

COMPLETE

Nr. 02/23

The complete machining magazine

SUCCESS STORY | Clear water with Hiller centrifuges

INNOVATION | TOOLS FOR LIFE - Helping people to help themselves

ALL EYES ON | Energy-saving measures at the MILLTURNs

All eyes on:

The sustainable MILLTURN

From the exact energy consumption of machines
to the carbon footprint of components



Linz inspires.

Knights, castles, plague, burning of witches, crusades ... the associations with the Middle Ages are manifold and shaped by historical facts, literature and film. But what lies behind them? In this issue you will learn more about the city of Linz during the Middle Ages. Surrounded by a city wall with a castle inside, Linz was popular by the rulers of the region. The city was also an important trading centre between Salzburg and Bohemia thanks to its geographical location.

Dear customers and readers,

The world of smart manufacturing Trends in the spotlight

WFL is setting new standards in the field of smart manufacturing. Over the last few years, we have been focusing on a few key areas, which we will explore in more detail in this issue of Complete magazine.

Smart manufacturing: As digitalisation continues apace, machine tools are now being integrated into intelligent production systems. This enables seamless communication between machines, automated process monitoring and control, and the use of data analysis and artificial intelligence to optimise production processes. Our products allow you to collect important production data so that you can identify potential bottlenecks, inefficiencies and quality fluctuations ahead of time.

Automation and robotics as the basis of smart manufacturing: Automation is increasing in the manufacturing industry, with machine tools frequently being combined with robots and automated handling systems. And that's happening at WFL too. Together with our subsidiary FRAL, we offer solutions that incorporate these new developments, solutions where robots take over tasks like tool changes, feeding in material and removing parts. This boosts productivity, flexibility and efficiency. Today, many manufacturing sectors couldn't imagine being without automation and robotics, and the issue is becoming increasingly important.

Focus on precision machining: We class this area as smart manufacturing as well. With technology advancing all the time, machine tools are becoming ever-more precise and enabling the machining of increasingly complex tools. This is particularly important in the aerospace industry, for example, where the 'MILLTURN masterpiece' is required to produce the components of the future.

Sustainability and energy efficiency – the green machine tool: Environmental aspects are becoming increasingly important, which is why we are working on energy-efficient machines and processes in order to reduce energy consumption and offer sustainable solutions.

Integrated sensors and monitoring: Thanks to developments in sensor technology, it is possible to closely monitor the machine status, tool performance and product quality. Real-time data is analysed in order to identify any problems at an early stage, minimise downtime and improve productivity. myWFL operational data acquisition gives us a good overview of all the relevant data

so that we can exploit the optimisation potential of production. In this issue, we take a closer look at the trends we have observed in machine tool assembly. From the use of intelligent tools and systems in our complete machining centres to mobile robot automation, we give you an insight into WFL's approach and what we have done so far. The exciting customer story with Hiller provides insights into the world of decanter centrifuges. And we mustn't forget about sustainability. In light of the astronomical rise in energy prices, this is an extremely important issue, and to tackle it WFL has set itself the goal of making the machine tool 'greener'.

We hope you enjoy reading!

Your WFL Management-Team

“Clamp once –
machine complete”



Günther Mayr
Managing Director Sales, Technologies
and Services

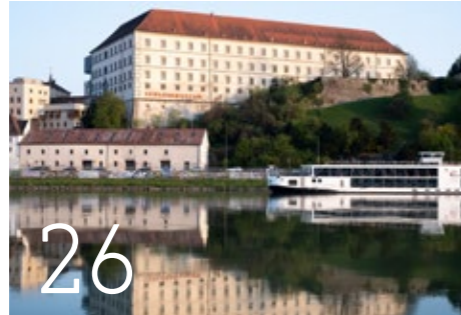
Norbert Jungreithmayr
CEO



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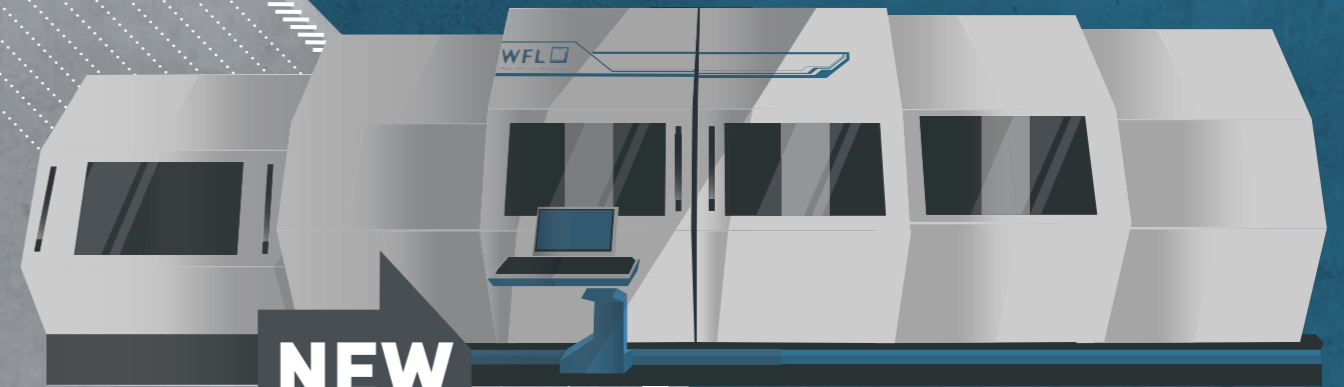
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EMO HANNOVER

SEPTEMBER 18TH – 23RD, 2023 | HALL: 13 | BOOTH: B51



NEW DESIGN!

MORE HIGHLIGHTS:

- Siemens Sinumerik One on the MILLTURNS
- myWFL: the operational data acquisition system
- CrashGuard Studio Updates

MACHINE-HIGHLIGHTS:

M50 MILLTURN | 3000 mm

- LIVE machining on a power generation shaft
- Manufacturing of turbine blades, fir tree, impeller and generator shaft profiles

Ø: 600 mm
Length: 2,355 mm
Material: 42CrMo4
Weight: 1,082 kg
Industry: Energy

M80X MILLTURN | 4500 mm

- LIVE machining on a gear shaft
- Grinding with attachment and gearing solutions with FLANX cycles
- Intelligent tools: Silent Tools™ Plus boring bar

Ø: 800 mm
Length: 1,824 mm
Material: 42CrMo4
Weight: 2,280 kg
Industry: Engineering Gear

AUTOMATION HIGHLIGHTS by FRAI:

- mobileCELL – the mobile robot solution
- Automatic change of a power chuck
- Automatic loading and unloading of tools in the magazine

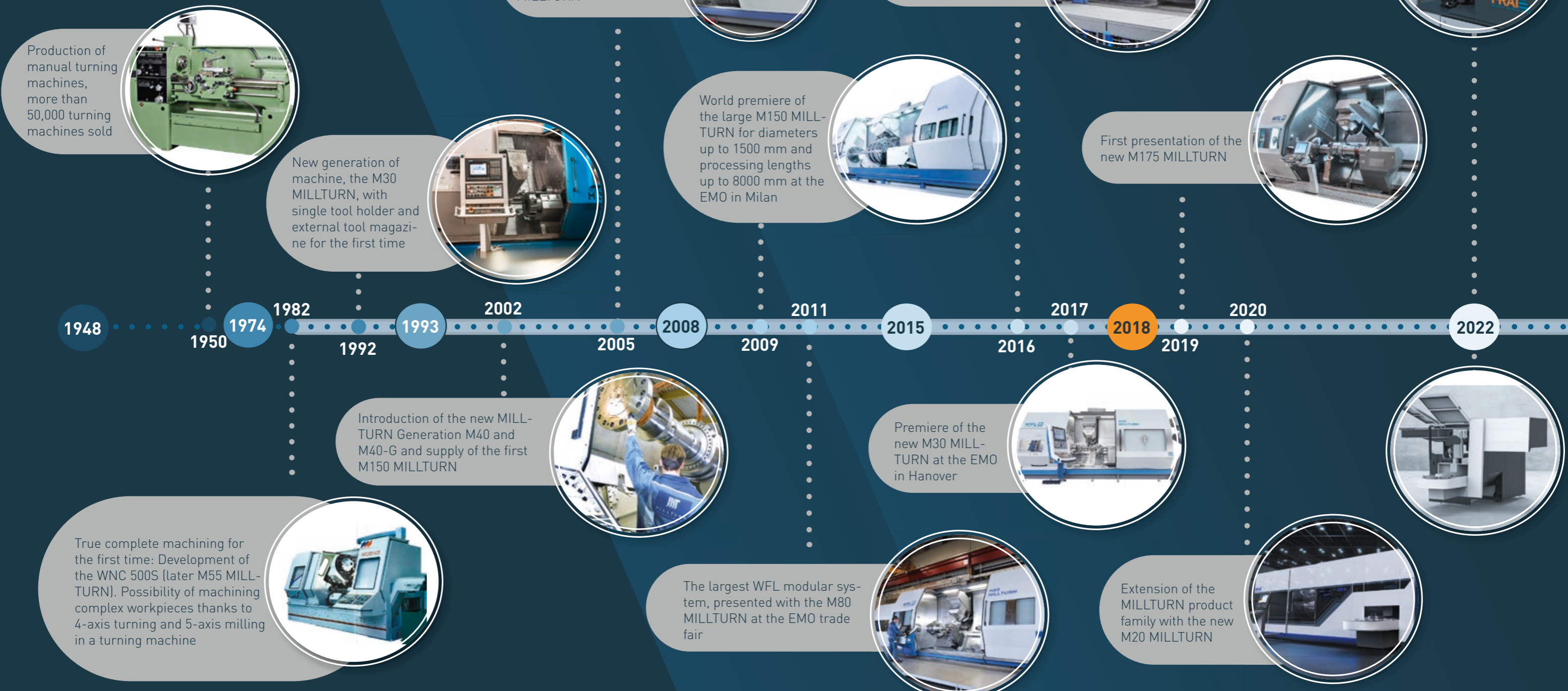


TAKE IT TO THE
NEXT LEVEL



40 years of MILLTURN

The History of WFL



Production of manual turning machines, more than 50,000 turning machines sold



New generation of machine, the M30 MILLTURN, with single tool holder and external tool magazine for the first time



The new M35 MILLTURN supersedes the M30 MILLTURN



World premiere of the large M150 MILLTURN for diameters up to 1500 mm and processing lengths up to 8000 mm at the EMO in Milan



Introduction to the market of the new M200 MILLTURN



Mobile robot automation mobileCELL on the rise



First presentation of the new M175 MILLTURN



1948

1950

1974

1982

1992

1993

2002

2005

2008

2009

2011

2015

2016

2017

2018

2019

2020

2022

Introduction of the new MILLTURN Generation M40 and M40-G and supply of the first M150 MILLTURN



Premiere of the new M30 MILLTURN at the EMO in Hanover



True complete machining for the first time: Development of the WNC 500S (later M55 MILLTURN). Possibility of machining complex workpieces thanks to 4-axis turning and 5-axis milling in a turning machine



The largest WFL modular system, presented with the M80 MILLTURN at the EMO trade fair



Extension of the MILLTURN product family with the new M20 MILLTURN



1948

1974

1993

2008

2015

2018

2022

VOEST-ALPINE Linz/Austria founded its own machine tool production for its steelworks

Takeover of WEIPERT / Germany and production of the Weipert Heavy Duty Turning Machines in Linz

Partial privatisation of VOEST: Incorporation of MILLTURN production into AUTANIA AG. Renaming to WFL MILLTURN Technologies GmbH & Co. KG

Granting of a patent for the CrashGuard real-time collision prevention software
EN ISO 9001: 2008 company certification

Hybrid manufacturing technologies integrated into a MILLTURN by WFL
EN ISO 50001: 2018 company certification

Aquisition of FRAI Maschinenbau GmbH

Putting more and more focus on automation through the mobileCELL and intCELL



“When times get stormy, we come along with an innovative product and help to shape the future.”

