

COMPLETE

Nr. 01/22

The complete machining magazine

[SUCCESS STORY](#) | Edelstahl WM GmbH - "Turning is my life"

[INTERVIEW](#) | Taking the time to do good - Sandra Rothenberger

[ALL EYES ON](#) | WFL Operational data acquisition system with myWFL



All eyes on:

The smart MILLTURN

The networking and digitalization of production.

I came. I saw.
Vorarlberg.

There's something magical about the moment when inspiration hits you. It's the force that decides whether or not you will achieve that hallowed connection with creativity. It can't be forced. But there are some places where inspiration reaches out to us more readily. Vorarlberg is full of such places, since the smallest state of Austria is a land where myth and magic never left.

“Strength does not come from physical capacity. It comes from an indomitable will.”

Mahatma Gandhi

Dear valued customers, Dear readers,

Regular training is essential for anyone wanting to stay at the top of their game in the world of elite sport. With their modular structure, technological diversity and all-round capabilities, our MILLTURNS put us in pole position. Maximum productivity can only be achieved by a machine that is performing at its very best. We want our customers to experience this top performance, along with exceptional quality and service, when they purchase a MILLTURN.

At WFL, our three pillars for 2022 are automation, connectivity and combined machine power.

Automated and flexible systems play a significant role in the production of workpieces. In addition to articulated robots, gantry loaders, flexible multi-chains, linear and area gantries, the line-up now also includes mobile robot automation. Using intelligent software in combination with the relevant automation solutions not only enables workpieces to be loaded and unloaded but also means that machining centres can be set up fully automatically through the automatic replacement of tools and clamping devices. WFL's subsidiary, FRAI Robotic Technologies, is an innovative automation partner that develops highly flexible robot systems right in line with this trend. These concepts have scope for various expansion stages, making them as future-proof as possible.

For most people, the word 'digitalisation' conjures up a very particular image. For WFL, digitalisation means rethinking processes and making them simpler and/or more effective. WFL's understanding of digitalisation also includes thinking and acting proactively. Key terms such as 'digital twin' or 'predictive maintenance' are often used in this connection. Different digitalisation solutions can be used to detect faults early on and make it much easier to coordinate processes. All in all, they serve to boost efficiency in production – and WFL is working actively on this. By refining and implementing sensor systems in our machines, we are able to automate production workflows and make sustainable improvements to them. In a way, our machines are 'learning'. For instance, data is processed in the evaluation unit of a particular tool, and the signals are sent to the machine controller. This makes it possible to respond promptly to machine stoppages. We are always thinking about ways to bring digitalisation to our machines. Projects such as myWFL – which is used for operational data acquisition at WFL – and the intelligent process monitoring system iControl are constantly being refined and improved so that we can stay ahead of the curve.

At WFL, we also work in the elite class of complete machining – to us, this means machining large and, above all, heavy workpieces.

Our range of machines can accommodate weights of up to 60 tonnes. WFL's core competence lies in the machining of heavy components like these in just a few clamping operations and in a single machine. Large masses have a tendency to deform or change simply as a result of their net weight. This variable can be compensated with the correct design of the clamping device and clamping method. Another special feature compared to conventional machines in this size segment is the completely enclosed working area that means it is possible to work with ultra high pressure coolant. Flexible measurement technologies perfectly support the user and once again clearly highlight the benefits of measuring components with large dimensions. The added time and safety as well as the elimination of measuring errors ensure maximum machining quality. Typical applications range from aerospace components with a large swing diameter and special internal machining work, all the way through to large, heavy chuck and shaft parts.

In this issue, we take a look at automation, smart software solutions and special measuring techniques. And there are plenty more success stories too: this time you will learn all about the company Edelstahl and how they make use of the M35 MILLTURN. And last but not least, we will turn to the topic of second-hand machines. The star of this story is a completely overhauled M150 MILLTURN.

We hope you enjoy reading!

The WFL Management Team



Günther Mayr
Managing Director Sales, Technologies
and Services

Norbert Jungreithmayr
CEO



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WFL Technology Meeting Highlights 2022

Technology Meeting
2022
June 21-23, 2022
Find out more:



1 M20-G MILLTURN / 1000mm mit intCELL
Highlights:
• Individual tool carrier at the bottom
• Automatic (un)loading of workpieces

Workpiece:
Material: 42CrMo4 Clamping(s): 1
Length: 150mm Ø: 300mm

2 M20-G MILLTURN / 1000mm
Highlights:
• New innovative design
• High stability thanks to grey cast iron
• High travel in X & Y allows for machining above turning center

Workpiece:
Material: 42CrMo4 Clamping(s): 2
Length: 216mm Ø: 250mm

3 M30-G MILLTURN / 1800mm
Highlights:
• Automation with robot

Workpiece:
Material: 42CrMo4 Clamping(s): 3
Length: 560mm Ø: 120mm

4 M50-G MILLTURN / 3000mm
Highlights:
• ICOTronic - sensoric tool
• iJAW - intelligent clamping jaw
• CNC adjustable boring tool with automatic correction option
• Ultrasonic measuring with Hexagon measuring probe

Workpiece:
Material: Steel Clamping(s): 1
Length: 2757mm Ø: 500mm

5 M40 MILLTURN / 2000mm
Highlights:
• Complete machining of rotors

Workpiece:
Material: 42CrMo4 Clamping(s): 1
Length: 950mm Ø: 380mm

6 M50 MILLTURN / 4500mm
Highlights:
• ScrewCAM - screw machining

Workpiece:
Material: 42CrMo4 Clamping(s): 2
Length: 2155mm Ø: 100mm

7 M65 MILLTURN / 4500mm
Highlights:
• MRA Mobile Robot Automation
• Aerospace machining
• Scanning measuring probe

Workpiece:
Material: 42CrMo4 Clamping(s): 2
Length: 1400mm Ø: 170mm

8 M80X MILLTURN / 3000mm
Highlights:
• Laser cladding
• Intelligent boring bar

Workpiece:
Material: 42CrMo4 Clamping(s): 2
Length: 2210mm Ø: 680mm

9 M80 MILLTURN / 6000mm
Highlights:
• Complete machining of long shaft parts
• Use of long tools

Workpiece:
Material: 42CrMo4 Clamping(s): 2
Length: 3000mm Ø: 452mm

10 M150 MILLTURN / 6500mm
Highlights:
• Heavyweight machining up to 25t workpiece weight
• Heavy machining of components in one clamping
• Machining of high-strength steel
• Large gearings with Flanx Large-Module

Workpiece:
Material: 42CrMo4 Clamping(s): 1
Length: 5240mm Ø: 1180mm

Keeping everything running smoothly

Alexander Hofmann
in conversation with COMPLETE

Just like any gear mechanism, be it in a car, a watch or anything else, smooth operation is essential and protects against stoppages. This equipment must be oiled and lubricated, not to mention calibrated and aligned, in order to work quickly and precisely. Historically speaking, logistics originated in the military, its long story extending from Ancient Rome all the way to the world wars of the 20th century and into the present era. But the tasks that we all associate with logistics nowadays, such as transport, handling and storage, did not come about until the 1970s, when they first began to improve overall economic success. In our modern world, there's no disputing the importance of logistics development. And that's true at WFL too. By constantly improving our processes year after year, we can ensure that our diverse workflows get completed on time, all while being perfectly structured and scheduled. Functional areas such as internal and external transport, handling, warehousing, inventory management, goods inspection, packing, information logistics and warehouse logistics are all just the tip of the iceberg. In 1989, Reinhardt Jünemann formulated the pragmatic task of logistics as follows:

"The logistical task consists in providing the right quantity of the right objects as logistics items at the right place in the system, at the right time, in the right quality, and at the right cost."

To keep up with the latest trends and developments, the WFL logistics department is constantly working on new solutions and workflows. As the department head, Alexander Hofmann brings structure, speed and precision to the proceedings, and keeps an essential part of the WFL machinery moving.

Mr Hofmann – over the last few years, you've brought a fresh perspective and, most importantly, new impetus to logistics at WFL. Could you tell us a bit about yourself, and give us an insight into how it all began?

After playing competitive sports in high school, I began to think about what sort of education I should pursue. My path led me to commercial college, where after much deliberation I realised that I didn't want to go down the academic route, and instead took up an apprenticeship as a forwarding agent. At that time, logistics was still a foreign word to me, but it always sounded very exciting compared to the standard office-based admin jobs.

