparation and, if an order is placed, actively advance the respective project. As the two engineers take special care of special requests, WALTER can now offer its customers technical solutions much faster.



“WE CLARIFY TECHNICAL DETAILS DIRECTLY WITH THE CUSTOMER – WITHOUT THE NEED TO DETOUR THROUGH SALES.”

*Friedhelm Konzelmann, Damir Hadzic
Customer Solutions, WALTER*



Customer project: Collet (type NK) with RFID system for automated regrinding with different tool diameters within a batch

“The resolution times became shorter, because we both took care of special customer requests,” explains Konzelmann. “We clarify technical details and more complex topics directly with the customer, without the need to detour through ‘normal’ sales. However, we are nothing without our technical departments and their specialists.” The prompt and competent statement on the feasibility of customer requirements is an important part of the attractiveness of the offer. The team was able to make significant progress here. The increased number of implemented projects proves the success.

In addition, Konzelmann and Hadzic support their sales colleagues in the field. The team published a catalog with projects that had already been implemented, in order to be able to present them to other interested customers.

Projects already implemented by the Customer Solutions team include:

- Integration of an automatic clamping system for milling cutter and drill heads, with which they can be screwed into the clamping system and clamped by a robot loader
Advantages for the customer: Increased productivity and reduced manufacturing costs in the production of interchangeable heads
- An RFID system for NK collets that enables the automated regrinding of different tool diameters in one batch
Advantage for the customer: Possibility of chaotic loading of the pallet for the robot loader and time saving

CONTACT:
friedhelm.konzelmann@walter-machines.de



OIL INSTEAD OF EMULSION

With the use of grinding oils as a cooling lubricant, the JUNG J600 opens up new possibilities when machining workpieces made of carbide

THE ADVANTAGES OF GRINDING OILS when machining carbide are obvious. Especially when using extremely hard cutting materials such as CBN or diamond, the better lubricating effect of the oil reduces tool wear and increases machine productivity. This is especially true for creep feed grinding. In addition, grinding oil protects the machine from corrosion. If the grinding oils are also specially designed for carbide machining, they minimize the washing out of harmful cobalt. This protects both the operator and the environment. The J600

therefore becomes a compact and powerful production machine.

INTEGRATED FIRE PROTECTION

However, unlike with water-miscible cooling lubricants, there are a few things to consider when grinding with oil. A highly flammable oil mist is generated, especially at high cutting speeds. One spark can be enough to trigger a deflagration. This risk increases with decreasing oil viscosity. To counteract this risk, the J600 oil package includes a fire pro-

tection system: Optical sensors detect and report flying sparks, and the work area is flooded with CO₂ within seconds via corresponding nozzles. However, if a deflagration still occurs, a pressure relief flap in the roof of the enclosure ensures a safe pressure reduction in the machine.

The J600 with oil package has been successfully in operation at a well-known manufacturer since mid-2021.

CONTACT:
thomas.mank@blohmjung.com

SYNCHRONOUS TAILSTOCK 2.0

More compact, precise, flexible and low-maintenance – this is the new STUDER synchronous tailstock

THE STUDER SYNCHRONOUS TAILSTOCK is a success story. After more than 350 units sold, the Swiss cylindrical grinding specialists are now bringing the second generation onto the market. The new synchronous tailstock is not only significantly more compact, it also requires less maintenance than its predecessor. It also offers users maximum flexibility for various grinding applications and impresses with a number of further innovations and advantages.

For example, the previous hydraulic clamping force generation will be replaced by an electromechanical one with power springs. This means that a defined, reproducible force can now be programmed in the StuderWIN software. At the same time, the elimination of interfering contours on the workpiece side allows full utilization of the center height, for workpieces up to 350 millimeters in diameter with a center height of 175 millimeters. It was also possible to increase the permissible workpiece weight. "Because even the shortest centers can now be used for large parts, the achievable precision increases," explains Antonio Bottazzo, Sales Manager at STUDER.

CONTACT:
antonio.bottazzo@studer.com



THE BENEFITS AT A GLANCE

- Longer stroke of 120 mm
- Simple programming in StuderWIN with more setting options
- Easier retooling within a family of parts by defining a reference length via the software
- Chuck can be mounted on the tailstock side (application dependent)
- Greater flexibility for signal detection thanks to the option of mounting contact sensors on the tailstock side as well



GETTING GOING AGAIN AFTER THE CRISIS

Arrivederci, coronavirus! The signs point to an upturn in the Italian manufacturing industry. The EMO machine tool trade fair in Milan is to become a sign of new dynamism.