Finance with finesse

CFO Stefan Hackl in conversation with COMPLETE

Midfielders on the football pitch, ski racers flying down hair-raising slopes, aircraft pilots and rally drivers all have it: just two words that play an incredibly important role in sports and in these people's lives – control and oversight. Without these attributes, many tasks would simply be impossible and new ideas would never make it past their infancy. Oversight is essential if you want to take forward-looking, anticipatory action. Financial controlling requires both control and oversight to keep company finances robust and stable.

Meticulous fine-tuning when implementing control measures like the design and integration of various planning situations is just as important as having a vigilant eagle eye to monitor the central and local coordination of investment decisions. In other words: the level of accuracy and oversight employed in financial activities is crucial to a company's success. We are fortunate enough to have had someone with the oversight of a midfielder, a vigilant eagle eye and the precision of a skier managing finance at WFL for a few years now. Mr Stefan Hackl not only provides certainty in uncertain times, but also

looks for new ways to move successfully towards the future. Complete magazine's editor ventured into the complex world of finance to speak to Mr Stefan Hackl about his own life and managing the complexity of a 500-person-strong company.

Mr Hackl, you have been at WFL for four years now and, as CFO, are a passionate supporter of the company. How did you get on when you first started and what challenges did you face?

I have great memories of my first few days and weeks at WFL because there is such a friendly, helpful and welcoming atmosphere here. The open door policy made finding my feet a lot easier because my colleagues were happy to answer any questions I had. There were three challenges though: the first was getting to know the company. How does it work, what exactly does it do and where are the issues – as controller, that's what you need to know to work out where you stand. Secondly, you have to get to know your colleagues, which is not that easy when there are so many of them. The third challenge is the team that you work with directly. You have to get to know them too, and discuss how to handle future tasks.

Accuracy is essential in finance. How do you combine oversight and control efficiently?

It's only possible if you have a good understanding of the entire company. I call it the 'economic engine'. We need a good grasp of what the cost drivers – and value drivers – are, how mechanical engineering works on a day-to-day basis, plus lots more. These factors need to be translated into figures, which then enables a controller to understand how the different departments work and which tasks are important. In this line of work, it is also vital to have an interest in the relevant topics. That insight enables you to maintain oversight and helps you to find solutions faster and more efficiently in tricky situations,

Tell us about your career path.

I grew up in the Austrian city of Leonding, near Linz, and attended primary and secondary school there. I obtained my school leaving certificate at the upper-secondary academic school in the Diocese of Linz and then went on to study business administration at Johannes Kepler University Linz, specialising in tax, finance and accounting. So it was already pretty clear where I was headed. After gradu-

ating, I joined KPMG, a large accounting firm, where I spent many challenging but positive years and learned a lot. I wanted to understand how things work in operational business and prepared figures for precisely this type of company. This is what led me to move to VIVATIS, where I got to work on these kinds of tasks. I later got the chance to take on a new role at ELOPAK, a Scandinavian beverage carton manufacturer, where I was able to hone my skills as the Director of Finance in CEE and gained a lot of experience. In 2016, I then completed the Master of Business Law postgraduate programme at the University of St. Gallen in Switzerland. All these milestones led me to WFL, where I started in 2019.

The stress of everyday life rarely lets up. How do you handle difficult situations?

It's important to approach critical situations with a proactive mindset. You should never just stick your head in the sand – always look for solutions. Often the focus is on the problem and in particular on anything that is difficult in a situation. That tends to have a negative effect and drives action into a downwards spiral. Problems have to be addressed; they need

to be discussed and handled proactively and openly. That's the only way to resolve them swiftly.

What helps you to recharge your batteries outside of work?

There are three main things that help me do that. The first is my family, which gives me strength and that all-important support. The second is sports. I love hiking, cycling, running and mountain climbing, and these activities always help me to recharge my batteries and re-energise. The third is my friends, who provide that necessary change of pace and complement the first two areas perfectly. I also mustn't forget holidays and long weekends. Variety helps to give you a boost so you can give your all.

Are you a numbers person or are you creative as well?

I basically see myself as a generalist with a huge affinity for numbers, but I also believe that no area can function without creative solutions. If you ask a design engineer or a purchaser, they'd tell you the same thing. You need a creative approach to think outside of the box sometimes. Often you have to take a different route,

“The level of accuracy and oversight employed in financial activities is crucial to a company's success.”



SPARRING-PARTNER

Controlling and Accounting help other departments make plans for projects.

perhaps even a diversion (or several), to get to where you want to go. So creativity is really important and necessary.

What's your view on the current global situation and where does WFL stand in it all?

Generally speaking, the financial world is a reflection of what is happening in various places around the globe. The world is becoming more confusing and complex and is changing at an ever-faster pace. Things that were valid yesterday might already be meaningless today. Interest rates are a good example of this, and electromobility. Historically, we are once again at a turning point and, like the industrial revolution many years ago, that means change. The keyword is AI (artificial intelligence), and this is one area that is becoming increasingly important and prevalent. But that's change – you can't stop it. You have to adapt to it. I don't mean to suggest that we are in a doomsday scenario; I simply

want to show that there will undoubtedly be changes around the world but we will tackle them together. And every change that we encounter should motivate us to grow and develop as well. It's similar to how we deal with stressful situations. When we find ourselves in this situation, we identify the opportunities and act creatively. That's precisely what we do at WFL. When times get stormy, we come along with an innovative product and help to shape the future.

Is it possible to plan with 100% certainty in finance or are there factors that are impossible to calculate?

Two quotes come to mind when answering this question. The first is "No plan survives first contact with the enemy!" by Helmuth von Moltke and the second is this quote from Albert Einstein: "Planning replaces coincidence by error." Despite these quotes, I firmly believe that it is essential to plan ahead. Perhaps



things might not always go as planned, but you still need a direction. We need to know where we are headed and to be able identify any deviations so that we can correct our course. In other words, planning means preparing. We plan our route to the summit. And regardless of whether we have to take any diversions, the destination remains the same. So essentially, planning is extremely important but you have to be prepared for diversions.

When you hear the words ‘oversight’ and ‘control’, what springs to mind and why?

Both are essential. If you don’t have oversight, there’s a risk that you will act rashly, and control makes me think of management. As I mentioned earlier, the journey, the goal and the planning are all really important, and to get there we need control too.

Where do you see WFL in the next 5–10 years?

I see WFL as an innovative, world-renowned partner for challenging production tasks. We’re actually already there, but I can see us being even bigger and stronger in the future. With our new machine series and the developments we have planned for the future, WFL will maintain its strong position and go on to achieve even more.

Do you have any suggestions or things you’d like to happen to improve finance even further at WFL?

The first thing to remember is that there is always room for improvement. For me, the mission is always the most important thing in finance. As a department, we are the company’s sparring partner, pilot and service organisation. When departments need support, we are more than happy to help them put together plans for whatever projects they have in mind. In that regard, we are always happy to receive requests and suggestions and for departments to tell us what they need support with so we can achieve our shared goals.



PROFILE

Name: **STEFAN HACKL**

Age: 42

Home town: Linz

Education:

- 1999 School leaving certificate at the upper-secondary academic school in the Diocese of Linz, Austria
- 2000–2004 Business administration degree at JKU in Linz, specialising in tax, finance and accounting
- 2016–2017 Master of Business Law postgraduate programme at the University of St Gallen, Switzerland

Career:

- 2005–2007 KPMG Austria in Linz, accounting
- 2008–2012 VIVATIS Holding AG in Linz, investment management
- 2012–2015 ELOPAK CEE in Linz: Head of Finance CEE
- 2015–2019 ELOPAK GROUP in Terneuzen (NL) and Speyer (DE): Director Finance Europe
- Since 06/2019: WFL in Linz, CFO

All eyes on...

The new WFL machine design

by WFL MILLTURN Technologies

“Clothes make the man.” At least, according to the title of an 1874 German novel by Gottfried Keller. And in this vein, the WFL MILLTURNS have had a makeover.

The colour scheme and design have been adapted to create a uniform look and will be used for all machines going forwards.



All eyes on

The new WFL machine design

by WFL MILLTURN Technologies

Design meets innovation and technology. WFL has spared no effort when it comes to creating an eye-catching look and a timeless design for these machines. The colour scheme and lettering have been adapted to create a uniform look and will be used for all WFL machines going

forward. These two stylistic elements clearly set the new design apart from the old one. Led by the WFL corporate design, the MILLTURNS are on something of a design journey. All WFL machines are now available in their new clothes, featuring the fantastic new timeless design.



The uniform look really stands out and is now featured on all WFL machines.

CHECK OUT THE MILLTURN MACHINES' NEW DESIGN FOR YOURSELF AT EMO HANNOVER! FROM 18TH TO 23RD SEPTEMBER 2023

Hall 13, Stand B51



A high-quality, liquid-resistant film is now applied to the sliding doors.



The MILLTURN with new lettering and colour scheme.

The new machine lettering is a key part of the fresh new design. The doors now feature a high-quality, liquid-resistant/all-weather film. In the standard model, the distant blue WFL logo sits on a light grey background. The simple chisel pattern is also subtly included in the background of the sticker. All in all, the striking overall look of the new design rounds off the classic machine perfectly.

The new standard paint is also part of the brand-new look for all WFL machine ranges. The proud, dusty grey used until recently has been replaced with a modern, elegant anthracite grey. This grey is now used on all basic components and frames the rest of the machine.

Individual elements of the ergonomics have also been updated: The operator panel has a new design and there are updated handles throughout the machine. The innovative multi-touch panel with the Siemens Sinumerik ONE control system completes the look.

Clothes make the man – as does the updated design of the WFL MILLTURNS.



In the standard model, the distant blue WFL logo sits on a light grey background.

Clear water with Hiller centrifuges

Decanter technology uses a process that separates liquids and solids. It is often used in industry to remove solid particles from liquids or to separate different liquids from one another. Hiller GmbH has been developing and producing decanter centrifuges for over 50 years, using its expertise to solve separation tasks across a wide range of industries.



