M70 MILLTURN – Expansion of the product family

WFL MILLTURN TECHNOLOGIES

COMPLETE

The complete
machining magazine

wfl.at

02
25

Back in time.

In the 21st century, Linz has developed from a traditional industrial location into a modern center for technology, innovation, and urban quality of life.

The capital of Upper Austria offers ideal conditions for companies in the mechanical and plant engineering sector: a strong industrial base, excellent technical training facilities, and a dynamic environment for research and development. At the same time, Linz sets cultural accents — for example, with the Lentos Art Museum and the Music Theater — thereby increasing its attractiveness as a place to live and work for highly qualified professionals.

Linz combines economic strength with a high quality of life —
a location with prospects.

Dear customers and readers,

Autumn is fast approaching and with it EMO 2025. This international trade fair in Hanover is much more than just another industry event for WFL Millturn Technologies. It acts as a shop window for innovations, as a meeting place and as a driving force for the future of production technology. We are very much looking forward to talking with our customers, partners and other interested parties. This fair is an outstanding platform where we can continue to build trust in our expertise and innovative power. Visit us at EMO – Stand A50 | Hall 13 – where you can experience our innovative, practical WFL technology first hand and talk directly with our expert team.

What topics await you in this issue?

Behind the scenes:
After 27 years with the company, 20 of which as CEO, Norbert Jungreithmayr has stepped away from the operational side of the business. He continues to support WFL in the field of corporate development. In an interview with Complete, we take a look back with Mr Jungreithmayr at an eventful career packed with innovations, challenges and personal milestones – and also consider what might lie ahead.

"Unfolds New Possibilities":
The new M70 MILLTURN is the latest addition to the WFL product family and is ideal for applications which require the ultimate in productivity and precision. The machine impresses with a sophisticated working area concept for working lengths of up to 8000 mm and for a swing diameter of up to 850 mm. Thanks to the well-known and extensive WFL modular system, it offers enormous variety and can be tailored to each customer's requirements. As well as featuring in this issue of our customer magazine, the new MILLTURN can also be admired live in person at EMO in Hanover.
This issue includes exciting information about our iControl software and the newly developed automation solution which uses a storage tower. We also take a look at the success story of Plasser & Theurer. The global technology leader for track construction machines has a M30-G MILLTURN with automation cell among its fleet. Another user report shines a light on French company Aequs. At Aequs, two M120 MILLTURNs have played a key role in machining complex parts for the aerospace industry thanks to their guaranteed unrivalled performance and precision for many years.

We also take a look at WFL Customer Services and our training programme.

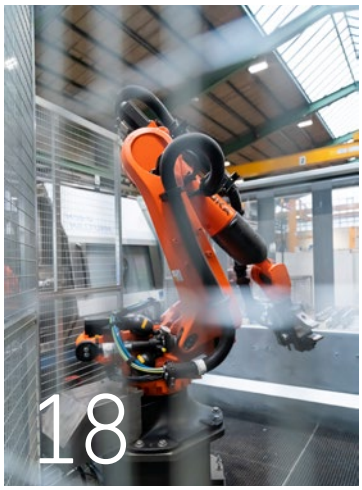
We hope you enjoy reading this edition!