TEXT: Thesy Kness-Bastaroli

Milan trade fair city: The city's largest church, the Gothic cathedral, is also located in the Piazza del Duomo.



FROM MILAN, drive north on the Superstrada 35 for about three quarters of an hour to get to Bregnano. In this municipality in Lombardy, not far from the Swiss border, WALTER EWAG Italia has its branch – and is therefore close to its customers, who are mainly located in the north of the Italian boot. The other brands of the UNITED GRINDING Group are represented in the country (see box on page 39).

Italy is an important market for the Group of companies. “The second largest in Europe after Germany,” explains Achim Schurius, Sales Director Europe at WALTER. Like all international markets, the Italian one has of course suffered as well from the coronavirus pandemic, but things are looking up, says Antonio Coniglio. Together with eleven colleagues, the Sales Engineer looks after customers of the Tool Technology Group from Bregnano. “The crisis has not yet been overcome, but there is a glimmer of hope.

Photo: Getty Images; Illustration: Freepik.com



Of course, a lot depends on whether the vaccination campaign is successful in Italy.”

IMPORTANT MECHANICAL ENGINEERING

Mechanical engineering is one of Italy's most important industries and accounts for about a third of the manufacturing industry. In 2019, almost 97 billion euros were generated here and therefore around 14 percent of the volume of the entire manufacturing industry. Export is extremely important for Italy's mechanical engineering. The member companies of the associations Anima (heavy industry, food industry) and Federmeccanica (metal processing) achieved almost 60 and 70 percent of their revenues abroad in 2019. Europe is the most important sales market, followed by the United States.

Domestically, Italian mechanical engineering is less dependent on individual economic sectors than in other countries. “Of course, the automotive market plays a

major role. But there are also many other markets, such as the furniture industry or the fashion industry," says Schurius.

SMALL AND MEDIUM-SIZED ENTERPRISES

The large number of small and medium-sized enterprises is characteristic of the structure in Italian mechanical engineering. Family businesses are more important here than in any other Western industrialized countries. Around 90 percent of the 22,400 companies working in mechanical engineering employ 50 or fewer employees, and 59 percent employ only twelve or fewer. Only 220 companies have more than 250 employees.

The dominant small and medium-sized company structure does not have to mean they are at a disadvantage, emphasizes the President of the UCIMU Association of Machine Tool Manufacturers, Barbara Colombo: "In difficult times such as the coronavirus crisis, it is even an advantage. It guarantees more flexibility and greater adaptability to the constantly changing market situations. Of course, the prerequisite is that the companies have a solid financial structure."



Futuristic: The EMO Milano 2021 will take place in the 750,000 square meter Fiera Milano Center



"THE DESIRE TO RETURN TO NORMAL IS EVIDENT."

*Luigi Galdabini
Secretary General EMO Milan*



UNITED GRINDING IN ITALY

"Italy, with its well-established mechanical engineering industry, is a very important market for us," stresses Ulrich Haar, who is responsible for the Italian market at BLOHM and JUNG. Apart from WALTER and EWAG, the brands are represented by agencies. STUDER has several agencies, the other brands are represented by IPR Macchine in Turin.

"It is important to have support in the local language," stresses STUDER Sales Manager Francesco Buccieri. The company is therefore also on site with eleven Service Technicians. As with all brands, the supply plants provide the supply of spare parts, digital remote services as well as rebuild and retrofit solutions.

The companies of the UNITED GRINDING Group can make tailor-made offers for the diverse Italian market. The large-scale grinding centers from MÄGERLE are used in the aerospace and energy industries, explains Italian Sales Manager Viktor Ruh. BLOHM and JUNG mainly supply tool and mold making. STUDER supplies versatile universal cylindrical grinding machines to the contract manufacturer sector.

Photos: Shutterstock, picture alliance/Reuters, Alberto Bernasconi/laif, Ruggiero Scardigno, PR



"SMALL AND MEDIUM-SIZED ENTERPRISES ARE AT AN ADVANTAGE IN THE CRISIS. THEY ARE MORE FLEXIBLE AND ADAPTABLE."

*Barbara Colombo
President of the Association of Machine Tool Manufacturers UCIMU*

SUPPORT FROM BANKS

Could financial bottlenecks in companies slow down the recovery? Sales Engineer Coniglio believes this is not the case: "Roughly 90 percent of the machines we sell are financed by leasing. In this respect, any liquidity bottlenecks do not play a major role." And Italy's banks are providing generous support to companies at the moment. In March 2021, for example, the major bank Intesa Sanpaolo launched the EUR 50 billion "Motore Italia" loan program with financial facilities for small and medium-sized enterprises.