Over the years, I gradually worked on my personal development, and was able to amass plenty of experience and expertise in a wide variety of fields. Nowadays, I try to bring together all of what I've learned, and – most importantly – put it to good use. I joined WFL in March 2019. Early on, I held one-on-one meetings with my team to establish the status quo, so that I could work out where there was potential for improvements to be made. The wealth of information I gleaned from these meetings still serves as my starting point today whenever I'm tackling new issues or improving existing ones. My aim is to achieve a permanent flow of refinement and optimisation.

What is your preferred leadership style?

The most important thing is an open and honest approach; good mutual cooperation and, above all, communication. Every employee is an important part of the whole. Personal responsibility is essential, but it's also vital that we all pursue a common goal. In our weekly meetings with the teams and team leaders, we always try to establish a common and unified basis for communication, so that we're ideally equipped for whatever we face.



The logistics department at WFL is improving more and more every year: it's always at the forefront, responding quickly and with an impressive amount of expertise. And it does this under the management of Alexander Hofmann.



»To me, success means bringing about positive changes and using them to their best effect«



STRUCTURE AND ORDER
From the warehouse to the automatic small parts storage lift system – everything has its place



OVERVIEW
Inbound, outbound, system and distribution logistics united in one department

»Logistics isn't everything, but without logistics there is nothing«

K. Beck

How do you manage your work-life balance?

My wife would say that I don't have a work-life balance! That's true to some degree, but these days it's not easy to find the balance that's needed. I played a lot of sports in my youth, but sadly I don't have as much time for that nowadays. But, with the help of my very understanding wife, I've found ways to combine work and sports to achieve some semblance of balance. During the week, I focus on work, which often continues after I've returned home and into the evening. I hold phone calls with my colleagues on the second shift, since there are various matters that need coordinating. Ideally, my weekend begins on Friday afternoon, where I make the most of the time with my family. I also find some time to recharge and fit in one or two sporting activities.

Do you get so wrapped up in certain things that you forget to eat and drink?

Yes, absolutely! There have been occasions where I've taken my unopened lunch-

box back home with me at the end of the day because I've simply forgotten to eat or drink. Of course that's not healthy, but if something is important to me, I go all in. In these situations, I want to complete my tasks and use all the resources available to me in order to achieve my goal with speed and precision.

On the whole, how does logistics work at WFL and how is warehousing managed? Or in other words, what does the flow of goods look like?

In principle, the picture has changed dramatically over the last two years thanks to a variety of optimisations. Conversions, new operating systems, new processes and organisational improvements have enabled us to cut lead times considerably. It all begins at inbound logistics, where all the goods are delivered. This is where we do an initial check of quantities and documents. The goods are also inspected for damage, and any findings are noted. In the inbound logistics office, everything is then digitalised and saved

in SAP. In the next step, a goods receipt slip is generated and everything is prepared for storage or immediate processing on the MILLTURN. Some goods are also subject to quality controls, and defective ones are ejected from the process or undergo quality assurance measures. Finally, the goods are stored in the high-bay warehouse or in the automatic small parts storage lift system. Another zone found here is outbound logistics, which is the area for outgoing goods and dispatching. It's mainly packing and loading activities that are carried out here, but this includes a large number of small, secondary aspects. And finally we have the distribution logistics department, which manages the overall workflow and coordination. Transport runs are organised here, and commercial and customs processing is managed.

Which processes or achievements are you particularly proud of?

I'm proud of all the improvements to processes that we have been able to imple-

ment to date. One of our prestige projects is the automatic small parts storage lift system. We made the conscious decision to invest in the technology and get it up and running. It was a large, ambitious project that had to be completed on a tight schedule. Nonetheless, thanks to a huge combined effort, we achieved everything we had set out to do.

Who or what comes to mind when you hear the word "successful"?

WFL comes to mind (smiles)! But it's important to remember that "success" has many facets. In your personal life, for example, you might have the goal of seeing your children grow up happy, or having a long and harmonious relationship with your partner, but you can also aspire to face and overcome challenges. To me, success ultimately means bringing about positive changes and using them to their best effect.

What values do you appreciate most in your employees?

That's difficult to answer, since everyone is unique and has their own strengths and weaknesses. But in general, our entire team is made up of helpful, supportive, resourceful employees who – crucially – play an active role in bringing about improvements. They always look out for one another, even in difficult or stressful situations, and give their all for the team and the entire department.

How do you deal with difficult situations in logistics and how are they managed?

First of all, it's important to really get to grips with difficult topics. You've got to ask where the problem actually lies. Identifying and analysing are the first steps and are essential for all the subsequent actions. It's also important to seek input from everyone who is involved in the process chain. The entire workflow has to be considered so that errors can be mitigated in advance. And once a difficult situation has been resolved, it's essential to follow up on that process. The questions that should be asked are things like: Can

the implemented solution be maintained? Will this solution be accepted? Was this a positive step in the right direction? All of this needs to be reviewed and incorporated into the process.

What three attributes best describe logistics at WFL?

I could name many attributes here, but I'll try to compress them. Speed, flexibility and quality. The principle of the "7 Rs" also comes to mind here. Logistics is about providing the right product, in the right quality, at the right time, in the right place, in the right quantity, with the right information, and at the right cost. This principle is the overarching objective in our department. And last but not least, we're extremely agile when it comes to working across teams. For instance, we compensate for potential postponements and/or any fluctuations as quickly as possible in order to prevent delays.

When everything is running as it should, logistics is like a well-oiled machine.



How do you keep things running smoothly, and what is necessary to do that?

What's important is the human factor. The employee is an essential resource on which lots of things depend. Further training and education, providing information on time, and being a good listener are all essential. The infrastructure and associated resources, such as the IT structure, are also of great value in ensuring smooth operations. Stable, well-established processes are also needed. In my view, these processes should follow the mantra of "keep it simple" – and should be treated as such. I believe that tricky processes have to be simplified, as complex methods are usually much more susceptible to errors than a straightforward, well-thought-out process.

Successful logistics requires a suitable IT infrastructure. How is this deployed, and what are the essential processes?

Without IT, nothing in logistics would function. To be honest, that's true not only for us but for all the other departments too. Things can only work properly with a stable and sophisticated structure – and thankfully, that's what we have. PCs, scanners and a variety of hardware components are all essential, along with the associated software, in order for us to optimise our workflows from an information technology and data technology perspective.

What are the daily tasks on your schedule? Are there any routines?

Yes, there are some basic routines that I have chosen for myself and put into practice. In the morning, I look over the latest basic figures. Where are we right now? Which order requirements are pending and which of them have priority? I then do the rounds of the various teams, coordinating with the team leaders, deputies and employees in order to build up a picture of the current situation. I then check my upcoming meetings so that I can prepare for them. The rest of the day unfolds more intuitively, shaped as it is by a wide variety of factors. I could be working on ideas put forward by employees, troubleshooting, or supporting the team. In any case, I try to be as prepared as possible for the day, so that I can use the time most effectively.

What does the future look like for WFL – where do you see it in 5 to 10 years? What measures and improvements are essential in order to make progress?

I feel very positive on this particular point, and I believe that we'll manage to achieve the target sales figures within this time period. I see WFL as a full-service provider with all its facets. Doing the heavy lifting here are things like second-hand machines, after-market sales, and a range of other services. But it's also going to be important to ensure that the structure

grow with the company. Processes such as digitalisation, as we've already spoken about, also have to be kept up to date so that we can stay ahead of the curve. And of course automation has a promising part to play in the future. I'm confident that WFL meets and will continue to meet all these criteria in order to remain successful well into the future.



PROFILE

Name: Alexander Hofmann
Age: 40
Home town: Wels

Education:
1988 - 1992 Primary school
1992 - 1996 Sports school
1996 - 1997 Commercial college
1997 - 2000 Forwarding agent apprenticeship
2000 - present Various training courses in logistics

Career:
2000 - 2003 G. Englmayer Spedition GmbH
2003 - 2006 VKB-Bank AG / UNIQA Versicherung AG
2006 - 2012 Fronius International GmbH
2012 - 2014 Teufelberger Service GmbH
2014 - 2019 Gebrüder Weiss GmbH / Nagel Austria GmbH
2019 - present WFL Head of Logistics Operations

All eyes on...

Mobile robot automation

by WFL Millturn Technologies

The factory of the future requires mobility and flexibility. Static production lines are giving way to the next generation of robots, and intelligent, mobile robot units are taking their place. Mobile robots can move around the space independently, providing absolute flexibility for industry. This is particularly relevant in the area of internal logistics. FRAI Robotic Technologies (a subsidiary of WFL) is your turnkey partner for high-end automation.