SUCCESS STORY

Hiller GmbH has been developing decanter centrifuges and complete systems for the separation of solids and liquids in the small town of Vilsbiburg, Bavaria, for more than 50 years. Over 6500 centrifuges are already in use around the world, and around 200 decanter centrifuges are delivered to customers every year.

If someone were to mention fruit and vegetable juices, olive oil, fish processing, dairy products, kitchen waste, sewage sludge treatment, algae harvesting, oil preparation or even the production of plant extracts to you, you wouldn't immediately know what connected all these different areas. But these are precisely the areas that Hiller is involved in. Hiller decanters are used to separate milk and cream in the food industry, for instance, and to produce olive oil. You can assume that 80–90% of Spanish olive oil has gone through a Hiller decanter, for example. Another interesting application is in the chemicals industry, where decanters are used to separate solvents or to treat wastewater. In fact, wastewater treatment is probably the most important and sustainable area of use for this technology. Decanters are used to separate solids and liquids in sewage treatment plants. The accumulating sewage is cleaned using decanters so that it can then be released back into the waterways. It's a topic that we know very little about but one that affects us all.

Spotlight on the separation of solids and liquids

What actually is a decanter and what is behind this phenomenal technology? A decanter consists of a cylindrical housing with a rotating bowl inside. The bowl is divided into two sections by a partition wall. The liquid to be separated is fed into one section, while the end product and the solid material from the separation process are fed out into the other. When the bowl rotates, this creates a centrifugal force which pushes the solids to the outside. At the same time, the heavier liquids, such as water, sink toward the outer wall of the bowl where they then flow out. Lighter liquids like oil float to the surface of the heavier liquid and are also separated.

Essentially, decanter technology offers a very effective, very energy-efficient means of separating liquids and solids. Hiller produces the decanters in house, manufacturing the majority of the decanter components at its Vilsbiburg site.

Incorporating complete machining

Hiller GmbH machines many different components for its decanter centrifuges using MILLTURN turning/milling centres

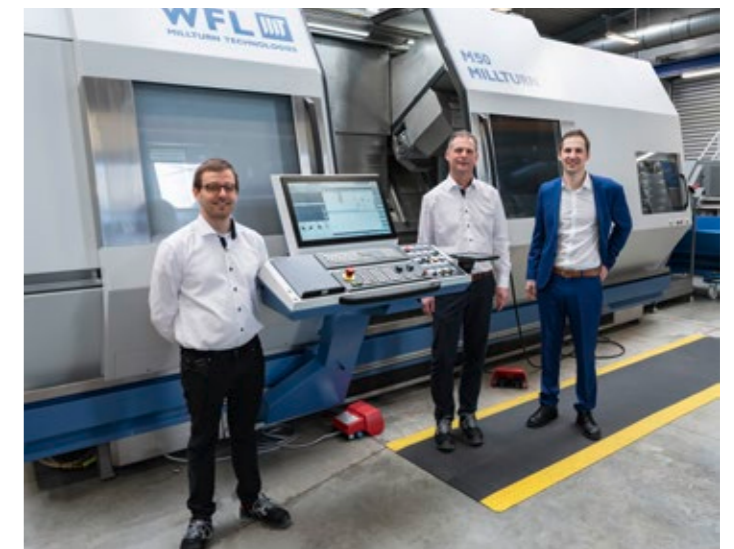
from WFL. At the heart of the decanter is a rotor, which comprises a screw conveyor, bowl and drive unit and is made entirely using WFL's multi-talented machines. The new M50 MILLTURN with 2000 mm centre distance is now used to produce additional parts that were previously outsourced. Hiller's insourcing strategy is one of its top priorities. In light of the supply shortages that have cropped up again and again in recent times, the company's strategic aim is independence. Vertical integration is also being brought further inwards in order to generate more added value.

Stefan Brauner, Head of Production, provides an insight into production: "The aim with the new WFL machine is to produce larger batches and to make optimal use of the machine's capacity. We had a lot more machinery before we introduced complete machining. The turning/milling machines have enabled us to really cut down the amount of equipment that we use. We have replaced several machining centres with the new WFL machine. The major benefit of making this change is that it simpli-

fies the production process. This process used to be a long one: A component would be turned on one machine, then milled, and then turned again. Depending on requirements, the different production steps would be spread across different machining centres. Now everything is done on one machine, so there's no need for repositioning."

"With the new WFL machine we were able to simplify the manufacturing process."

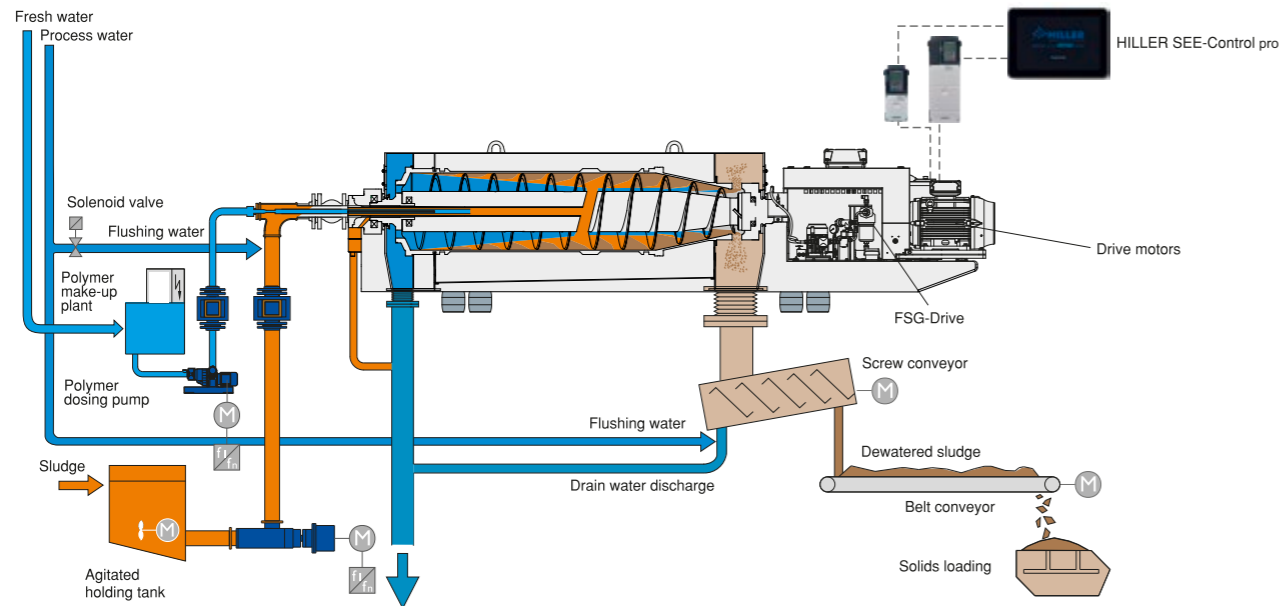
The employees in production are also big fans of the machines. The M50, M80 and M120 trio makes a solid team and can handle a wide range of part sizes between them. On the larger WFLs, for example, the same chucks are used, with the machines mainly producing conical bowls,



M50 MILLTURN / 2000MM

From left to right: Stefan Geiger, CNC Programmer at Hiller GmbH, Stefan Brauner, Head of Production at Hiller GmbH and Andreas Lehner, WFL Sales Manager Germany in front of the newly acquired WFL M50 MILLTURN.

HILLER-DecaPress® Two-Phase Centrifuge-Dewatering Plant with FSG-Drive



THE PROCESS

Schematic illustration of a Hiller centrifuge for sludge dewatering at a sewage treatment plant. The residual moisture content in the dewatered solid matter determines the costs of disposal, which are a big part of the overall running costs of a sewage treatment plant.

cylindrical bowls, screw conveyor bodies and front walls, etc. The M50 meanwhile is currently used to produce gear components.

The large machines – the M80 and M120 – produce smaller batch sizes of between 5 and 10 pieces, while the new M50 produces 20 to 50 pieces in two shift operation. The benefits of complete machining are clear: the entire production process for a workpiece – including quality checks – takes place on one machine. The possibility of integrating a variety of tools in the machine speaks for itself. Overall, with complete machining it is the shorter set-up times and generally short lead times that really make the difference.

Andreas Lehner, WFL Sales Manager, adds: “The USPs of our machines include

excellent stability thanks to the inclined bed concept. The machines have short distances between the machining point and the guideways, so maximum metal cutting efficiency and high-precision finishing are guaranteed.”

High quality and reliable

When purchasing the complete machining centres, the key criteria were process reliability, service availability and, most importantly, the high quality of the machines. As Hiller had already been using an M80 and M120 for some time, the company knew that they could rely on the machines to run smoothly. This was a key factor behind the decision to purchase another MILLTURN. “The very capable

men and women at the other end of the phone who are able to provide expert assistance should problems arise and the additional remote diagnostics service are great solutions. The user can establish a secure connection to WFL via PIN code, enabling a WFL service technician to quickly access the machine control system, identify the problem and perform diagnostics. This connectivity and the fast response times are simply fantastic,” says Stefan Brauner.

Andreas Lehner adds: “It’s not only important for someone to be on site as quickly as possible when servicing is required in order to swiftly resolve the problem. What is particularly important for our customers is the time taken to resume production. All of our service em-

ployees are trained in all machine types and can therefore provide our customers with the best support on site.”

As the quality of its products is extremely important to Hiller, it was crucial to get the design of the technology right. CNC Programmer Stefan Geiger explains that the machining process was developed in cooperation with WFL beforehand to ensure that the required gear components could be produced to the necessary degree of accuracy. “WFL performed a very detailed preliminary examination of the component, so we could be confident that our production would be extremely accurate.”

Technological versatility that matters

Technologically speaking, the MILLTURNs really do have everything covered. Work is currently under way to integrate the technological process of shaping. The idea would be for the complete machining centres to handle the internal gears of the gear components as well. External gears have already been successfully implemented with WFL’s technology cycles. The machining times for the different workpieces vary depending on the size of the component. The machining time for the bowl parts, for example, is a little longer – between 1.5 and 3.5 hours. The majority of the workpieces are made from stainless steel, and the gear components predominantly from steel: these are materials that are ideal for processing with the WFL complete machining centre.

Process reliability is guaranteed on the M50 thanks to iControl Advanced+, which means that the machine can run completely automatically. The machine enables process signals to be monitored continuously at the machine control system, so even the smallest irregularity can be spotted immediately. If a wear-related overload or tool breakage is detected, the machine stops automatically. In addition, the possibility of integrated measurements enables tools to be corrected automatically – for the perfect machining process.

The CAD/CAM programming system TopSolid is used for programming. Hiller is also now increasingly incorporating the WFL simulation and programming software CrashGuard Studio into its processes, using this software for the final optimisation of programmes.