Antonio Coniglio stresses that a decisive factor when buying a grinding machine is the quality of the service offered to Italian customers. The smaller, family-run companies in particular placed great value on competent support. "And we can make very good offers, after all, six of our colleagues in Bregnano are Customer Care employees," says the Sales Engineer.

INDUSTRY MEETING AT EMO

Like Coniglio, the entire industry hopes that the EMO in Milan in October will bring us a bit closer to normality. People are optimistic about the trade fair itself. Even if the record results of 2015, when the machine tool trade fair last took place in Italy, are unlikely to be repeated, EMO General Commissioner Luigi Galdabini is confident. "Up to March, confirmations of participation had already been received from 26 different countries. Following Italy, the majority of the registrations so far, have come from Germany, Taiwan, Spain, Switzerland, China, and Korea." And new ones are coming in every day. 1600 exhibitors and a total of 155,000 visitors met at the EMO Milano 2015. "The desire to return to normal is evident," says Galdabini. He is also counting on vaccinations being launched worldwide on a broad basis by the autumn.

The trade fair organizer stresses that the EMO is an expression of the industrial zeitgeist, not only because of the alternating location in Italy and Germany, but also because of its innovative offering. A large part of the offering at EMO 2021 will also focus on the current dominant trends – connectivity and digitalization. As a result of the pandemic, preparations were more difficult and lengthy than in previous years, says Galdabini. "We have alternative solutions in the program for every evening event."

INDICATORS POINTING UPWARDS

"The pandemic-related investment freeze in 2020 and the lack of important international industry events that year underline the importance of the EMO 2021," explains the General Commissioner. Against this backdrop, the EMO Milano is expected to set a decisive course for business activities in the post-pandemic years. The organizers have put a great deal of focus on safety regulations. "We benefited from our experience as organizers of the BI-MU, which was successfully held in October 2020."

Sales Engineer Antonio Coniglio is hopeful and expects significant growth in 2021. The experts of the UCIMU industry association confirm that all economic indicators in Italy are trending upwards after the pandemic-related disaster year. And in mechanical engineering, the recovery is likely to be stronger than in other industrial sectors. •