All eyes on

Mobile robot automation

by WFL Millturn Technologies



Automation with mobile robots



Traditional automation with robot cells

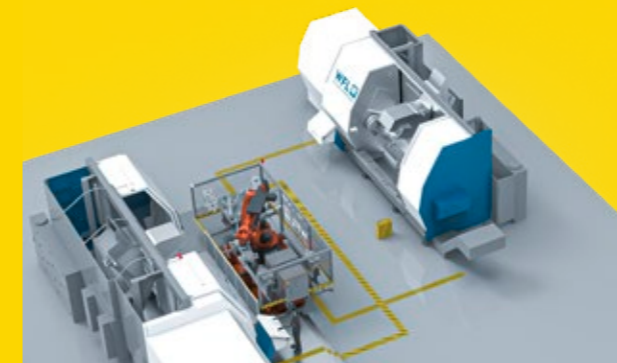
Mobile robots move around completely autonomously with no need for cables or human input for them to work. Another key advantage of mobile robots is that they avoid obstacles, meaning that they can also be used in halls where the set-up is constantly changing and where machines and people are moving around. Sensors help to ensure that the mobile robots navigate safely and efficiently between locations and work effectively

alongside people, forklifts and other material-handling equipment.

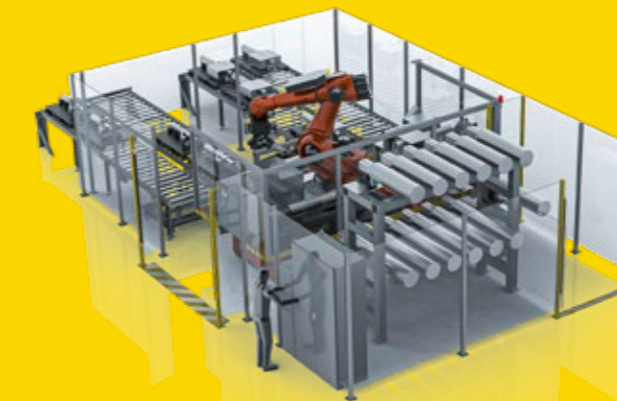
Automation over the years

The ever-greater variety of models has meant that transfer lines have tended to be replaced by flexible line chains or by individual cells with a variable material flow. Using intelligent software in combination with the relevant automation solutions not only enables workpieces to

be loaded and unloaded but also means that machining centres can be set up fully automatically through the automatic replacement of tools and clamping devices. FRAI strives to be an innovative automation partner and has therefore developed a mobile robot system to respond to this trend. This concept has scope for various expansion stages, making it as future-proof as possible.



Optimal access to the machine



Set-up



Automation with mobile robots surrounded by a safety fence to protect personnel.

Advantages

- Access to the machine and the control unit, as the mobile robot (MRA) is only at the machine briefly to change the workpiece
- Improved access for service activities
- Manual loading is still possible
- Automatic replacement of jaws
- MRA can transport and replace both workpieces and tools
- In the case of long runtimes, several machines can be linked together and/or operated together
- Integration of upstream and downstream processes (cleaning, deburring, surface treatment, etc.)
- Intralogistics processes can be implemented
- The set-up station does not have to be next to the machine
- Process improvement and an increase in productivity: Using mobile, autonomous robots helps to automate workflows within the warehouse and means that spontaneous errands can also be carried out by the robots. This results in demonstrable improvements in throughput, efficiency and productivity, in both commercial and industrial environments.

“Turning is my life”

The story of a small company in Bavaria is a perfect example of how to turn a hobby into a successful business. As a machining expert for special alloys, Waldemar Maul – together with his wife Anna – has already firmly established himself in Germany through his company „Edelstahl WM GmbH“. Whether duplex, super duplex or V4A steels, higher alloyed materials are produced here with remarkable precision and quality.

PASSION

“Everything you see in the production hall is my passion, my life.”

Waldemar Maul, Managing Director of Edelstahl WM GmbH



Wiesenfelden is a tranquil municipality in Bavaria and the home of Edelstahl WM GmbH's new production hall, which was built at the beginning of 2020. The range of equipment means a multitude of processes can be covered, from turning, milling, welding and grinding right through to measuring. The new M35 MILLTURN will strengthen the company's focus on complex parts and help them win further orders.

Turning in the garage

It all started in May 2011. As a change from his office job, Waldemar Maul acquired a turning machine and started making turned parts in his own garage in Kelheim. Soon afterwards Waldemar became a sole trader as a second occupation. His first customers came from his full-time job at the time as an industrial foreman specialising in metals and were founded on his initial training as an industrial mechanic specialising in industrial engineering. Some of the turning and milling work was outsourced by the customer. This enabled him to support customers in this area with the manufacturing of high-quality products made of stainless steel.

The foundation established in 2012 led to increased sales in 2013 and 2014. "We were able to impress our customers very quickly with our high-quality work and by always meeting deadlines. This enabled us to establish strong customer relationships," reports Anna Maul. One year later, the company finally changed its legal form from a sole trader to a limited liability company.

The year 2015 was a very significant one for Edelstahl WM GmbH. Where previously orders had been processed on private premises, where space was very limited, in December 2014 a production hall was rented in Kelheim. In February 2015, the big move from the Maul's private garage to the large production workshop took place. The managing director also decided to give up his main job and devote himself entirely to Edelstahl WM GmbH. Over the following years the workshop was equipped with more machines as well as special tools. In September 2016, the

first turning-milling centre with a turning length of 1500 mm was purchased. The main reason behind the investment was to increase the quality and accuracy of the manufactured parts. "We were then able to meet customer requirements to a greater extent as well as to expand the order volume due to the broader production spectrum for turning and milling. Setting up an inspection room allowed us to further increase the accuracy of the manufactured parts," says managing director Waldemar Maul. Edelstahl WM GmbH moved into the newly built production hall at the end of April 2020. The site in Wiesenfelden became its new home, where the managing director is responsible for the entire technical operation, including production. Another employee provides him with support. Anna Maul is responsible for the commercial aspects of the business, including order processing, financial accounting and human resources.

Practice is key

Edelstahl WM GmbH has specialised in the production of individual and prototype parts through to small series runs from the very beginning, using high-quality, select materials. "The parts we produce are characterised by exceedingly high quality and 100% precision. We also support our customers with internal problem solving. This could include product or project-related suggestions for solutions and improvements, for example" says Waldemar Maul.

"Our customers operate in a wide range of markets, with the majority coming from the chemical, mechanical engineering and medical technology sectors," explains Anna Maul. Ninety-five percent of them are direct customers who assemble the systems themselves and are located in Bavaria and Baden-Württemberg. Since 2011, the company has been producing workpieces made of special alloys such as V4A grades, duplex, super duplex, etc. "That's why we also opted for the WFL machine. I was looking for a powerful and robust machine on which I could process these materials," explains Waldemar Maul.

When asked how he came to specialise in highly complex parts, the managing director says: "You learn a lot about materials when training to become a welding specialist, such as how and where to

use materials and process them correctly. Often the wrong materials are chosen for certain environmental conditions and then everything rusts within a very short time. Thanks to my professional experience in a gearbox and pump factory, I also know what is important when installing and removing such parts. What's more, every time I come across challenging manufacturing tasks, it always spurs me on. That's why we've established a focus on complex components."

Navigating the crisis with strategic skill

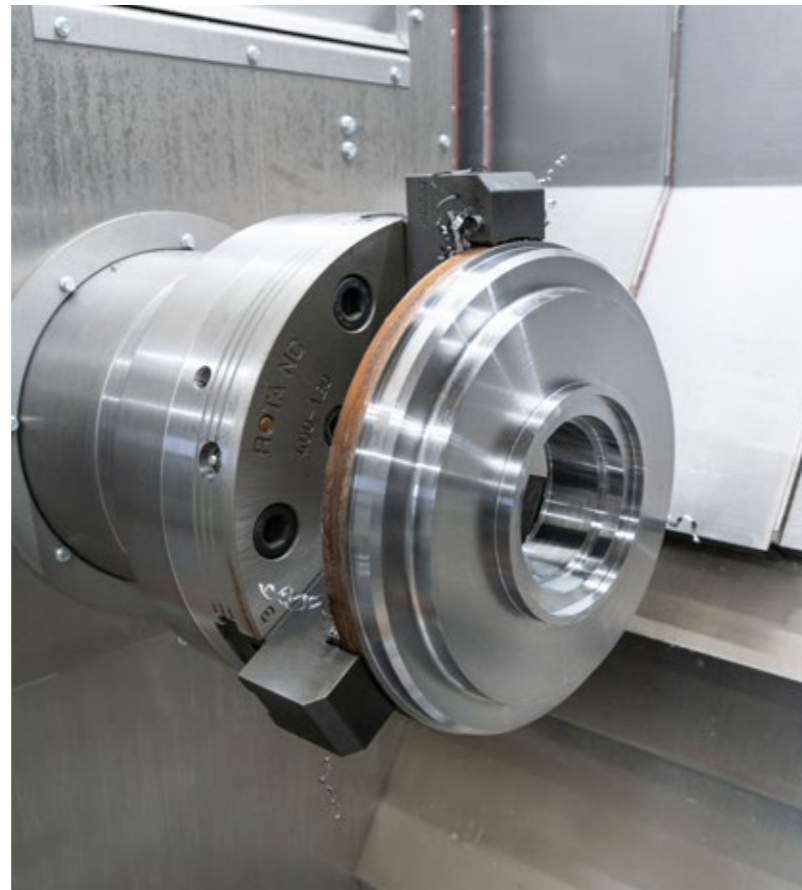
The worldwide coronavirus crisis has had little effect on Edelstahl WM GmbH. Although a number of orders from the automotive sector were cancelled, by contrast volumes increased from the medical technology sector. The machines are very well utilised.