FAST ROTATION

The bowl bodies for the decanter centrifuges are produced on the M80 MILLTURN. The decanter bowl rotates at a high speed, causing solids to collect on the inner wall of the bowl.

“The machining process was developed in cooperation with WFL beforehand.”



CRUCIAL ELEMENTS

The rotor for the centrifuges is currently produced in the M120 MILLTURN. The rotor is a crucial element in centrifuge technology, because it is what enables that essential separation of materials.



Sustainability is key

Hiller makes products that help the environment to regenerate. The decanter technology supports this process by treating contaminated water and returning it to drinking water quality. In the food industry, the shelf life of foodstuffs can be extended, which helps to reduce food waste and improve resource efficiency. Essentially, decanters facilitate the efficient separation of solids and liquids so that they can be reused or disposed of. This helps to minimise waste and conserve resources. The highly efficient WFL machines are therefore the perfect fit for Hiller's sustainable philosophy.



GEAR COMPONENT

Gear component for a centrifuge, manufactured in the newly acquired M50. The gear teeth are produced by means of gear hobbing.



BOWL BODY

Bowl body for a centrifuge, manufactured in the M80.



SCREW CONVEYOR

The decanter screw conveyor consists of a spiral-shaped blade or a spiral. As well as aiding the separation of solids and liquids, the screw conveyor facilitates the removal of separated sludge.

facts

- 1971: Establishment of Hiller GmbH in Vilsbiburg (Bavaria) by Georg Hiller senior.
- Hiller GmbH has been part of the Swiss Ferrum Group since 2018.
- The company has over 50 years' experience in the development and manufacture of decanter centrifuges and turn-key plants.
- Having produced more than 6500 centrifuges, Hiller is a world-renowned manufacturer of decanter centrifuges.
- Around 200 decanter centrifuges are delivered to customers every year.

All eyes on...

Silent Tools™ Plus

The vibration-damped sensorized boring bar

The geometry of workpieces and the materials used are becoming increasingly more complex. In addition, the market expects quick responsiveness and a high degree of flexibility. These challenges have to be mastered and the customer's wishes fulfilled.



All eyes on

Silent Tools™ Plus

The vibration-damped sensorized boring bar with control integration

The Silent Tools™ Plus boring bar from Sandvik Coromant – the world market leader for tools and machining solutions – is equipped with sensors to provide data on utilisation, temperature, deflection and the surface quality achieved, and intervenes adaptively in the machining process if the limit parameters are exceeded. The process transparency gained allows the machining process to be significantly optimised. The integration of smart sensors enables detailed tool information and machining states to be called up

on the machine control system, a tablet or a PC. Various sensors installed in the Silent Tools™ Plus boring bar provide data on utilisation, temperature, deflection and more. Signals are transmitted via Bluetooth so that the machine can respond interactively to a defined trigger event. The process can be visualised and documented, making it fully transparent. The use of an inductive coupling to power the sensors instead of an accumulator is a completely new feature.



DISPLAY

The display shows precise data for load, surface, vibrations and temperature in the damping system as well as the cutting time.

The ultimate protection for machines, workpieces and tools

The Silent Tools™ Plus boring bar has integrated sensors in different places. A vibration sensor fitted to the cutting head allows vibrations to be detected even at an early stage. The operator can react in real time, preventing the problems commonly associated with vibrations and thus reducing scrap rates and rework. A temperature sensor built into the damping unit monitors the actual temperature, which is also displayed. This increases process reliability and ensures better maintainability of the boring bar. Sensors are also installed in the boring bar itself, which provide data on the force being exerted on the bar. In combination with the 'iControl' process monitoring system, the operator enjoys the ultimate level of protection for the machine, workpiece and tool to ensure reliable and economical production, especially in spare parts production or for small

batch sizes. The up to 16 process signals to be monitored are configured by WFL at the factory according to the machine equipment and displayed live on the controller's display. Important process signals are the forces or torques of the NC axes and spindles, but also the signals sent by the sensors integrated in the Silent Tools™ Plus boring bar.

Holistic solutions

The ability to implement holistic solutions is essential for complete machining. In the larger MILLTURNS there is an additional compound slide to accommodate a large vibration-damped boring bar with a length-diameter ratio of up to 18 x D. The additional compound slide enables an automatic tool change at the front of the boring bar, a programmable projection length and Ultra-High Pressure Coolant (UHPC).



CONNECTED

The Silent Tools™ Plus boring bar creates an interface between the tool and the machine for automated, digital machining.



NEW

The sensors are powered by an inductive coupling.

Advantages

- Sensors in tools provide additional protection for the workpiece, tool and machine
- Reduced workload for operators
- Greater process reliability during machining
- Early detection of overloads and vibrations during the machining process
- Integration in WFL iControl Advanced+
- Documentation of the force curve during the process



Learn more about iControl and the Silent Tools™ Plus boring bar

ANTIQUITY

In the fourth century BC, Celtic fortifications were built. In the first century AD, the Romans built a fort and called it Lentia.

MIDDLE AGES

799: First documented mention as "Linz". Royal market and customs town, sometimes even a royal seat of the Holy Roman Empire of the German Nation.

EARLY MODERN PERIOD

After the Thirty Years' War, the city was reconstructed in the Baroque style. In 1672, Christian Sint established the 'Wollzeugfabrik' (wool factory), Austria's first textile factory.

18TH-19TH CENTURY

Steam navigation, horse-drawn railway in 1832, industrialisation in 1850, shipbuilding, locomotive construction, metal processing.

20TH CENTURY

Linz becomes a city, a university and cultural city and a key place of business.

21ST CENTURY

City of Culture 2009. Convention city, tourist hotspot, site of research and development.



Linz in the Middle Ages

Knights, castles, the plague, witches burnt at the stake, crusades... associations with the Middle Ages are many and varied, shaped by historical facts, literature and film. But what is behind these images? In this issue of Complete magazine, we take a look at what the city of Linz was like during the Middle Ages. Surrounded by city walls, with a castle at the centre, Linz was used by the region's rulers. The city was also an important trading post between Salzburg and Böhmen due to its geographic location.

After the Roman population left the Alps and the foothills of the Alps, there was something of a settlement vacuum in what is now Upper Austria. Predominantly Germanic tribes came to settle in the foothills of the Alps as far as the Enns: they were known as the Baiuvarii. All early medieval tribal associations were the result of 'migration avalanches' like this one. This meant that they were a mixed population. This is particularly evident in the cemetery of Linz-Zizlau, which dates back to the 7th century. The graves there demonstrate the mix of cultures found in a single tribal association, with Christians and non-Christians, Baiuvarii, Huns, Avars and even individuals with Langobardic and Byzantine jewellery lying side by side.

As the Duchy of Bavaria advanced to the east, Linz once again became an important location. The city's German name is mentioned in a document for the first time in 799. Count Gerold, Prefect of Bavaria, was granted St Martin's Church in Linz by Bishop Waltrich of Passau as a fief. This document is the first time that Linz is mentioned using the name 'Linze'. During the Carolingian period, Linz was the central settlement of the Traun province and had a market and toll function, as documented in the Customs Book of Raffelstetten (903-905). This is understood to involve the convening of a panel of eminent persons who advised on and resolved matters of dispute. At the time, this involved issues relating to tolls on the Danube. There is a record of the panel's legal sentence on tolls in a document

from the 13th century. The document mentions 'Rosdorf' (presumably across from Aschach) and Linz as toll stations and also provides general information about trade routes and goods at that time – predominantly salt, but also slaves. The toll station in Linz was likely in the Hofberg area, and the market probably stretched from Hofberg across the old town to Herrenstraße.

The medieval city

Around the year 1000, the centre of the settlement moved to the foot of Schlossberg (castle hill) on the terrace surrounding Alter Markt (old market), out of the reach of flood waters. In approximately 1205/06, ownership of this castle settlement was transferred from the noble line



ST MARTIN'S CHURCH

Inside you will find frescos dating back to the 14th and 15th century, as well as Roman gravestones with inscriptions from the 3rd century and gothic wooden sculptures.



ALTER MARKT (OLD MARKET)

A castle was built on the eastern slope of Schlossberg hill around the year 1000. Below this castle, there was a settlement with a marketplace.



NIBELUNGEN BRIDGE

The first (wooden) bridge connecting the city of Linz and the village of Urfahr was built in 1497.

of the Lords of Haunsperg to the Babenbergs It was probably under Duke Leopold VI that the city was expanded to the south and east, with the main square established as the centre and the construction of the city parish church to the east of the main square. Linz was also awarded the rank of 'city' in the first half of the 13th century, underscored by the use of the terms 'cives' (citizens) in 1228 and 'civitas' (city) in 1236, and the designation of a city magistrate and city seal in 1242. As an evolved city, Linz does not have its own city charter, nor was it formally granted the privileges of a city.

The city's rise in fortunes since the 13th century can be attributed to economic factors. The Linz toll was one of the most lucrative sources of income for the Austrian dukes. The two annual fairs – Bartholomew fair lasting four weeks and the brother parish fair (known as the Easter market since 1500) lasting two weeks – originally started as parish fairs run by the city parish church and also stem from the Minorites who settled in the city in 1236. The fairs were established as international fairs by the start of modern times.

Having been acquired by the Babenbergs, Linz was a city on the outskirts of the Duchy of Bavaria and so was frequently used to host gatherings of the nobility in the years that followed. That is how the Habsburgs came to sign the contract with Emperor Louis the Bavarian on the acquisition of Carinthia (1335) here in Linz. The feuds between the brothers Frederick III and Albert VI and the numerous wars (Hussites, Hungary, Liechtenstein feud) in the 15th century took their toll on the city, but also brought the citizens of Linz success over the lords of the city. As early as 1369, they won the right to elect a council, and in 1424 they were granted the right to propose the city magistrate, which resulted in the separation of the offices of the toll master and city magistrate.

Linz becomes the regional capital

At the end of the 13th century, the city, which was the established base for the captain upstream of the Enns, became the administrative capital of the province. Archduke Albert VI temporarily made Linz his residence and set up a mint in the city. Emperor Frederick III spent the last

few years of his life in Linz, residing here from 1489 until his death in 1493, which made Linz the de facto capital of the Holy Roman Empire of the German Nation. This residency was decisive in the awarding of the right to a free mayoral election and a seal in red wax to the citizens on 10 March 1490. The city was also named 'capital of the Duchy of Austria upstream of the Enns' for the first time.

Maximilian I and his uncle Ferdinand I would often stay in Linz. They both added to the privileges enjoyed by the citizens of the city. Most notably, the bridge letter issued in 1497 led to the construction of a bridge over the River Danube – the third in Austria after Vienna and Krems. This was just as important to the success of the thriving Linz markets as the establishment of the mint (1526). Ferdinand I married Anna of Hungary in Linz in 1521. This wedding paved the way for the establishment of 'Monarchia Austriaca' after 1526. The city remained a favoured sanctuary for the court during epidemics (the plague) and when war threatened (particularly the Turkish wars), but was also used by members of the ruling family as a residence.