The WFL Management Team

Stefan Hackl
CCO & CFO

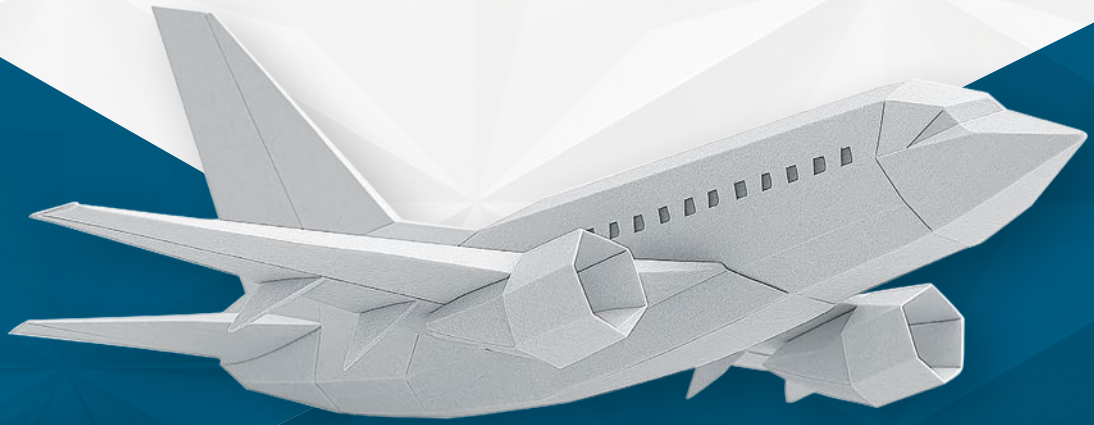
Franz Schön
COO

Günther Mayr
CSO & CTO



WFL MILLTURN TECHNOLOGIES

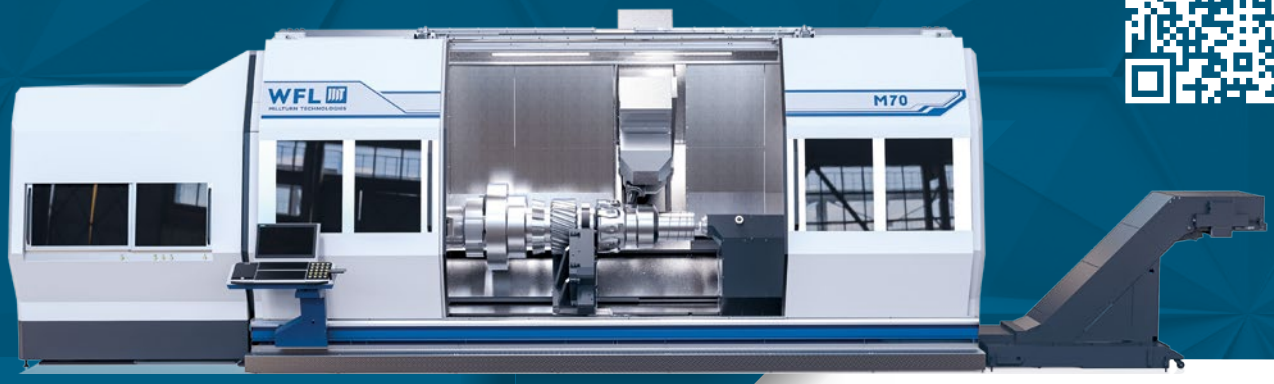
UNFOLDS NEW POSSIBILITIES.



EMO HANNOVER
22–26/09/2025
Hall 13
Booth A50

THE NEW M70 MILLTURN

Unfolds new Possibilities – **The New M70 MILLTURN**. Experience precision, efficiency, and versatility on a new level – for maximum productivity and flexibility. Shape the future now – with the **M70 MILLTURN.**



SAVE THE DATE !

Technology Meeting 2026
May 5–7, Linz

CLAMP ONCE - MACHINE COMPLETE

WFL Millturn Technologies GmbH&Co.KG | www.wfl.at

Looking back to the future: 20 years at the top

Two decades at the top, 27 years at WFL Millturn Technologies – an achievement which stands out in today's fast-paced business world. Not only has Norbert Jungreithmayr significantly shaped the development of WFL, he also experienced and played a role in the transformation of an entire industry. He may have stepped away from the operational side of the business, but not from WFL. He continues to support the company as "Director Corporate Development". In this interview, we take a look back with Mr Jungreithmayr at eventful years packed with innovations, challenges and personal milestones – and also consider what might lie ahead.

Norbert Jungreithmayr continues to support the company as Director Corporate Development.

From left to right: Norbert Jungreithmayr was initially supported by Mr Siegwart and Mr Skutl.

WFL Millturn Technologies in Linz was established in 1993; Norbert Jungreithmayr was CEO for 20 years.

What was your first day at WFL like? Can you still remember it?
WFL emerged from voestalpine Steinel as an independent company in 1993. So there was a real sense of optimism in the first few years, which revolved around the challenge of establishing complete machining with our customers and on the market. As a product, the MILLTURN from WFL was still in its early days and anything but well-known and accepted in the world of production.

What motivated you to join the company and to remain with us?
The biggest motivational factor was the sense of optimism I mentioned, which went hand in hand with new ideas, fresh thinking and a clear vision of the future. The opportunity to be involved in something right from the very beginning, take responsibility and shape processes was exactly what I was looking for as I wanted to be a part of building something that would last.