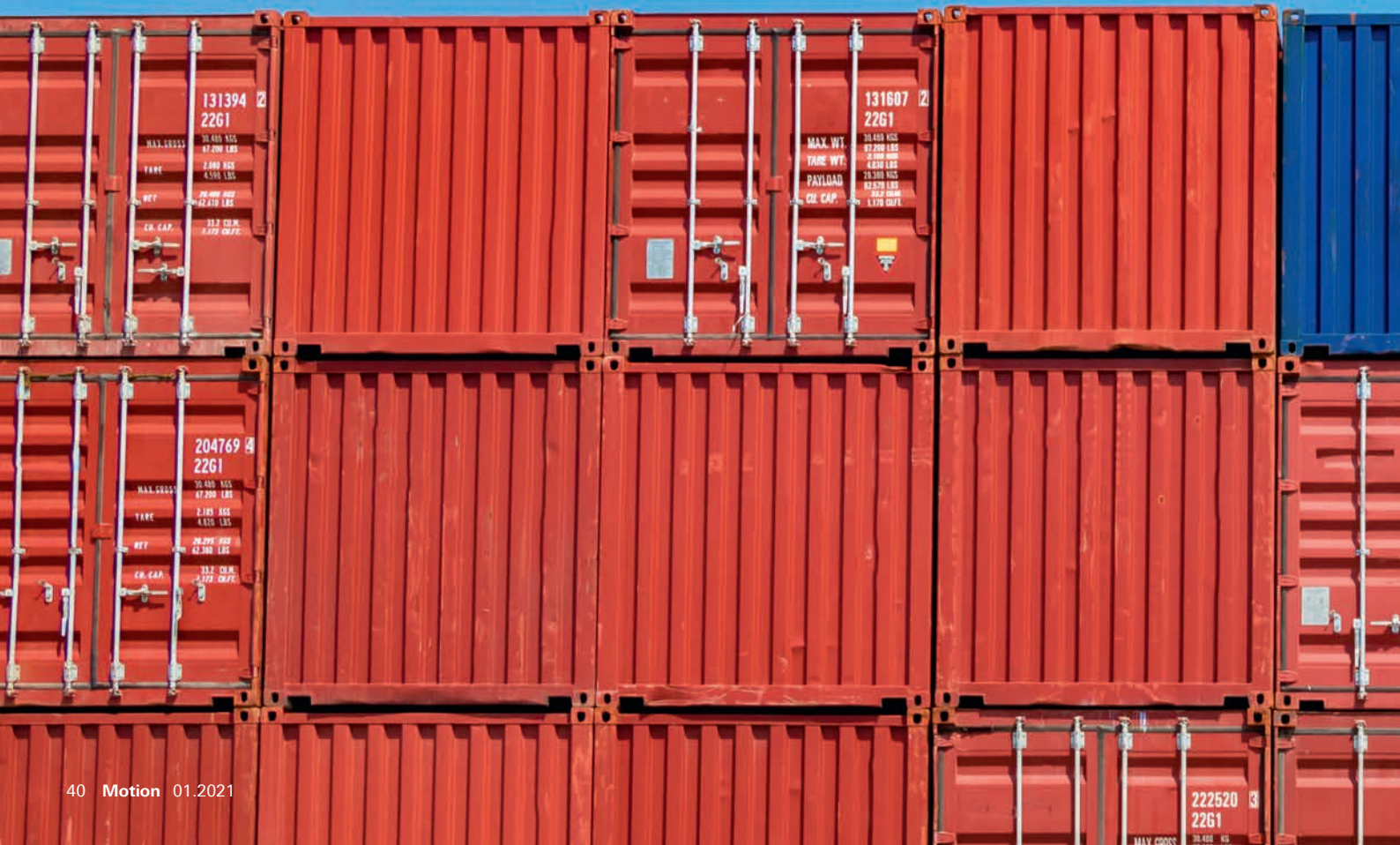
Thesy Kness-Bastaroli has been reporting as a correspondent from Italy for decades. As a business journalist in Milan, she writes for various media from the DACH (Germany/Austria/Switzerland) region, including for Austrian "Standard" and the German "Börsen-Zeitung".



Italy's landmark: the design classic Vespa by Piaggio (left) and the textile industry

GREENER GROWTH FOLLOWING CORONAVIRUS?

The pandemic has severely slowed down many sectors of the economy and driven the world's countries into immense debt. Significant economic growth is needed to refinance debt after the crisis. Coronavirus, on the other hand, has massively increased the pressure for sustainability. How can this be reconciled with the required growth?



SINCE THE SECOND WORLD WAR, THE GLOBAL ECONOMY HAS BEEN growing continuously for more than 60 years, with growth rates of mostly between two and four percent. The financial crisis in 2009 brought a first brief halt to this growth, and the coronavirus pandemic in 2020 caused the world's gross domestic product to contract for the second time. However, we are already hoping for strong growth again this year. Nevertheless, the question keeps cropping up: Will growth continue in the future as it did before? And is it even desirable to continue to strive for the highest possible growth?

These questions are justified. Today we have achieved such great material prosper-

ity in highly developed economies that constant economic growth no longer seems to be absolutely necessary. On the one hand, people do not experience any increase in happiness on average due to increasing material prosperity. On the other hand, we see the negative effects of growth in the environment. The economy, it is argued, should therefore no longer focus on growth in a future post-growth society, but rather it should focus on other goals, such as sustainability or people's life satisfaction. Some authors go even further and demand negative growth (degrowth).

MORE THAN "NICE TO HAVE"

Such criticism of economic growth implicitly implies that growth is an option, but not a necessity, for today's economies. The economy would also function without growth, and a departure from this would only be a matter of political will or the right set-

ting of incentives. However, as I point out in my book "Der Wachstumszwang" ("The Growth Compulsion"), this is not possible. The economy that exists today only works as long as there is economic growth at the macroeconomic level.

Emphasis on the macroeconomic level is important, because the pressure to grow does not apply in the same way to the individual company. At corporate level, it's about making a profit. This is a necessity, if a company wants to survive in the longer term. After all, if you make losses for several years, you go bankrupt. So making a profit is not just "nice to have," but rather it is a systematic requirement. For the national economy, this means that the entire corporate sector must make profits. However, this is only possible for the long term if real economic growth takes place at the same time. In other words: A majority of companies are only economically successful as long as the gross domestic product (GDP) grows. Without economic growth, more and more companies are losing money and the economy is going into a downward spiral. So there are only the alternatives to either grow or shrink!