At the end of the 13th century, the city became the administrative capital of the province.



CONSTRUCTION OF THE CITY PARISH CHURCH

The Roman Catholic city parish church of the Assumption of the Virgin Mary was marked out during the foundation survey of the city expansion in 1207 and built as a single-nave Romanesque church with a nave and chancel.



EDITOR'S TIPS:

In the **Nordico City Museum**, you can learn all about the history of Linz. Alongside the permanent exhibitions which provide insights into the city's history, the Nordico City Museum features temporary exhibitions on various topics.

'Linz in brief': The new exhibition focuses on the condensed history of the city. The ground floor of the Nordico, which was specially converted for this exhibition, is the only place in Linz where you can learn about the history of the city in eight concise chapters. Experience 2500 years of Linz at speed! The new format presents the city's defining moments using various media and shows its development from a Celtic settlement to a provincial capital, from an inter-regional transport hub to an industrial centre and finally to a self-defined city of culture.

The **Linz Palace Museum** features 10,000 m² of exhibition space, providing an extensive insight into the natural, cultural and art history of northern Austria from the dawn of time until the 21st century.

Archives of the city of Linz: Since 8th of July 2015, part of the foyer of the old town hall has showcased Linz history from its beginnings up to the present, covering politics, social history, daily life, culture and the economy.

Discover media art and contemporary history: Explore the diverse city of Linz on a **guided tour** or one of the many special themed tours on offer. The present and past await. To find out more, visit www.linztourismus.at/en/leisure



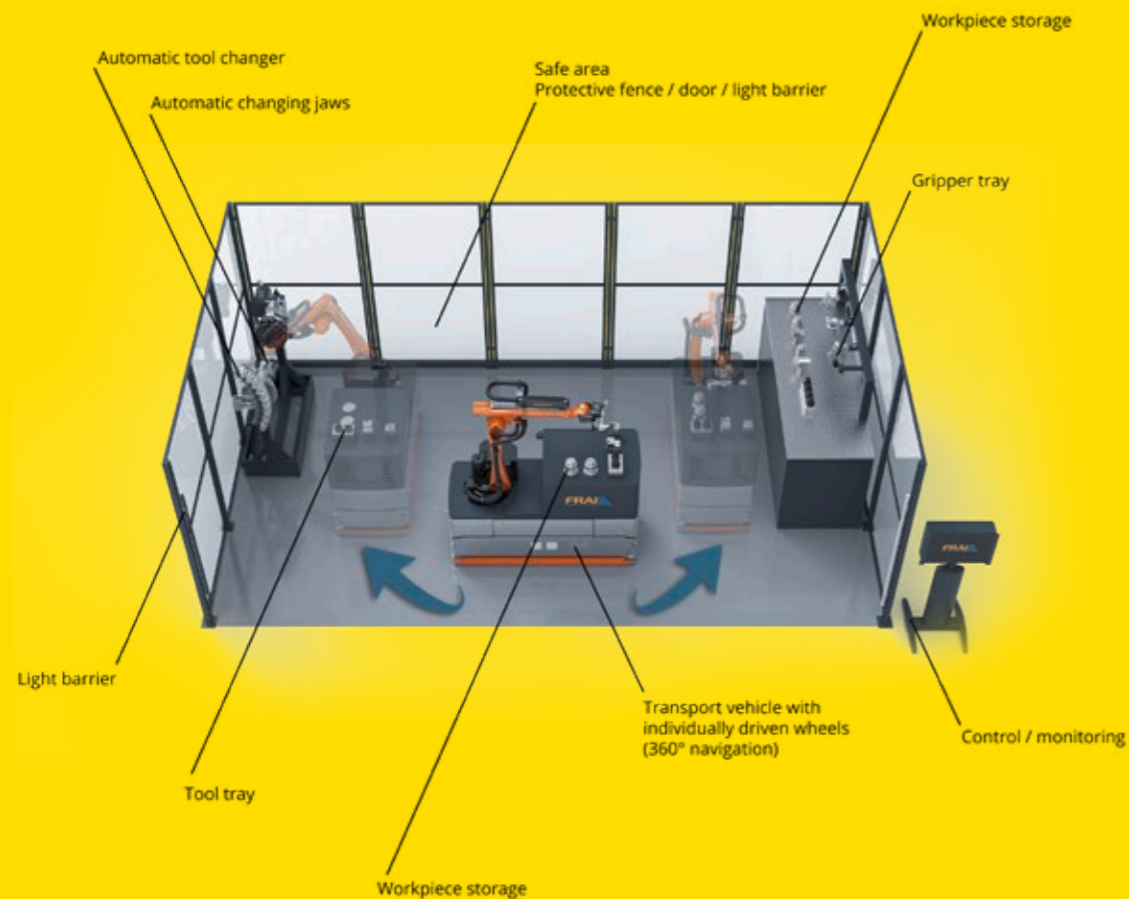
All eyes on

mobileCELL – mobile robot automation

by WFL MILLTURN Technologies

The automation solutions from FRAI score top marks in both innovation and – more importantly – efficiency. Any manner of customer-specific requirements can be fulfilled quickly and easily thanks to these intelligent concepts. And the latest development takes you to the next level. From automatic jaw changes to the removal and loading of tools in the tool magazine and tool turret, the range of brand-new solutions from FRAI has it all. As automated solutions have developed over the years, there have been many milestones, giving rise to solutions that are indispensable today. When they first emerged, these solutions were considered to be the height of efficiency and innovation.

Over the past few years, FRAI has specialised in fully automated and customer-specific solutions. When it comes to manufacturing processes, the key is simplicity, independence, speed, and above all intelligence. For the very first time, the company will be showcasing just what is possible with mobile robot automation at EMO in Hanover. The procedure on show will demonstrate the independent loading and unloading of workpieces and tools, mastering logistics tasks in the smallest of spaces while ensuring efficiency and safety. For each one of these activities, mobileCELL parks accurately in front of the stations and completes each individual task with ease.



Demo:

- Positioning of the automatic guided vehicle (AGV) in front of the warehouse
- Gripper holder for HSK tools/Quicklock or workpieces
- Placement of tools/workpieces on the AGV
- Positioning of mobileCELL by means of QR code measurement
- Loading and unloading of tools (WFL or Quicklock)/workpieces

Advantages of automation:

- Maximising of machine capacity/run time
- Continuous production process, bridging of breaks and night shift
- Lower costs
- Reduced need for staff: counteract the shortage of skilled workers
- Quality assurance
- Reduced lead time per order
- Staff released for skilled work & motivation increased
- Visualisation and operation possible directly on the WFL operator panel
- Payback period of just a few years
- Compact cell layout
- Access to the machine and the CNC control, as the mobile robot cell is only at the machine briefly for the workpiece change
- Manual loading is still possible
- Autonomous and safe

“Automation is the continual improvement of tradition so that innovation itself becomes automatic.”

Elmar Lesch - Ralf Koschinski

Persistent in every respect.

In the German state of Rhineland-Palatinate, or more precisely in the Westerwald, entrepreneurial commitment has been promoted for a long time. In Bad Marienberg, a small town known for its spa and health and health tourism, is where the company Vecoplan is based.

Vecoplan was founded way back in 1969. The company's activities are focussed on the processing of residual materials and waste for material and thermal recycling. Various systems for shredding, conveying, storage and separation have been developed in support of these activities. With 500 employees worldwide, 18 active patents and record-breaking turnover in 2021, Vecoplan AG is on the path to success. Its sites are located across Europe and the USA, with its company headquarters in Bad Marienberg. Service and sales subsidiaries can be found in Poland, Austria, Italy, Spain, the UK and the USA. Plans are in place for additional sites with the aim of serving the market as directly as possible.

The Vecoplan product portfolio comprises a range of machines and systems for different preparation processes. This makes it possible to cater to a broad range of industries, applications and companies –

from craftsmen and SMEs, right through to the major players on the market. Customers include recycling companies, biomass and thermal power stations, com-

“The M120 MILLTURN is now enabling much faster availability of rotors, which we manufacture on an order-specific basis.”

panies from the primary and secondary wood industries, cement manufacturers, plastics processors and many more. Vecoplan provides its customers with

end-to-end support: from planning to production, delivery, installation and commissioning, right through to maintenance of the entire plant. As a result, the company delivers the highest possible quality standards to meet customer demands across the globe, be it an individual machine, a complete plant or anything in between. Excellent service including the provision of original spare and wearing parts as well as a broad range of additional after-sales services are also just part and parcel of its comprehensive customer care. Vecoplan now offers the networking of machines and plants as an extra source of added value. This new range of digital services is up and running under the name VSC – Vecoplan Smart Center – and comprises a wide range of features, from remote access and data analysis, right through to live camera monitoring via smartphone.

One thing that definitely sets Vecoplan apart from the competition is its technol-



PILOT PROJECT

A monitor on the M120 MILLTURN provides access to drawings, 3D models, machining times and much more.



VARIETY

Wide variety of rotors for shredders: machining times range from 3 to 19 hour.



PROCESSING TIME HALVED

Reduced wait times and clamping: the huge time advantage brought a 50% saving on pure machining time for a typical acceptance workpiece.

ogy centre. More than 3,200 tests have been documented in the database here – and counting! A broad range of machine configurations that are matched to the needs of the customer make it possible to process a vast array of materials. Customers and interested parties really value the shredding tests because it gives them the opportunity to see for themselves just what the machine can do.

Machining time cut in half

Rotors of various sizes are manufactured at Vecoplan for use in shredding technology. This is where the new WFL machine comes in. Daniel Dittmann, Head of Machining, talks about the manufacturing process: “Before we got the M120 MILLTURN from WFL, all operations were completed and all workpieces manufactured on two machines: first on a simple turning machine and then the turned shaft was moved to a milling machine.

The benefit is that we now have reduced wait times between the individual resources and don't need to clamp as often. This has saved us a huge amount of time. We can now achieve a 50% saving on pure machining time for a typical acceptance workpiece.”

Head of Production Martin Selbach adds: “We were experiencing a major bottleneck in this respect and our delivery times would definitely have suffered if we hadn't invested in the new machine. The WFL machine allowed us to eliminate this bottleneck. The M120 MILLTURN is now enabling much faster availability of rotors, which we manufacture on an order-specific basis.”

The average machining time for large rotors is approximately 18 hours. “We have a really wide range of rotors here – from small to large – and that's why machining times range from 3 to 18 or 19 hours,” explains Dittmann. Generally speaking, the same component is manufactured in

different sizes and versions, depending on the intended application for the rotor. As many as 95% of rotors are manufactured on an order-specific basis. “There are only very few rotor types – mostly smaller ones – that we can manufacture as stock goods. The challenge for us is that the majority of rotors have customer-specific features,” explains Dittmann.