"Often we have orders involving special alloys – these are predestined for the MILLTURN," says Waldemar Maul enthusiastically. "My goal on this machine is to minimise the number of clamping op-

erations so I can do multiple machining steps. This enables us to achieve higher quality as well as narrower component tolerances."

Due to the extensive equipment in the production hall, blanks can be cut to size in Edelstahl WM GmbH's own facility. The parts are then rough-turned or rough-milled and finally welded. Only the pickling of chromium-nickel steels is outsourced. After machining the parts by turning, milling and (flat) grinding, the workpieces are measured in the inspection room. Order volumes of 100-300 pieces are typical, with parts being delivered in batches of 10 or 20. "Usually this ranges from one to ten on average. That is the usual batch size," says Anna Maul. Hardly any mass production takes place at Edelstahl WM GmbH; usually individual parts are manufactured.

The strategy of Edelstahl WM GmbH has proven to be successful so far. The specialisation in small batch sizes and individual parts as well as the complexity and accuracy of the components will be further expanded by the investment in the MILLTURN.



Every part must be a good part

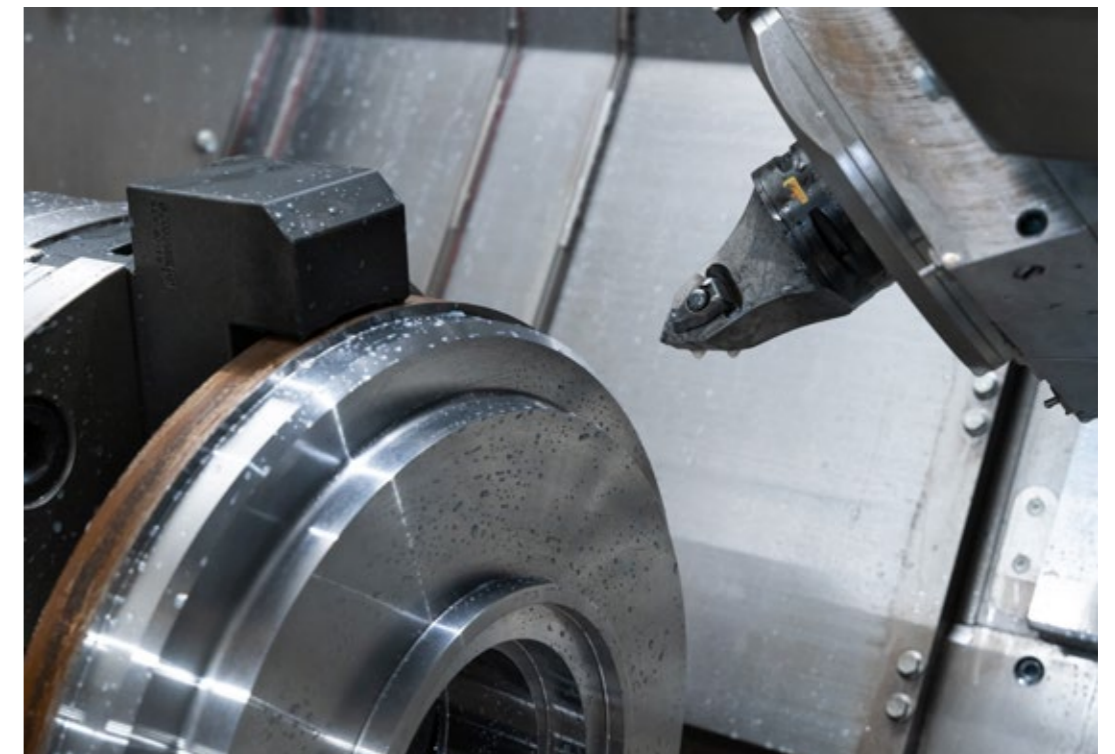
At the moment the team is busily testing and programming the M35 MILLTURN. A SolidCAM solution with a 5-axis program was purchased to assist with the programming. "For some orders, we could have done with having the machine sooner. The decisive factor in our decision to purchase the MILLTURN was investing in a machine that would improve our current production processes and take us forward strategically," says Waldemar Maul. At Edelstahl WM GmbH, the components are largely manufactured by the managing director himself. However, the goal is to hire staff or train machining technicians from scratch. Due to the special orders and complex workpieces, it is often difficult to find suitable personnel. "We want to train employees to the point where they can do the work on their own. Unfortunately, applicants are often put off by the complexity of the components and the required precision," explains Anna Maul.



M35 MILLTURN

"The decisive factor in our decision to purchase the MILLTURN was investing in a machine that would improve our current production processes and take us forward strategically."

"I was looking for a powerful and robust machine on which I could process these materials – that's why we opted for the MILLTURN."



PRECISION

Here workpieces are manufactured from duplex, super duplex and other high-alloy materials. The highest levels of precision and quality are essential.



“Our philosophy here matches that of WFL: every part must be a good part,” says Waldemar Maul unequivocally. „Our parts are incredibly demanding, which is why I have very high expectations of an employee.“

Experience and specialist knowledge as a guarantee for success

Waldemar Maul knows what is important in his business. As a foreman in a gear and pump workshop, he himself disassembled, overhauled and reassembled pumps and gearboxes. This is of particular benefit to him in his work today. “If I can see the drawings and know where it’s going to be installed, I’m already at a distinct advantage.”

Customer loyalty confirms this without a doubt. Precise, high-quality work and support when manufacturing parts are of the utmost importance to Edelmetall WM GmbH. “We want to understand exactly what the customer does in order to deliver the quality they need; we are in constant communication. We come up with suggestions for improvement and develop solutions together,” adds Anna Maul. “Trust is very important for long-term customer relationships. We have very good partnerships in this respect.”



TEAM
from left to right: Waldemar Maul, Anna Maul and WFL Sales Manager Andreas Lehner in front of the new M35 MILLTURN.



THE PRODUCTION HALL IN WIESENFELDEN
From cutting the blanks to size right through to measuring – this is where the components are processed.

“Often we have orders involving special alloys – these are predestined for the MILLTURN.”

All eyes on...

Operational data acquisition system with myWFL

by WFL Millturn Technologies

With the new myWFL operational data acquisition system, you can maintain an overview around the clock and exploit the optimisation potential for the smart factory. The new software not only has a user-transparent display, but also improves machine utilisation. All data in the production environment is collected and analysed to achieve higher productivity. Shorter production times and a more effective design of the Smart Factory processes thus go hand in hand.



All eyes on

Operational data acquisition system with myWFL

by WFL Millturn Technologies

In furthering the smart networking and digitalization of the production, WFL is presenting a new, interesting software solution for operational data acquisition. The new product range, myWFL, consists of the operational data acquisition software myWFL Cockpit, the multifunctional energy optimisation tool myWFL Energy and the myWFL Condition Monitoring System.

Machine and program states over time, productivity and technical availability will all be displayed, either on the control system, PC or mobile device via a web browser. This means that the user can always be well-informed about their machine productivity.

Advantages

- 24/7 overview
- Exploiting of optimisation potential of the Smart Factory
- Transparent user interface
- Improvement of machine utilisation
- Collection and analyses of all data from the production environment with the aim of increasing productivity
- Shorter production times and more effective organisation of smart factory processes



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 program and much more.



2 myWFL Energy

myWFL Energy is a possible extension of myWFL Cockpit with a multifunction energy consumption meter for the power and compressed air consumption of the entire machine. This allows the current power and energy consumption data to be determined and displayed over time as well as the energy consumption per workpiece, e.g. for a comparative view of the total energy consumption between different machining technologies.