Photo: Shutterstock



Therefore, we cannot simply say goodbye to economic growth in the future, either. However, the question arises as to the extent to which this growth can be steered in the desired direction. From an ecological perspective, growth is desired that causes as little environmental damage as possible and does not lead to the depletion of natural resources. But is that even possible? And can coronavirus serve as a momentum to reconcile economic growth and the conservation of natural resources?

Indeed, economies in developed countries have increasingly developed in a desirable direction. In Germany and Switzerland, energy consumption has stagnated in recent years, despite economic growth. And emissions have been falling since 1990. But this is also due to the fact that many environmentally harmful processes have been relocated abroad. If you add the emissions caused by imported goods abroad in Switzerland, the CO₂ emissions per capita are more than double.

WITHOUT RESOURCE CONSUMPTION

We must therefore look at the issue of decoupling on a global level. We can see that resource consumption and energy consumption have increased by 2019, albeit at lower growth rates than the world’s gross domestic product. The global energy intensity (energy consumption per GDP unit) decreased by 1.8 percent per year on average between 2000 and 2019, but this was not enough to prevent a further increase in energy consumption. A relative decoupling could be observed, as energy consumption increased less than GDP. (The spirit of decoupling economic growth and resource consumption also gives rise to numerous initiatives that no longer want to measure economic growth with GDP, but rather with indices that map ecological parameters, such as the National Welfare Index NWI in Germany.)

But there was no absolute decoupling that would have led to a decrease in energy consumption. Global greenhouse gas emissions are also continuing to rise. It is true that these have now drastically decreased in many countries due to the outbreak of the coronavirus pandemic. But as the economy recovers, emissions will also rise. In China, the country with the highest CO₂ emissions, emissions were already above the previous year’s level in May 2020 and will also reach new record values in 2021.

TARGET: ZERO EMISSIONS

These figures show that a relative, but not an absolute, decoupling has taken place on a global scale. Achieving the net-zero emissions target by 2050, as agreed for Switzerland and Germany, will require significant additional efforts. On the one hand, market-based measures such as taxes or certificates are available to the country as a means of making resource consumption more expensive. On the other hand, it can also adopt regulatory measures such as bans or rules, which are then formulated, for example, as prescribed emission limit values or as a ban on particularly environmentally harmful technologies or certain products (for example, cars with combustion engines).

In selected countries, such measures will make it possible to move closer to the target of net-zero emissions. On a global level, however, this challenge will continue to occupy us for a long time to come. ◦

ABOUT

MATHIAS BINSWANGER

Binswanger is Professor of Economics at the University of North West Switzerland in Olten and a private lecturer at the University of St. Gallen. At the end of 2019, his latest book “Der Wachstumszwang – Warum die Volkswirtschaft immer weiterwachsen muss, selbst wenn wir genug haben” (“The compulsion to grow – why the economy has to keep growing, even when we have enough”) was published.



www.mathias-binswanger.ch

Photos: Shutterstock, PR





THE SHOWCASE FOR GRINDING

17–20.05.2022
STUTT GART, GERMANY



IN COOPERATION WITH THE STUTT GART TRADE FAIR and the "Machine Tools and Manufacturing Technology" sector of the Association of the Swiss Machine, Electrical and Metal Industry, the Association

of German Machine Tool Manufacturers (VDW) has launched the new Grinding-Hub trade fair.

Under the motto "GrindingHub - Brings solutions to the surface", the VDW is launching the event, which is to become the new leading trade fair for grinding technology and superfinishing. The focus of the GrindingHub is on grinding machines and abrasives as well as the entire production environment for grinding technology, such as relevant software tools and systems for quality management processes relating to grinding.

With experts from industry and science, the special exhibition area "Grinding Solution Park" will address key topics and current trends. In addition, the face-to-face event is to be expanded to include digital offers for exhibitors and visitors and therefore enable mutual exchange through web conferences in years when there is no trade fair.

"With the GrindingHub, the VDW is implementing a new trade fair concept that addresses the growing demands from the market," emphasizes Paul Kössl, Head of Global Marketing at the UNITED GRINDING Group. "For us, the trade fair is already one of the most important industry events that we are looking forward to."