Easy programming on the machine

The M120 MILLTURN is equipped with the programming editor Millturn PRO. This allows programming to be performed directly on the machine. “The development team is currently in the process of standardising certain components to enable us to increase batch sizes and make production more efficient,” explains Head of Production Selbach. For instance, we manufactured around 150 different rotors on the machine in 2021 and we of course had to program them too. Our aim is to



A RELIABLE COMPLETE PACKAGE

Machine enthusiasts, from left to right: Andreas Rose (Regional Sales Manager WFL), Klaus Weitershagen (Vecoplan), Thomas Kauts (Kauts GmbH), Reinhold Wieland (Regional Sales Manager WFL), Martin Selbach (Head of Production Vecoplan), Daniel Dittmann (Head of Machining Vecoplan), Nico Hammer (Machine Operator Vecoplan).

“The machine is really very reliable. The last service deployments went very well. It gets top marks from us, without a doubt.”

simplify this process in coordination with the design department.

Selbach continues: “When two of our employees received training from WFL, we all learned a lot and identified a number of new possibilities. For operators, this obviously demands a certain amount of effort to begin with until they know what they’re doing with the different software functions. Integrated thinking is required to realise the machine’s full potential. It’s easier said than done at first.”

Robust and accessible

Hundreds of shredders are built at Vecoplan every year. “Of these, 25% are machines with larger rotors of up to 3,200 mm and the rest are smaller machines. The small rotors in question here have lengths of between 600 mm and 1,400 mm. With the exception of conveyor and plant technology, the components that we manufacture on the M120 are used in all shredders, be it for applications in the fields of wood/biomass or waste and recycling,” says Head of Production Selbach. Selbach explains Vecoplan’s decision to ultimately opt for a MILL-

TURN from WFL: “We were familiar with WFL and knew that they were technology leaders, especially in complete machining. We of course looked at a range of machine manufacturers but ultimately all the manufacturers within the scope or of the scale that we were considering at that time backed out. Others were unable to provide a machine that could meet our requirements in terms of the loads that may arise.

Head of Clamping Dittmann agrees with his colleague: “For us, stability, the maximum clamping weight and of course the drive power with the weights were the most important factors in favour of a MILLTURN from WFL. The milling performance on the machine was extremely impressive too. This tipped the scales and won our trust completely.” Selbach shares a memorable anecdote: “We had a shaft with a diameter of 700 mm. No other raw material was available so we had to turn down the shaft across the entire diameter. We went all out in terms of the depth that the indexable insert could manage and the drive power of the axis was around 55 %, which was very impressive!”

The excellent accessibility to the machine also impressed: “If you compare the MILLTURN with other machines that we use, the main difference is that the maintenance access points, maintenance doors and general accessibility to the machine – and that goes for the structure too – are very well thought-out. It’s all more organised and easily accessible,” agree Selbach and Dittmann. “The machine is really very reliable. The last service deployments went very well. It gets top marks from us, without a doubt. None of the others offered this level of flexibility or speed of response. For instance, we once had WFL Service on the phone in the afternoon at 16:30 or 17:00 and, at 9:00 the next morning, the service engineer was on site with the spare parts. We’re very satisfied,” adds Dittmann enthusiastically.

High demand for innovation

In addition to the “Flanx” gear teeth package, the machine is equipped with a measuring package. “We use in-process measuring for every component. It’s worth its weight in gold,” explains Dittmann with conviction. “Accuracy is especially important on the face of the shafts because this is where the connecting surface centering device is attached. An imbalance would definitely be detrimental for this kind of bearing,” explains the Head of Machining.

Vecoplan is constantly investing and optimising, with high manufacturing penetration, a 20,000 m² production area, four production halls and 80% in-house manufacturing. Selbach explains: “We’ve installed a camera in the working area of the machine. As mentioned earlier, we have our own “Vecoplan Smart Center” – VSC for short – and this connects the machine to the production network. This allows us to see the machine from anywhere using our own app.”

In terms of low-paper manufacturing, the next few years are set to bring fresh changes in production, such as monitors next to machines. At the moment, all processes – from setting-up to the individual machining operations – are subject to analysis to boost efficiency. As part of a pilot project, a monitor is attached to the M120 MILLTURN, which provides access to drawings, 3D models, etc. In the course of 2022, the plan is to install these monitors on all machines to provide ac-

cess to all order-specific data, part numbers, times, etc. In order to deal with the strong growth prevalent at Vecoplan, checks are being carried out to determine whether additional staff can bring about the necessary efficiencies. That is why work is being done to monitor and track all data from the plants and machines. “Modernisation of the plant’s machinery is also up for debate; take staff training, for example. It’s no good having a great machine if nobody

knows how to use it. It’s absolutely vital to emphasise the importance of a competent employee,” explains Dittmann. Selbach adds: “The appeal of this kind of machine is clear. At first, there were some concerns. Now, we have a skilled team of operators and suddenly other colleagues want to work with the machine too. The new, state-of-the-art technology is certainly appealing – there’s a big backlog of demand. But we’re obviously delighted that our employees are very motivated.”



AT THE LOCATION IN BAD MARIENBERG

Vecoplan supplies outstanding machine and plant technology for the economical processing of residual materials and waste for the purposes of material and thermal recycling.

facts

- 1969: Year of the foundation of Vecoplan in the Westerwald.
- 500 employees worldwide, 18 active patents and a record turnover in 2021
- Locations in Europe and USA
- Service and sales offices in Poland, Austria, Italy, Spain, Great Britain and the USA



All eyes on

Greenside Technologies

Sustainability at heart – innovation in every workpiece



At WFL, various aspects of sustainability are taken into account:

Resource efficiency: WFL strives to use raw materials and energy-efficient motors efficiently.

Life cycle approach: WFL considers the entire life cycle of the machines. This includes designing them in an environmentally friendly way, using more sustainable materials and reusing and recycling components and entire machines.

Sustainable machine components: The integration of cooling units helps to dissipate heat in a sustainable way.

Circular economy: WFL advocates a circular economy in order to minimise the waste of resources. The company supports this concept by developing products with a long service life, supporting repair and maintenance processes and implementing re-manufacturing processes, which involves refurbishing used machines to return them to as-new condition.

Digital solutions: CrashGuard Studio provides preliminary simulations without operating the machine, while

WFL Adaptive Control helps to minimise unproductive machine movements. Integrated process monitoring ensures more efficient machining processes and prevents damage.

Supply chain management: Sustainable supply chain management is extremely important to us. By working closely with suppliers and promoting a sustainability standard, we are helping to reduce the environmental impact across the entire supply chain.

As the impact on the environment continues to grow with negative consequences for us all, there's no denying the fact that it is time to act. Our fossil fuel reserves will start to run out sooner or later, which will go hand in hand with rising energy prices. This has prompted companies to rethink their approach to business. Sustainability in industrial production has therefore become a decisive matter when it comes

to the future. WFL sells MILLTURN complete machining centres worldwide and serves a wide range of industries. The machines therefore bear a lot of responsibility when it comes to both our environment and our future.

Only energy-efficient components with the option of energy recuperation or use of waste heat are used in the MILLTURN turning-boring-milling centres.

Frequency-controlled pumps are used alongside highly energy-efficient motors and drives, meaning that electricity is drawn only in the exact amounts required. When the spindle drives brake, the machine works as a generator and feeds valuable electrical energy back into the grid. The additional energy-saving standby mode for organisational downtimes requires around 90% less energy compared to conventional idling.

The three pillars of WFL Greenside Technologies:

Resource-optimised construction

A high level of component rigidity is achieved while at the same time reducing the moving masses (finite element calculations).

Efficient operation

From energy-efficient processes to the latest drive technology with energy recovery, energy consumption is minimised in operations.

Strong and durable

Durability and reliable precision throughout the entire service life ensures minimal resources are used. At the end of a long machine life, both the environment and the customer benefit from recyclable materials.

Our concept:

- With the MILLTURN complete machining principle, the machining focuses on highly productive machine tools.
- The number of auxiliary units is reduced to a minimum.
- The complex, energy-intensive transportation of semi-finished parts is, for the most part, no longer required.

Example calculation

Machine	M40 MILLTURN / 2000mm
Workpiece/batch size	Cutter spindle / 11 pcs
Production hours	4160 (8 hrs x 2 shifts x 5 days x 52 weeks)
Average power consumption	Approx. 30 kW

Calculated based on the following assumptions:

- 52 weeks of production per year
- 5 days of production per week
- 2 shifts per day
- Reduction in consumption due to energy-saving mode on average around 6 kW

Savings thanks to energy-saving mode:

Reduction in consumption due to WFL energy-saving mode 6 kW
Reduction in consumption x production hours = saving
6kW x 4160h = 27,456 kWh / 13.9t CO₂

Savings thanks to frequency-controlled high-pressure pumps:

Energy-saving potential compared to fixed pressure and value setting of up to 70% of 7.5 kW pump performance. Thanks to demand-based machine control (pump with 60% in operation)
13,103 kWh / 6.6t CO₂

Savings thanks to cooling units with water-to-water heat exchangers:

12,480 kWh / 6.3t CO₂ with customer-side coolant supply

Savings thanks to CrashGuard Studio:

6,200 kWh / 3.1t CO₂ with 52 new NC part programmes per year



TOOLS FOR LIFE: Helping people to help themselves



The forging of relationships that are rooted in the provision of help is an ethical obligation for us as human beings. The way in which this help is provided is up to the individual. There are three basic kinds: The first is preventative help, which aims to prevent an issue from arising, such as insurance, healthy nutrition, sports and, most importantly, health matters. The second type of help is follow-up help. This usually aims to prevent relapse, for example with rehabilitation – a broad area tackled at all social institutions and hospitals. The third type of help is the kind also known as ‘TOOLS FOR LIFE’: immediate aid that involves prompt action and provides help in emergency situations. In this article, you will learn more about the TOOLS FOR LIFE Foundation and its main focuses in 2022/23.

“Helping to connect!” – that’s TOOLS FOR LIFE’s motto

The TOOLS FOR LIFE priorities

There are essentially four key areas that TOOLS FOR LIFE focuses on: water, energy, education and climate protection. These are the issues that drive TOOLS FOR LIFE every day in the foundation’s bid to make the world a better place. The United Nations General Assembly adopted the 2030 Agenda in 2015. This agenda defines 17 Sustainable Development Goals (SDGs) intended to support sustainable social, economic and ecological development. The 17 goals are universal, which means that they apply to all Member States of the United Nations. They range from the elimination of world hunger and the increase of sustainable consumption and sustainable production to measures for climate protection. All stakeholders are asked to step up and help implement the goals. The TOOLS FOR LIFE Foundation is also keen to do its bit. Through its project work, the foundation pursues its additional sustainability goals of high-quality education, clean water and sanitary facilities, renewable energy and climate protection.



WA.S.H. (water, sanitation, hygiene)

Access to clean water and sanitary facilities are essential to satisfy the important basic human needs for health and hygiene. Unless the current pace of progress quadruples, billions of people will no longer have access to these fundamental resources in 2030. In 2022, TOOL FOR LIFE therefore supported six WA.S.H projects that aim to give more people access to a clean source of water and sanitary facilities.