Features:

- Display of electrical characteristic values such as voltage, amperage, apparent, active and reactive power, power factor, frequency, min/max values, active and reactive energy
- Recording and display of energy consumption and switch-on times of various units such as the high-pressure coolant pump per workpiece or per NC program run



1 myWFL Cockpit

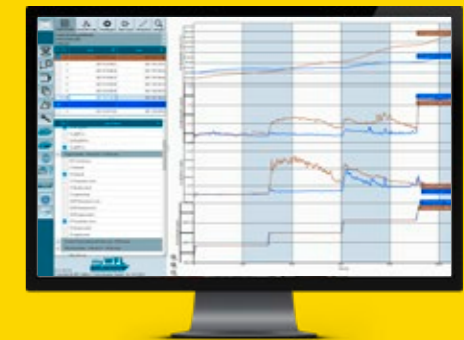
myWFL Cockpit is an operational data acquisition system that displays the machine state (e.g. productive, available or malfunction), performance (productivity and availability), modes of operation and override settings over time.

Display of:

- Operating hours
- Channel status
- Active NC program
- Active tool
- Program runtime
- Machine productivity (OEE) and technical availability in a definable observation period

Other features:

- Data is collected and stored locally on the control system (not cloud solution)
- Data can be viewed on the control system display.
- Dashboards are also offered via a web interface via the internal customer network and can therefore also be viewed on the workstation PC or on mobile devices (tablets, mobile phones) via a web browser
- Automatic adaption of the software to different window formats and resolutions



3 myWFL Condition Monitoring

The integrated condition monitoring cycle is used to ensure comparable processes, such as traversing the working area in all main axes as well as specific speed profiles of the spindles.

Features:

- Continuous recording and storing of friction values of the axes and spindles when cycle is running
- Recording of temperature in the milling spindle housing and vibration or rolling bearing condition value of the front milling spindle bearing and storing on the control system
- Condition Monitoring Viewer: possibility of recording the friction and other sensor data and possibility of a comparative display of this data for different runs. This makes it possible to visually check whether, for example, significant changes between the new condition and the current condition are apparent or not.



MOMENTS OF ENJOYMENT

Vorarlberg is famous for its culinary delights, particularly its cheeses.

We love...

... Vorarlberg

Austria's smallest state is a paradise of glaciers, lakes and Alpine pastures, all steeped in history and legend. Vorarlberg enchants residents and visitors alike with promises of exciting adventures, a mix of modern and traditional architecture and diverse works of art.

"All of nature is a melody in which is concealed a profound harmony." With these words penned by Johann Wolfgang von Goethe, Vorarlberg invites visitors to experience the poetry of nature and the carefully designed cultural landscape. When the setting sun gleams golden on Lake Constance, in the view from the top of a mountain, in the stunning shapes and forms of contemporary architecture, when enjoying a gourmet meal in a charming ambience, it all becomes clear: with a sense of quality and sustainability, the people of Vorarlberg have created a world that creates space for discovery and delights the soul.

The legend lives on

The Arlberg is one of the region's most legendary places. If you look for the mountain on the map, you won't find it, because the namesakes of the mountain massif between the Lechtal and the Ver-

wall Alps are actually the "Arlen" – also known as "Latschen" or mountain pines. The area around the Arlberg is the cradle of alpine skiing. Nowadays, Zürs and Lech are highly sought-after destinations for visitors young and old.

But the Arlberg is not the only place where legends have sprung up from the ground. At an altitude of 1,250 metres, at the gateway to the Brandner Valley, lies the Tschengla plateau. Among the larches, meadows and mountains of the Rätikon, four stone circles and a network of 2,000 megaliths – solitary standing stones – conjure up a unique landscape. Nobody can say for certain why the stones are there. Perhaps they served as a celestial observatory in the Stone Age, or maybe they had a ceremonial use. Their astrological alignment lends itself to comparisons with other known stone circle sites in Europe and suggests a gigantic calendar from the Neolithic period.



PEACE AND RELAXATION

can be found in the vastness of Vorarlberg's natural landscape.

Living customs – UNESCO intangible cultural heritage

On the first Sunday after Ash Wednesday, an old tradition is observed: "Funken-sonntag", or "Bonfire Sunday". On this day, artfully stacked wooden towers with a witch sitting atop them are set alight. The highlight of the ritual is the explosion of the "Funkenhexe" or "bonfire witch", who is filled with powder. In Montafon, Bonfire Sunday is also the day for the traditional event of "Scheibenschlagen", or disc flinging. Discs of alder and birch wood are placed on hazel sticks, heated until they glow, and shot off of the sticks with the help of a small wooden ramp built like a tilted bench. The glowing discs fly off into the darkness, leaving gleaming arcs in their wake. This fiery spectacle is accompanied by music and culinary delicacies, in particular "Funkaküchli", a traditional leavened cake.

"Heile und uf Wiederluaga" – a dialect that's not for the faint-hearted

It's not just the customs that are remarkable here – the dialect is too. A native of eastern Austria would probably under-

stand the Vorarlberg dialect very poorly, if at all. And the dialect of the Bregenzerwald poses a challenge even for the rest of Vorarlberg. After all, almost every place has its own dialect. This one bears some similarities to Swiss German and Swabian, having its roots in the Alemannic group of dialects. So in Vorarlberg they say "min" instead of "mein" (meaning "my"), "nü" instead of "neu" (meaning "new"), and "Hus" instead of "Haus" (meaning "house"). But of course, the inhabitants of Austria's smallest state naturally also speak a congenial approximation of standard German and other foreign languages.

Lakeside culture – the state capital Bregenz

Vorarlberg's international character is reflected in the diversity of the state's culture, art and architecture. The third-largest lake in Central Europe spreads out directly in front of Bregenz. This open border of Lake Constance has historically served well for Bregenz: trade has been conducted here for two millennia, and fashions and ideas from all corners of the globe have been brought in with

the boats for just as long. The Bregenzer Festspiele brings together medieval flair in the old town, futuristic architecture, art houses and modern museums, along with the world's largest floating stage on Lake Constance. For decades, the festival has been an unmissable event for opera enthusiasts. This is thanks of course to top-class artists, directors, but also the international orchestra of the Vienna Symphony Orchestra.

Sliding into happiness

Left and right, left and right, straight ahead for a bit, tight curves, wide radius. Making your own tracks, swishing through the snow at your own rhythm and pace has a very special appeal. The landscape here is breathtakingly imposing, but not as rugged as the conditions found at even higher altitudes. There's plenty of room for a good mix of gentle and challenging ski slopes. It's an impressive backdrop that attracts a large crowd of mountaineers and hikers to the country in summer.

Culinary delights – local, fresh and refined



HIGHLIGHT

During bonfires in the region, it is still a tradition in many places to burn the "bonfire witch".



BREATHE DEEP

The Lünensee, one of the largest lakes in Vorarlberg, sits at an altitude of 1970 metres above sea level

A culture-packed day in the mountains needs the perfect finish. Vorarlberg holds plenty of surprises for visiting gourmets, with a consistently high level of quality. From rustic alpine huts to high-end restaurants, there's no trickery here – just high-quality ingredients and fresh ideas from the chefs. That's the secret to Vorarlberg's unparalleled gastronomy. Whether you're dining in a restaurant or guesthouse, in an alpine hut or on a cruise ship on the lake, you'll find a common thread running through: wherever possible, local and seasonal delicacies are used to create everything from elegant tasting plates to humble, hearty fare. Alpine cheese, cream cheese, sour cheese... a mainstay of Vorarlberg cuisine is cheese in all forms, from mild to piquant. The region's culinary calling cards include cheese dumplings, cheese soup, cheese salad, or "Alpine cheese" for a quick mountainside snack. And those with a sweet tooth can try "Riebel", a sweet cornmeal and wheat dish that's a true indulgence after an active day in the fresh mountain air.



A CULTURAL HIGHLIGHT

at the highest level – the Bregenzer Festspiele.



EDITOR'S TIPS

Kunsthau Bregenz:
Karl-Tizian-Platz, 6900 Bregenz

Bregenzer Festspiele:
The largest opera event with a lakeside view from 20 July to 21 August 2022

Rappellochschlucht Dornbirn:
Gütle, 6850 Dornbirn

Restaurant „Alpensteakhaus“
Muhledorfle 75, 6708 Brand bei Bludenz

GAMS zu zweit ** premium hotel**
Platz 44, A-6870 Bezau

More information about Vorarlberg:
www.vorarlberg.travel



FACTS

Population: 401,607
Area: 2,601 km²
Capital: Bregenz
Municipalities: 96

Photo credits: photo pp. 24/25: Cheesemaking at Montafon dairy, Schruns (c) Markus Gmeiner Vorarlberg Tourismus GmbH, photo p. 26: Bärguntalpe Kleinwalsertal (c) Dietmar Denger Vorarlberg Tourismus, photos p. 27: top left: Bonfire, Kehlegg/Dornbirn (c) Markus Gmeiner Vorarlberg Tourismus GmbH, below: Lünensee (c) shutterstock, top right: Bregenzer Festspiele, Rigoletto 2019 (c) Karl Forster Bregenzer Festspiele



All eyes on

Complete machining of rotor bodies

by WFL Millturn Technologies

A global rethink has been taking place in the recycling industry for several years and the focus on sustainability is becoming increasingly important. It is therefore time to find solutions that drive and promote the value creation process. Rotor bodies and shredder shafts play a very important role here. Rotor bodies or shredder shafts are mostly used to shred a wide variety of materials and to prepare them for further processing.