GrindingHub, 17-20 May 2022, Stuttgart, Germany
www.grindinghub.de

Other trade fairs:

NOVEMBER 2021



23–26.11.2021
DMP –
SHENZHEN, CHINA

JANUARY 2022



20–26.01.2022
IMTEX –
BANGALORE, INDIA

APRIL 2022



11–15.04.2022
CCMT –
SHANGHAI, CHINA

MAY 2022



23–27.05.2022
METALLOBRABOTKA –
MOSCOW, RUSSIA

**YOU CAN FIND THE CURRENT
TRADE FAIR DATES AT:
www.grinding.ch/events**



United Grinding Group Management AG
Jubiläumsstrasse 95
3005 Bern, Switzerland
Phone +41 31 356 01 11
info@grinding.ch
www.grinding.ch

SURFACE AND PROFILE

Mägerle AG Maschinenfabrik

Allmendstrasse 50
8320 Fehraltorf, Switzerland
Phone +41 43 355 66 00
sales@maegerle.com

Blohm Jung GmbH

Kurt-A.-Körber-Chaussee 63-71
21033 Hamburg, Germany
Phone +49 40 33461 2000
sales-hh@blohmjung.com

Blohm Jung GmbH

Jahnstraße 80-82
73037 Göppingen, Germany
Phone +49 7161 612 0
sales-gp@blohmjung.com

CYLINDRICAL

Fritz Studer AG

3602 Thun, Switzerland
Phone +41 33 439 11 11
info@studer.com

Fritz Studer AG

Lengnaustrasse 12
2504 Biel, Switzerland
Phone +41 32 344 04 50
info@studer.com

Schautd Mikrosa

Phone +41 31 356 01 55
schautdmikrosa@grinding.com

StuderTEC K.K.

Matsumoto Bldg. 2F.
4-10-8, Omorikita, Ota-ku
Tokyo 143-0016, Japan
Phone +81 3 6801 6140
info.jp@studer.com

TOOLING

Walter Maschinenbau GmbH

Joepstraße 5
72072 Tübingen, Germany
Phone +49 7071 9393 0
info@walter-machines.com

Fritz Studer AG,

EWAG Zweigniederlassung
Industriestrasse 6
4554 Etziken, Switzerland
Phone +41 32 613 31 31
info@ewag.com

Walter Kuřim s.r.o.

Blanenská 1289
66434 Kuřim, Czech Republic
Phone +420 541 4266 11
info.wcz@walter-machines.com

Walter Ewag Japan K.K.

1st floor MA Park Building
Mikawaanjo-cho 1-10-14
Anjo City 446-0056, Japan
Phone +81 556 71 1666
info.jp@walter-machines.com

Walter Ewag Asia Pacific Pte. Ltd.

25 International Business Park
#01-53/56 German Centre
609916 Singapore
Phone +65 6562 8101
info.sg@walter-machines.com

Walter Ewag UK Ltd.

2 St. Georges Business Park
Lower Cape, Warwick CV34 5DR
Warwickshire, Great Britain
Phone +44 1926 4850 47
info.uk@walter-machines.com

Walter Ewag Italia S.r.l.

Via G. Garibaldi, 42
22070 Bregnano (CO), Italy
Phone +39 31 7708 98
info.it@walter-machines.com

UNITED GRINDING GROUP INTERNATIONAL

United Grinding (Shanghai) Ltd.

1128, Tai Shun Road
Anting Town
Jiading District
Shanghai 201814, China
Phone +86 21 3958 7333
info@grinding.cn

United Grinding (Shanghai) Ltd. Beijing Branch Office

Room 1911, Fl. 19
Hanhai Int'l Mansion
No. 13 Jiuxianqiao Rd
Chaoyang District
Beijing 100015, China
Phone +86 10 8526 1040
info@grinding.cn

United Grinding GmbH India Branch Office

No. 487 – D1 & D2A
4th Phase, KIADB Main Road
Peenya Industrial Area
Bangalore 560058, India
Phone +91 80 30257 612
info.in@grinding.ch

United Grinding GmbH Moscow Office

Puschkinskaja nab., 8a
119334 Moscow, Russia
Phone +7 495 956 93 57
info.ru@grinding.ch

United Grinding North America, Inc.

2100 UNITED GRINDING Blvd.
Miamisburg, OH 45342, USA
Phone +1 937 859 1975
customercare@grinding.com

United Grinding Mexico S.A. de C.V.

Bldv. Bernardo Quintana No. 7001
Of. 1003
Querétaro, Qro. 76079, Mexico
Phone +52 1 555 509 7739
customercare@grinding.com

Irpd AG

Lerchenfeldstrasse 3
9014 St. Gallen, Switzerland
Phone +41 71 274 7310
sales@irpd.ch