Energy

Although progress has been made, there are still over 700 million people living in the dark around the world. The use of renewable energies and energy efficiency has improved, but progress is not being made fast enough to achieve SDG 7. By supporting energy projects, TOOLS FOR LIFE is helping to rectify this.



Education

The outbreak of COVID-19 triggered a global education crisis. Most education systems around the world have been severely affected by the disruption to learning and are facing unprecedented challenges. It is estimated that 147 million children have missed more than half of their schooling over the last two years. This disruption to their education could cost this generation of children a total of 17 billion dollars in lifetime earnings. It is against this backdrop that the TOOLS FOR LIFE Foundation is striving to provide more people with access to education.



Climate protection

The increase in heatwaves, droughts and flooding caused by climate change is destroying the planet and affecting the lives of billions of people worldwide. Despite the temporary reduction in CO₂ emissions in 2020, global energy-related CO₂ emissions have increased by 6 percent as demand for coal, oil and gas bounced back when the economy picked up in 2021. The foundation is keen to help reduce future emissions by supporting climate protection projects.



Sandra Rothenberger in conversation with COMPLETE

As we have seen, the TOOLS FOR LIFE Foundation is involved in a lot of areas. We spoke to Dr. Sandra Rothenberger to find out more.

Ms. Rothenberger, could you please give us a recap of 2022 – what happened at TOOLS FOR LIFE?

In 2022, the geopolitical situation meant that providing emergency aid to those fleeing the war in Ukraine was the top priority. I would like to take this opportunity to once again thank everyone who has supported our work with donations in cash and kind, as well as the volunteers who travelled with me to the border between Poland and Ukraine to help people on the ground at the reception centres. We were able to help a number of families travel to Germany and have continued to support them here.

We also continued to support our 'core projects' and funded water, energy, education and climate protection projects in Sub-Saharan Africa, South-East Asia and South America.

Which events and milestones are you particularly proud of?

The journey to the Polish-Ukrainian border is an experience that will stay with me. I woke up one night and had the urge to provide help on the ground. It all started with a piece of paper at two in the morning and culminated in the rescue of families and children. I'm happy that we were able to help in this situation, even though the provision of this kind of aid is

not the main task laid down in the TOOLS FOR LIFE Foundation's statute and we are a relatively small organisation. Other milestones included the 'Your Commitment 2022' trip, which enabled four employees from the Rothenberger Group to visit a project in South Africa and help build a community centre. An annual event, and one which is always a fantastic and emotional occasion, is our HERO Day. HERO Day celebrates the winners of the HERO Awards given by TOOLS FOR LIFE.

Did you have certain areas of focus in 2022 or were there projects that had higher priority?

2022 was first and foremost about the integration of Ukrainian refugees. We found accommodation for the refugees, sought out German courses and, of course, organised visits to the relevant authorities with the aid of volunteers. In one of our strategy meetings, we also discussed shifting the focus of our projects back more to water and Europe. A lot of our work is in Africa, and we would like to change that as there are people who need help and support on our doorstep!

Is there a project close to your heart that you would like to start?

My dream is the 'TOOLS FOR LIFE Academy': an international training centre for

apprentices, designed to make trades 'appealing' to young people again. We are currently working to gain more experience in this area through sponsorship schemes and cooperations with professional associations.

Another initiative is the latest campaign: 'Sustained by'. Every tool whose product life cycle has been extended by a repair or an upgrade and is resold is awarded the 'Sustained by' sticker (circular economy). This sticker tells customers that by buying this tool, they are supporting sustainability. A small amount from the proceeds of the sale is also donated to a climate protection project.

It's the foundation's 15th anniversary this year. What can we expect?

TOOLS FOR LIFE is celebrating 15 years! Ever since we were first founded, TOOLS FOR LIFE has been about helping people to help themselves. And this is most successful if we show people how to use our tools. In our anniversary year, we want to lay the foundation for the TOOLS FOR LIFE Academy. We are currently working on developing the structures required to offer sponsorship schemes to help train young craftspeople in African countries. We are forging partnerships with local vocational schools to enable us to do that. The aim of the 'Skill Builder' project,

meanwhile, is to give the top apprentices the opportunity to come to Germany and hone their skills with a skilled trade company. When they return to their home country, the aim is that they can then share their new expertise at vocational schools and inspire others. TOOLS FOR LIFE aims to make a positive contribution to the promotion of trades and education. Together, we can continue to help people to develop their skills and make sustainable change.

The foundation is being restructured in line with the motto 'back to the roots'. What will be the focus of your new objectives, and how are you defining them?

The founding idea of TOOLS FOR LIFE is to connect people to energy and water. We view this as a calling to support educational work in these areas. In particular, we focus on the training of sanitation, heating and air-conditioning fitters and electricians. However, we also want to take a broader approach and promote the image of trades in general. Our aim is to communicate the joy of mastering a trade to young people and to encourage them to explore these professions.

By emphasising the importance of skilled crafts and trades and highlighting the many opportunities available, we want to get young people interested in and excit-

ed about manual crafts. We want to encourage them to explore their talents and abilities in skilled trades and help them get started in their career.

Our aim is to use targeted educational work, internships and workshops to support the younger generations and teach them the skills they need. At the same time, we want to increase appreciation for the skilled trades within society and help to improve their image so that skilled manual work is viewed as an attractive and worthwhile choice of career.

What are your plans for the future; what is on your agenda for the next few years?

Over the coming years, TOOLS FOR LIFE plans to carry out more projects near our company locations, focusing in particular on education and the transition from school to work. The establishment of the first TOOLS FOR LIFE Academy is on our agenda as a pilot project. The aim of this academy is to give students aged 13 and 14 the opportunity to gain their first experience in a trade. Under the guidance of experts, the young people will get to carry out some exciting craft projects independently but under close supervision. For example, they might learn how to build their own mobile phone load memory or how to wire a lamp. By providing students with this practical experience,

we don't just want to teach them practical skills – we also want to get them interested in skilled trades and get them excited about this potential career path. We firmly believe that practical experience like this will help young people to discover their talents and potentially see a career for themselves in a skilled manual trade.

If you had three wishes for your foundation, what would they be?

1. We continue to follow the motto of 'Helping to connect!', because this is the true core of our foundation work. Our aim is to support and connect people in order to bring about positive change.
2. We also set great store by the saying 'Education (and training) is the future!'. We want to make the skilled trades attractive and accessible to young people, and in doing so open up some fantastic career prospects for them.
3. It is also important to us that our employees actively support and embody the values of the TOOLS FOR LIFE Foundation. We want to be successful and achieve the foundation's goals together.

TOOLS FOR LIFE "Your Commitment 2022"

The "Your Commitment" initiative run by the TOOLS FOR LIFE Foundation offers all employees in the Rothenberger Group the opportunity to get involved in a selected project. They only need to contribute six of their annual leave days to participate, and all costs are covered by the foundation. At the end of 2022, as part of the 'Your Commitment' initiative, Claudia, Dominik, Isabelle and Thomas – four ROTHENBERGER employees – had the chance to visit and help out with a

project that TOOLS FOR LIFE has supported with funding and tools. The project chosen for 2022 was called 'Thusanang', which means 'mutual aid' in Tswana. The organisation's aim is to build a community centre in collaboration with local residents in Venture, a small village in the north of South Africa. Keen to provide hands-on support, the volunteers spent two weeks in South Africa at the end of November.



myWFL – All production data at a glance

With myWFL operational data acquisition, you get a 24/7 overview and can exploit the optimisation potential of production. Not only does the software offer a transparent user interface, but it also improves machine utilisation. All data from the production environment is collected, analysed and stored locally on the machine control with the aim of increasing productivity. Shorter production times go hand-in-hand with the more effective organisation of production processes. Your production data reports can be stored and exported at any time, either manually or on a regular timer.

myWFL Cockpit is an operational data acquisition system that displays the machine state (e.g. productive, available or malfunction), performance (productivity and availability), modes of operation and override settings over time. Operating hours, channel status, active NC programme, active tool and programme runtime are also displayed. The evaluation and display of machine productivity (OEE) and technical availability in a definable observation period can be easily carried out with the new solution. Data is collected and stored locally on the machine control system (not cloud solution)

and can be viewed on the control system display. However, the dashboards are also offered via a web interface via the internal customer network and can therefore also be viewed on a PC or on mobile devices (tablets, mobile phones) via a web browser. The software automatically adapts to the different window formats and resolutions. In combination with our proprietary iControl process monitoring system, the progression over time and current values of the ambient temperature and the temperature in the milling spindle housing are also recorded and displayed in myWFL Cockpit.

myWFL Energy is a potential extension for myWFL Cockpit and comprises a multi-functional energy consumption measuring device for measuring the electricity and compressed air consumption of the entire machine. This makes it possible to calculate and view current performance and energy consumption data over time as well as energy consumption per workpiece, for example in order to compare the overall energy use of different machining technologies. Electrical characteristic values such as voltage, amperage, apparent, active and reactive power, power factor, frequency, min/max values, active and reactive energy are displayed. The energy con-

sumption and switch-on times of various units such as the high pressure coolant pump per workpiece or per NC programme run are also recorded and displayed in myWFL Cockpit.

The integrated **myWFL Condition Monitoring** cycle is used to ensure that processes are comparable, for example the shutdown process across all main axes in the working area or certain speed profiles on the spindles. The highlight is the option to record friction data and other sensor data and to view a comparison of this data for different runs in the Condition Monitoring Viewer. This enables you to visually check whether there are any significant variations between the new condition and the current condition.

myWFL Health Check performs semi-automated measurements of the B-axis, tailstock and main and counter spindles to check the machine geometry. The package includes cycles and testing instruments for measuring and logging the geometry. Recording measurement data enables you to identify long-term trends, while ensuring that the machine geometry is correct can help you to prevent scrap. myWFL Health Check can be used on all MILLTURN machines and CNC control systems.

myWFL
Cockpit

myWFL
Energy

myWFL
Condition Monitoring

myWFL
Health Check

With myWFL, you get a 24/7 overview and can exploit the optimisation potential of the smart factory. As well as offering a transparent user interface, the new software also improves machine utilisation. All data from the production environment is collected and analysed with the aim of increasing productivity. As a result, shorter production times go hand-in-hand with the more effective organisation of production processes.