High quality standards, profile accuracy and both reliable and flexible machining solutions are key features for the manufacturing of rotor bodies. Thanks to the extremely stable structure, the MILLTURN complete machining centers from WFL offer excellent precision for any machining situation. High material removal rates, technological flexibility and the combination with in-process measuring (closed-loop) build an optimal basis.

Sequential manufacturing on different machines	MILLTURN complete machining
<ul style="list-style-type: none"> • Lead time • Set-up time • Rework • Rejections • Unit cost • Storage costs • Service costs 	<ul style="list-style-type: none"> • Quality • Productivity • Machine utilization • Process safety • Reduced labour costs • Reduced lead-time



Potential savings when machining rotor bodies



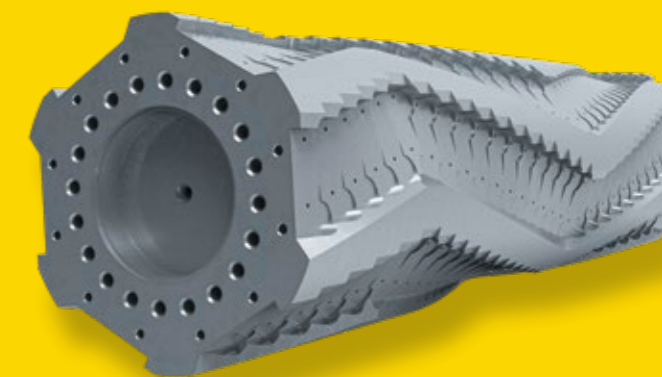
Processing steps (Op's)
Savings of
60-70%



Set-up time
Savings of
80-90%



Processing time
Savings of
30-70%



Conventional process chain	Complete machining MILLTURN
OP 10 Lathe	OP 10 Complete machining 1st clamping
OP 20 Milling machine	OP 20 Complete machining 2nd clamping
OP 30 Boring machine	
OP 40 Welding inserts	
OP 50 Rotating the receiving seats	
	Savings 60 %

Due to the ultra-stable structure and the enormous milling performance of the MILLTURN, it is possible to achieve savings of up to 60%.

Typical technologies:



In-process measuring



Boring



Turning



Milling



Advantages in the production of rotor bodies in a MILLTURN

- Reduction of machining operations
- Reduced set-up time
- Space savings at shopfloor
- Reduced manpower
- Clamp once, machine complete (including all processes: turning, boring, milling, deep hole drilling)
- Smallest GD&T's
- Process monitoring with WFL iControl
- In-process measurement and closed-loop correction

Large, precise, reliable

The second largest WFL machine model – a M150 MILLTURN – was delivered to the Czech Republic in autumn 2021 using oversized transportation. The machine, which is 16.5 metres long and weighs 60 tonnes is now located at V-NASS in Ostrava. Pavel Krpec, Director and Chairman of V-NASS, a.s. gives us a peek behind the scenes and reveals some interesting facts.



RETROFIT

Completely revised and with a new U-axis, the M150 Millturn is ready for action.

The oil and gas industry has been in an ongoing crisis for several years, which is pushing prices for suppliers to the limits of economic viability. “Maintaining one’s market position at a time when production of simple components is increasingly being moved to countries with lower labour costs means focussing on complex production processes which require comprehensive solutions,” states Pavel Krpec, who appreciates the multifunctionality provided by the Millturn machine. When the project began, this wasn’t the machine they actually had in mind. Originally, the customer wanted a single vertical turning machine and a single horizontal turning machine. He was also thinking of a 5-axis machine for milling operations for the future. At the time,

the WFL machine was available, which combined all current and future requirements. It was not a good time for large investments, so it was not easy for V-NASS to convince its parent company. However, the system’s parameters and the combination of functionality and performance proved to be a strong argument. Representatives from V-NASS took the opportunity to see the machine in operation at T-Machinery last year, where WFL had recently installed a medium-sized M80-G Millturn. “Seeing what a machine can do in practice is of course the best option for any engineer. We were able to do this here,” says Krpec of the visit to Ratíškovice which included a practical demonstration of the technology.

The biggest in the region

It’s worth noting that this machine was from stock, was fully retrofitted by manufacturer WFL Millturn Technologies and was equipped with an automatic U-axis at the customer’s request. The U-axis enables face plates and D’Andrea heads to be applied for precision drilling and turning operations outside the axis. The company is adding to its machine park with a complex machining centre for turning, milling, drilling, counter boring and, thanks to special support, further special technologies such as five-axis-milling, shaping and deep hole drilling. Besides these benefits of the machine, also the exchange system for milling and other adapters using the prismatic tool interface is worth emphasising here.

At 16.5 metres long, the M150 Millturn machine is the second-largest model from Austrian manufacturer WFL in the CEE region. The machine can process workpieces up to 6.5 metres long, 1.5 metres in diameter and 15 tonnes in weight.

“The performance values are at the level of a new machine.”

This enables the company from Ostrava to offer bigger product lines and to take on more challenging machining projects. “Put simply, we can produce bigger and more complex parts with greater added value,” summarises Krpec in regard to

their plans for the future and explains why the machine enjoys a prominent position in production: “Our machine park didn’t allow for production of large parts, but now that’s changing. Together with our operators’ skills, we are now able to produce technically challenging parts with complicated moulded parts, gear teeth and deep holes on a single machine.”

Focus on precision

During the preliminary acceptance of the machine at the WFL Millturn Technologies manufacturing plant in Linz, a completeness check was carried out by machining a sample part and then carrying out deviation measurements. “The machine fulfilled both the geometric and all other requirements. The performance

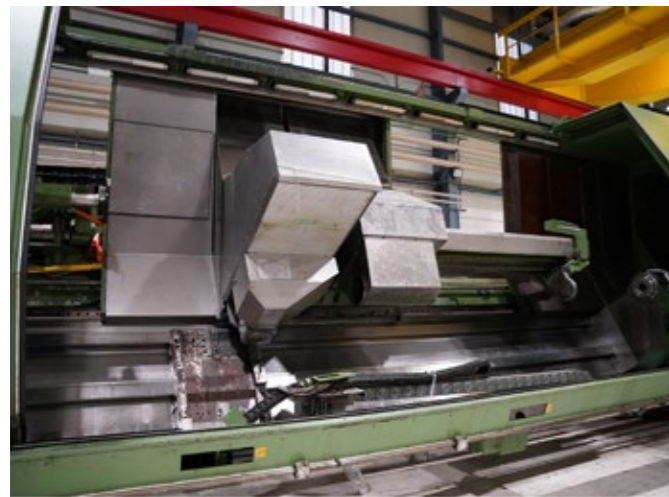
values are at the level of a new machine,” summarises Ludačka, Managing Director of Ludačka Machine Tools s.r.o. and local sales partner of WFL in Czech Republic and Slovakia, in regard to the test results, adding some data from the performance log: “When machining the sample part, all exact deviations in size and position were in the range of 3-6 micrometres for the 36 measurements.” The machine thus meets all expectations and underpins the value of retrofitted Millturn models. There’s not many used machines with this level of quality and technology. They rarely come onto the market and the systems are generally 20 to 25 years old. Which is why the manufacturer’s strategic decision to now focus more on used machines is very welcome. “This allows us to offer customers in the Czech Republic and Slo-

vakia an attractively priced, reliable machine with the full support of our service team and a manufacturer's guarantee, which sets us apart from dealers with used machines," explains Ludačka.

Ready for new challenges

The size of the machine meant that part of the route had to be cleared for its 500 kilometre journey. Pavel Krpec has also already assigned the new machine its first task: "We have an interesting order from General Electric, which was a challenge for both our programmers and operators – as well as for the WFL teams, I

believe." Zbyněk Ludačka is also pleased about the machining tasks that the machine is now fulfilling and believes that the client appreciates the complexity of the machining: "To put it very simply, now all the customer has to do is ensure that the workpiece fits in the machine. He can be sure that the machining quality will always be perfect."



TRANSFORMATION

The machine before and after the retrofit.



"We are now able to produce technically challenging parts with complicated moulded parts, gear teeth and deep holes on a single machine."



COMPLETE MAKEOVER

The main components such as the boring bar slide and the turning-boring-milling unit have been completely renewed.



Pavel Krpec

Director and Chairman of V-NASS, a.s.

V-NASS, a.s has been active in the industry since 1997 when the company was formed from the former toolshop of engineering firm Vitkovice, a.s. Their main activity is the manufacture of technical components for subsea oil production and nuclear energy as well as tools for metallurgical plants. V-NASS supplies products to the whole world. Its biggest customers are Great Britain, Brazil, USA, Malaysia, Singapore, and the Czech Republic.





All eyes on

The right training – here at WFL

WFL's training options cover all requirements for programmers, machine operators and service technicians. Ongoing training not only guarantees maximum productivity on the production line, but also increases staff motivation and makes it easier to respond to new production tasks. WFL imparts the best possible knowledge and experience in a wide range of training courses, either directly at WFL, online or, if desired, at the customer's factory.



WFL PROGRAMMER TRAINING

Bei den WFL Programmierschulungen bietet WFL, je nach Vorwissen der Teilnehmer, drei verschiedene Stufen der Schulung an:

- **WFL Basic programmer training:** This training is designed for NC programmers and technical personnel with extensive programming knowledge (basics of CNC technology). The goal of the training is to enable participants to generate NC programmes of a low to medium application requirement for the MILLTURN.
- **WFL Advanced programmer training:** This training is intended for those who have successfully completed the WFL Basic programmer training. The learning objective is the efficient use of MILLTURN applications such as tool control, special functions, iControl (process monitoring), workpiece loaders, boring bar slides, CrashGuard and customer-specific programming examples.
- **CrashGuard Studio:** This training is intended for those who have successfully completed the WFL Basic and Advanced programmer training. Here, you will learn how to use MILLTURN applications efficiently and verify NC programmes in advance on a PC using CrashGuard Studio.



WFL ADVANCED+ TRAININGS

The WFL Advanced+ training programmes are intended for programmers and machine operators and cover the following topics:

- **Measuring technology:** Improve the process reliability and productivity of your manufacturing with the aid of WFL measuring cycles!
- **Special cycles:** Here, you will discuss your special application case with an experienced trainer and develop a machining concept that uses the WFL special cycles.
- **WFL iControl:** The safety of workpieces, tools and machines is a central objective in every machining process. With this training, you can improve the process reliability of existing and future programmes!
- **WFL GearCAM:** WFL GearCAM will help you learn about programming gears quickly and easily.
- **WFL ScrewCAM:** WFL ScrewCAM lets you programme plasticising screws quickly and easily.
- **WFL individual training:** In addition to the standard courses, WFL also offers individual training for every lifecycle phase of your machines and production systems (tools, production support, technology and so on).



CNC OPERATOR TRAINING

CNC operator training is designed for operators and fitters, as well as specialists with good knowledge of machining and experience with CNC machines. After the training, participants will be able to set up the MILLTURN, work through and optimise programmes, and set up the tools for the next workpieces parallel to machining time.



WFL SERVICE TRAINING

WFL service training focuses on the mechanical and electrical aspects of the MILLTURN:

- **Mechanic service training:** This training is intended for service personnel and specialists with good knowledge of hydraulics and pneumatics, as well as the maintenance of machine tools. Those who pass the training will be able to independently perform preventative maintenance and upkeep work as well as error diagnostics and troubleshooting.
- **Electrician service training:** This training is intended for service personnel and specialists with basic knowledge of IT, control technology and good knowledge of machine tools. After the training, participants will be able to independently perform preventative maintenance and upkeep work as well as error diagnostics and troubleshooting.



WFL maintenance instruction

The maintenance instruction is intended for service personnel and specialists with good knowledge of the maintenance of machine tools. After the maintenance instruction, participants will be able to independently perform preventative maintenance. The following topics are covered:

- Energy supply and wiring diagrams
- Maintenance based on intervals or operating hours
- Detailed explanations: Spare parts list, cooling units, retaining brake, etc.
- Controls and electrics: Maintenance display and wear limits, diagnostics/840D sl, control cabinet

TAKING THE TIME TO DO GOOD



WFL Millturn Technologies owner Dr Helmut Rothenberger founded the TOOLS FOR LIFE Foundation in 2008, which is committed to the sustainable common good of our society.

TOOLS FOR LIFE aims to connect people in all regions of the world with the essential resources needed for a healthy life. Water, energy and education form the pillars of the foundation. Dr Sandra Rothenberger, president of the foundation, provides an insight into the foundation's work and all that is involved.



STRENGTHENING
Abha Bhaiya's Jagorigrameen project works to strengthen women's rights and roles in India.

In 2006 Dr. Helmut Rothenberger was in an airplane crash and survived. The main reason why he could recuperate was that he had access to the medical care he needed. Out of gratitude the Rothenberger family decided to establish a foundation. In the interview with Dr. Sandra Rothenberger, president, we learn about the origins and focus of her work.

Tell us how the foundation started.

The beginnings were bumpy. The first project was in Lviv, in Ukraine. We wanted to renovate a hospital there. We already had collected monetary and material donations and were able to help a lot, too. But renovation was not possible for political reasons. This hurt, but I learned a great deal, especially about how to analyze projects and partner organizations.

As President, you are the linchpin for the projects. On what do you spend most of your time?

Most of my time goes into reviewing and evaluating new projects: What kinds of projects are they? Which project partners would we work with? How sustainable are the projects? Does the project fit the purpose of our foundation? Who is responsible for the project and who will carry it out? That's about how we decide whether the foundation should support the projects.

When is a project sustainable?

I want to mention two aspects: a project must help people to help themselves and it must be "lived": for instance, it takes three or four months to build a school, but it must be maintained. Someone has to see to it that children attend it and learn something there—that's the only way a project can live on. Sustainability is very important to us.

What is the most important lesson you have learned so far from the foundation work?

I have learned that time is the most important factor. When I was in Africa for the first time, people said, "Ms. Rothenberger, take off your watch—Europeans measure time, we in Africa have time." You must bring time and a lot of patience. And I learned to focus on the essentials and make mistakes, because you learn from mistakes.

When looking back on the first about ten years—what surprised you the most, in a positive as well as negative way?

One of the most wonderful situations I ever experienced was the opening of the school in Diourbel, near Dakar. The children sang a song for me, with a gratitude I had never experienced before in this way - it touched me deeply. That was a very positive surprise. A negative surprise was to find out how hard foundation work is and how difficult it is to collect money and convince people that they can do good with their donation.

What compels you personally to keep going with the foundation work in addition to your job and your family after all?

It's this sense of doing something that has an important impact. I am very grateful that I am well, and I am also a very religious person—I simply want to help people who are not so well off. I want to help connect people and do good!

Which projects are especially dear to your heart?

Everything that has to do with children touches me greatly. Children are the future. They are not to blame for the circumstances of the life into which they were born. We have to give them a future.

Does the foundation work have a special focus?

The foundation work focuses on energy, water, and education. Water is always an important issue: we have a major project in Ngolar in Senegal, where we will build a water tower and a deep well, complete with an infrastructure, that is to say, with a garden project, a school project, and a health center.

What are the plans for the foundation's further development?

I want to move more things in the way a lever works: achieving a lot with little. The foundation should become better known. It is my dream to build a community, because the foundation only lives through active commitment. I want the foundation to carry out not more, but more sustainable projects with the same infrastructure. I want to train more people on-site.

If you could fulfill a wish for the foundation by snapping a finger, what would it be?

If I could snap a finger, I would provide ac-

cess to water, energy, and education for every child. That would be wonderful.



EDUCATIONAL OPPORTUNITIES
TOOLS FOR LIFE provides for the construction of new classrooms including interior furnishings.