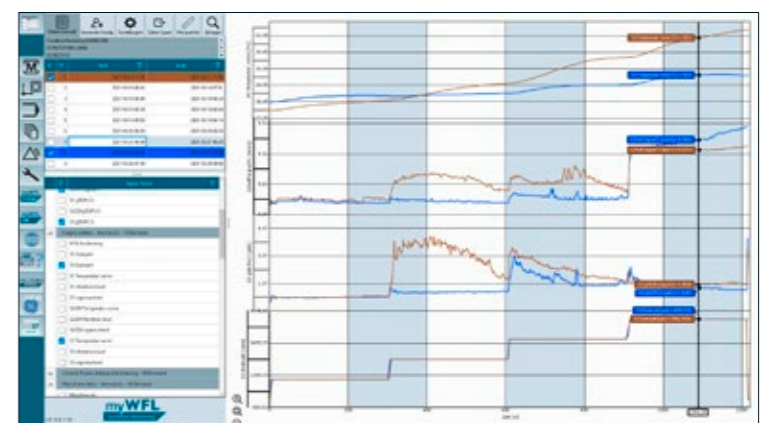
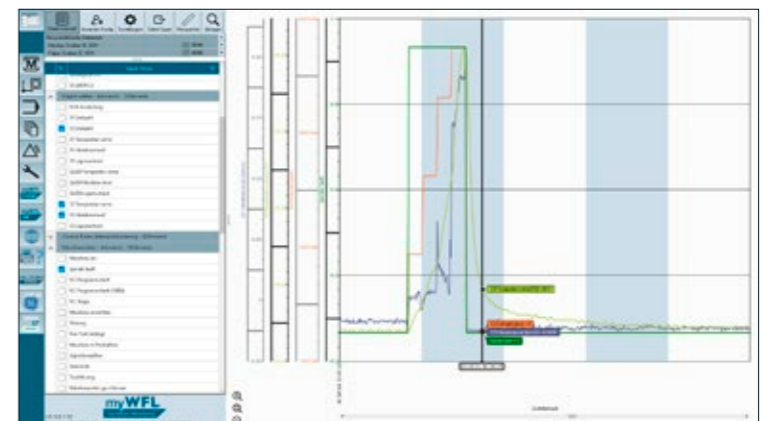


Click here to watch the interview with Christoph Schinert (Head of Control Engineering at WFL).



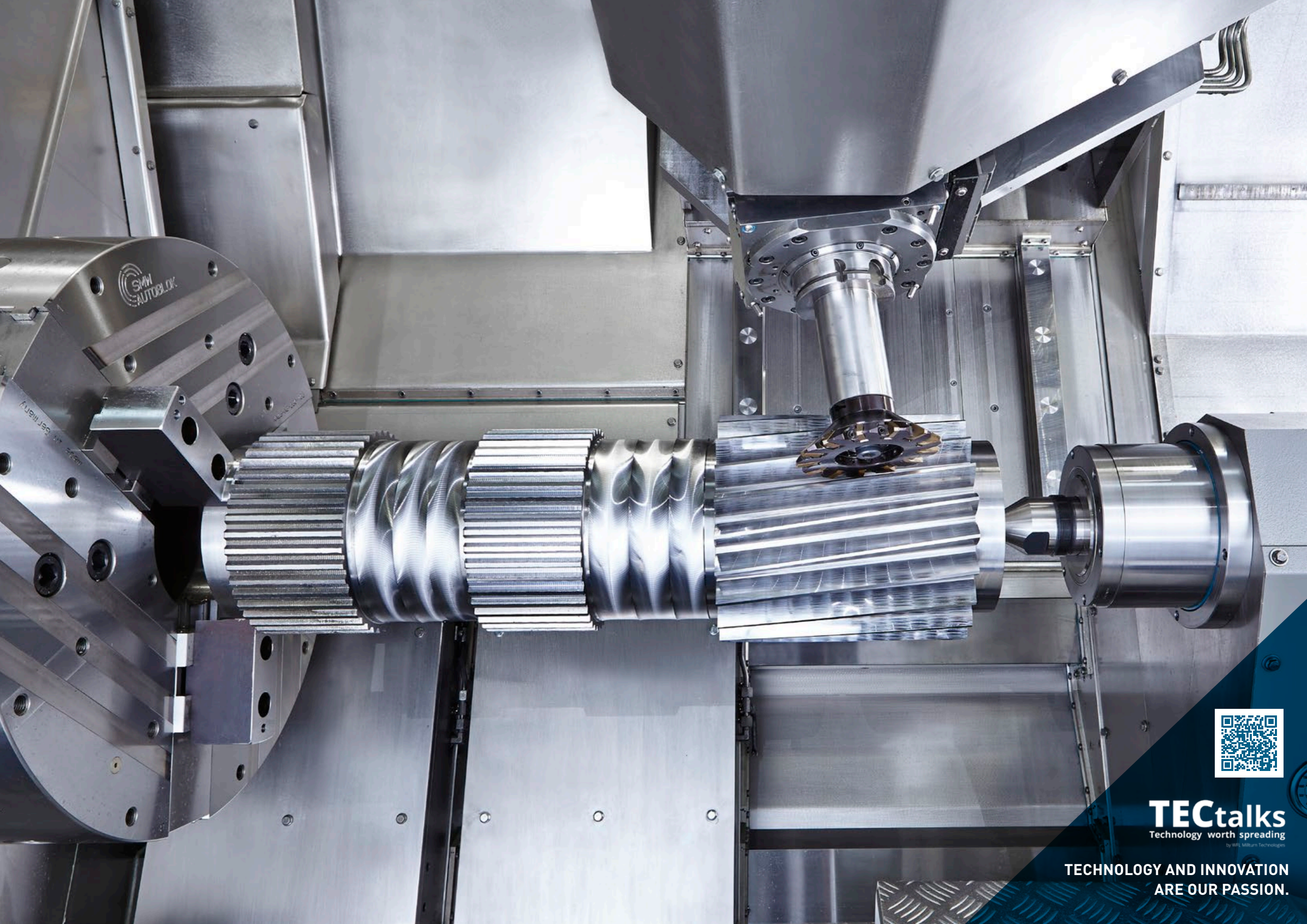
myWFL COCKPIT

The dashboard overview displays data such as machine state, performance, operating modes and override settings over time as well as operating hours, channel status, active NC programme and much more.



myWFL CONDITION MONITORING

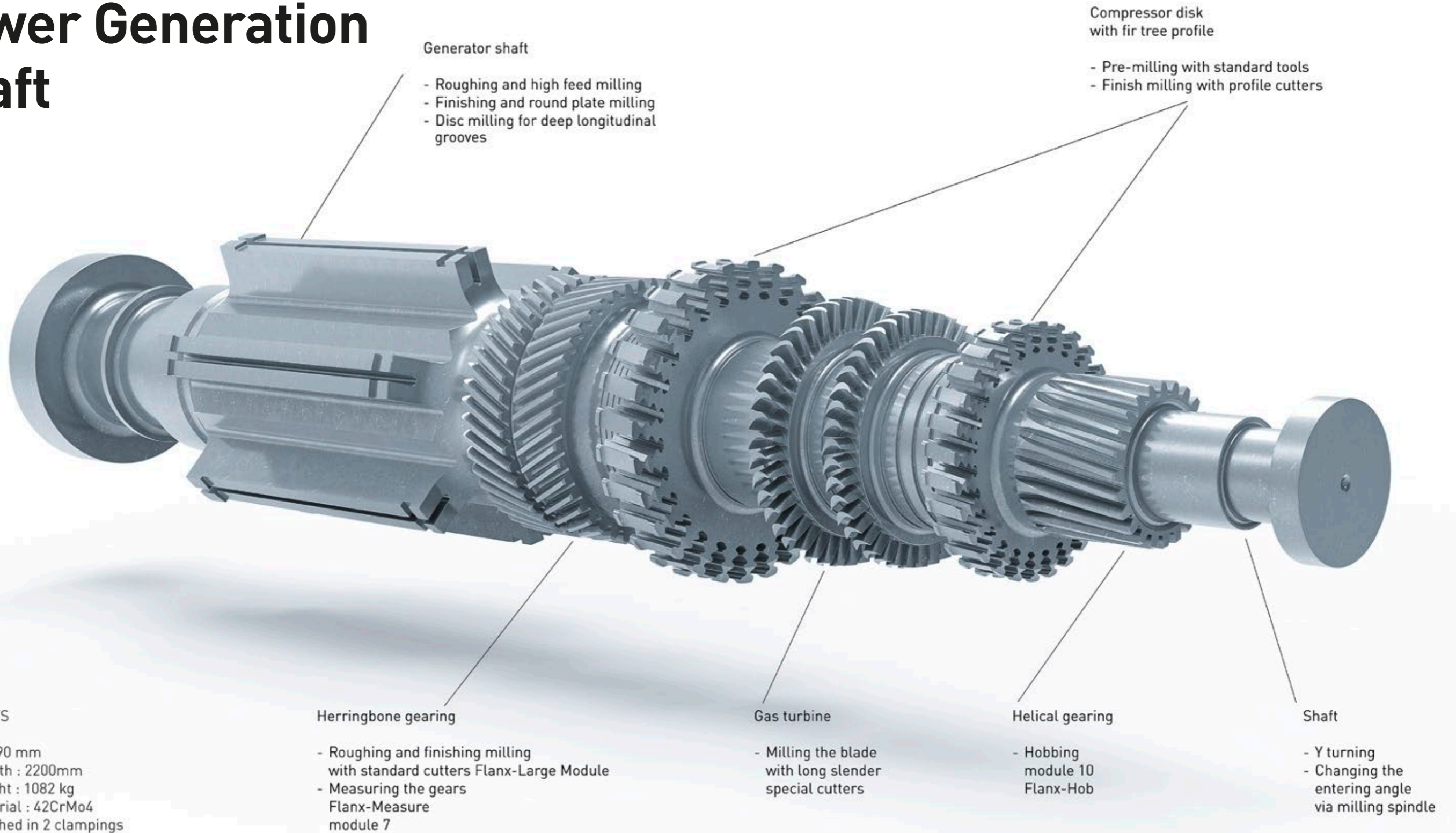
The friction values of the axes and spindles, as well as the temperature in the milling spindle housing and the vibration or the rolling bearing condition value of the front milling spindle bearing are recorded and stored on the machine control system.



TECtalks
Technology worth spreading
by WFL Millium Technologies

**TECHNOLOGY AND INNOVATION
ARE OUR PASSION.**

M50 MILLTURN Power Generation Shaft



Generator shaft

- Roughing and high feed milling
- Finishing and round plate milling
- Disc milling for deep longitudinal grooves

Compressor disk with fir tree profile

- Pre-milling with standard tools
- Finish milling with profile cutters

FACTS

Ø : 390 mm
 Length : 2200mm
 Weight : 1082 kg
 Material : 42CrMo4
 Finished in 2 clampings

Herringbone gearing

- Roughing and finishing milling with standard cutters Flanx-Large Module
- Measuring the gears Flanx-Measure module 7

Gas turbine

- Milling the blade with long slender special cutters

Helical gearing

- Hobbing module 10 Flanx-Hob

Shaft

- Y turning
- Changing the entering angle via milling spindle

» **QUESTIONS | COMMENTS | IDEAS?**

You have questions regarding our products, technologies or machining? We are looking forward to your mail at office@wfl.at

» **FACTS COMPLETE**

Our customer magazine „COMPLETE“ is available in German and English. Additionally a download link can be found on our homepage.



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