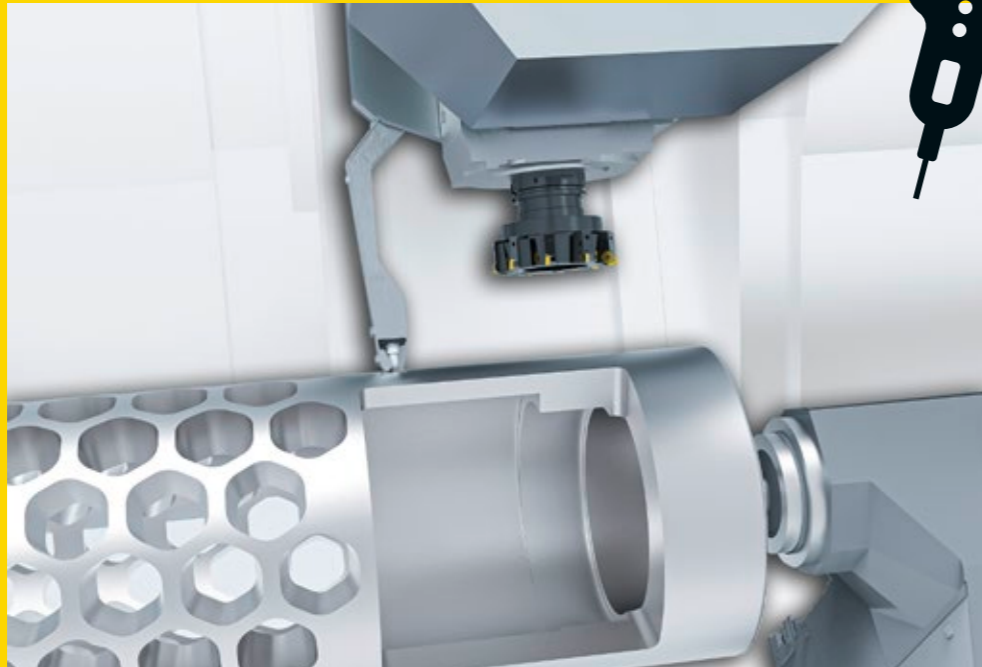




All eyes on

Ultrasonic measurement

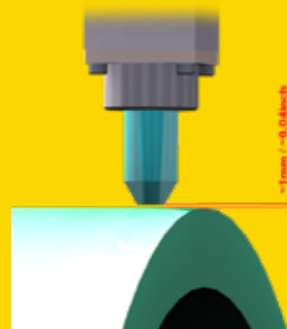
by WFL Millturn Technologies



Automatic ultrasonic wall thickness measurement is used for precise quality monitoring as well as position determination of inside to outside diameter (concentricity) for tube-shaped workpieces for which the measuring point cannot be reached with conventional workpiece measuring probes.

Ultrasonic measurement can be used both automatically and in-process, as well as in semi-automatic mode. Both methods offer the customer a reliable and, above all, intelligent and tailored solution for mastering the machining process.

With the help of the ultrasonic measuring device, an ultrasonic signal is transmitted into the workpiece. This signal is reflected in a straight line onto the opposite workpiece surface and is returned to the measuring head. The distance travelled can be calculated on the basis of the time taken for the signal to arrive. In this way, this type of automatic measurement can be used to measure wall thicknesses or inside diameters of pipes quickly and easily without the need for special probes.



The measurement tool is protected by a PVC cover and directs the ultrasonic signals via the cooling lubricant. In addition, the measurement result and all data are displayed in the form of a graph in real time on the operator panel. This means that any material irregularities can be quickly detected and corrected. Typical application areas for ultrasonic measurement are those in the aerospace industry, e.g. for testing engines.

Automatic ultrasonic measurement

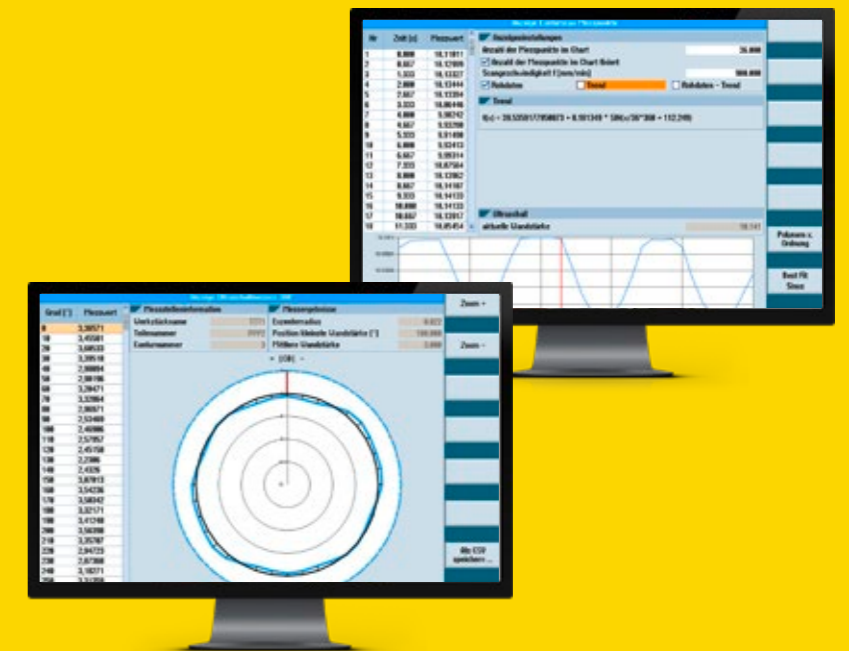
- Ultrasonic wall thickness measurement
- Cooling lubricant is used as coupling medium
- Calibration can be done automatically on the workpiece being measured
- Wall thickness is scanned through 360° at multiple longitudinal positions
- The position of the centre of the hole is calculated
- Turn-milling of new chip bases concentrically around the centre of the hole
- Remaining machining steps are completed concentrically around the hole
- Typical applications: Drive shafts, landing gear parts (aeronautics), drill pipes (oil and gas)

Semi-automatic ultrasonic measurement

- Ultrasonic wall thickness measurement
- Gel used as coupling medium
- Calibration can be done on the workpiece being measured
- Automatic positioning in relation to the measuring positions
- Manual measuring at 4 measuring points
- The position of the centre of the hole is calculated
- Turn-milling of new chip bases concentrically around the centre of the hole
- Remaining machining steps are completed concentrically around the hole
- Typical applications: Drive shafts, landing gear parts (aeronautics), drill pipes (oil and gas)

WFL measuring cycles

WFL cycles also make it possible to input and calculate the required measured values easily and reliably. Measurement is carried out around the workpiece with 4 measurements every 90° on one or two tape measures. The calculated deviation can be checked for permissible tolerance. The result is the largest deviation in radius and angle. Using these two calculated values from the input fields, it is possible to carry out eccentric clamp position processing.



Automatic ultrasonic measurement (in-process)





H05/P06

H05/P05

WFL
MILLTURN TECHNOLOGIES

M150
MILLTUR



TECtalks
Technology worth spreading
by WFL, Millturn Technologies

**TECHNOLOGY AND INNOVATION
ARE OUR PASSION.**

Tubing Hanger

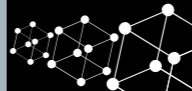



Defintion:

Tubing hangers are used on drilling rigs on a wellhead platform on land or at sea. They are designed to take the load of the production pipe string once it is suspended from the pipe hangers to ensure a seal within the pipe spool.

Few sectors place such high demands on cutting machining as the oil and gas industry. Precise machining of complex components from materials that are difficult to cut, such as high-strength and corrosion-resistant steel alloys or Inconel constitute the daily tasks of machining. A MILL-TURN system can showcase the very best in your

company, especially in the face of high demands upon the machining process. This is because the processing time of complex workpieces is substantially reduced by ensuring optimum precision and stability, together with the automatic handling of long and heavy internal machining tools.



M80X	Steel Inconel625 	L: 1295 mm (51,00in) Ø: 508 mm (20,00in)	 2 clamping(s) 20 h 	
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Technology:

- Turning of the outer contour including H4 profile
- Counter boring and finish turning of the inner contour including VX/XT contour
- Diamond polishing and superfinishing of the inner contour
- Deep hole drilling with gun drilling
- Turning of the radial pockets with D'Andrea facing head
- 1TPI StubAcme outside thread pre-milling and finish turning
- Radial connecting holes with prismatic angular head

Highlights:

- Excellent surface quality for centre hole up to Ra 0.2
- Deep hole drilling up to 105xd
- High-performance counter boring of the central hole with special tool up to ap = 8 mm in Inconel 625
- Radial pockets with D'Andrea facing head with ultra-low tolerances and high surface requirements
- Complete machining with minimal manual intervention

» **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 magazin „COMPLETE“ is available in German and English. Additionally a download link can be found on our homepage.



Imprint

Publishers:

WFL MILLTURN
Technologies GmbH & Co.KG
A-4030 Linz, Wahringerstraße 36,
Austria
www.wfl.at

Commissioned with publication:

Sabine Steinkellner

Chief editor:

Stefanie Wagner

Editor: Sabine Steinkellner,
Gregor Luckeneder, Michaela Schinnerl

Concept & Design:

Nordis – Agentur für Kommunikation

Graphics & Pictures:

Michaela Schinnerl, Gregor Luckeneder,
shutterstock