What was going through your mind when you took on the role of CEO twenty years ago?
When I took on the role of CEO, I was well aware of the challenge and it was clear that I was taking on a lot of responsibility. But, at the same time, I had an exceptional management team with a wealth of experience in the tool industry at my side right from the start as well as the backing of the strong, successful and entrepreneurial Rothenberger family. We have achieved a lot over the last twenty years and also made it through some difficult times together. This foundation of team spirit, experience and mutual trust was the driving force behind my decision at that time to accept the role of CEO with confidence.

Which of the milestones over the last twenty years of the company's development stand out to you now?
Well, one has to be the constant improvement and development of new machine types of course, as well as establishing our unique selling points including with technically

Norbert Jungreithmayr's key values for managing a company are trust, responsibility and an entrepreneurial spirit.

outstanding software solutions such as CrashGuard, and finally adding automation to our product portfolio with the acquisition of FRAI. None of this would have been possible if our team hadn't always been constantly striving to improve so that we could offer our customers real added value.

How has the business changed over the years?
The cycles in the machine tool business are shorter and customers are looking for "one-stop suppliers" more than ever before. Ideally, this means offering everything from the machine to the processes, automation and service. To meet these requirements, WFL has continually expanded its portfolio.

Where do you think complete machining is headed?
Complete machining with the option to also produce small batch sizes quickly, flexibly and precisely, with low stock levels, will continue to grow in the future and give our customers the opportunity to be competitive in price-sensitive sectors too. Complete machining is the production package of the future and, thanks to automation solutions, it is highly productive and competitive.

What was your biggest challenge as CEO?
One of the biggest challenges as CEO was guiding the company through profound crises, such as the financial crisis of 2007/2008 and the Covid-19 pandemic. Such exceptional situations put the entire world to the test and show us how important it is to have a broad market base and to be positioned across multiple sectors. But it takes courage, vision and determination to stay on course in a crisis. Despite all these challenges, we have succeeded in continuously developing the company and achieved healthy growth, even in difficult times – a success that is down to a strong team, a committed and entrepreneurially courageous owner, clear strategic decisions and belief in our own strengths.

Which values were particularly important to you when managing the company?
Trust, responsibility and an entrepreneurial spirit. They form the basis for open, reliable collaboration at all levels – internally as well as externally when working with our customers. The backing of the family that owns WFL was also another important factor as they provided stability and support, including in challenging times. Delivering quality to our customers and being a company they can rely on is always at the centre of what we do. These values are more than just strategic guidelines, they are embraced and practised by our employees day in, day out. They are at the heart of our company culture and play a decisive role in our long-term success.

WFL continues to develop its product portfolio. The new M70 MILLTURN is the latest addition.

How do you think the plant will look in 2050?
By 2050, assembly will be at least partly automated, while the processes along the entire value chain – from sales to production – will be even more digitalised. A key element will be an even bigger Millturn Innovation Center, a demonstration centre expanded to create a technology development centre. This should serve as an experience world for our customers and will be important for sales by making our product, processes and technology really come alive for our customers.
The world of production in general will be subject to increasing digitalisation. Process design, simulations or capacity planning will increase significantly thanks to digital options. This will result in the need to continually align our products, processes and activities with these developments. A flexible product, such as the MILLTURN from WFL, is a decisive step in the right direction when it comes to being ready for this future. Proximity to customers throughout the entire life cycle – from comprehensive service to targeted technology support – will increase in importance. Fast response times and maximum customer focus will be key factors for success.

What are your hopes for the coming year, both for the company and for you personally?
I wish the company and the team much innovative strength to secure the company's success into the future.
I am pleased that I can continue to support WFL on the road of healthy, sustainable growth as Director Corporate Development with a clear strategic approach, operative excellence and a strong team. For myself, I hope for good health, time with my family and the opportunity to continue to shape the future with energy and enthusiasm, both professionally and personally.

DID YOU KNOW?

Experience is all well and good but iControl is better

Thanks to the fundamental redevelopment of its in-house process monitoring system, WFL has significantly expanded its range of functions. With the new "WFL iControl" system, process signals can be registered, evaluated and recorded in the CNC-kernel of the control with the maximum sampling rate. The introduction of new monitoring strategies, such as "yellow limits," results in considerable advantages in tool breakage and tool wear monitoring. Another new feature is the option of integrating external sensors into process monitoring. The latter allows, for example, continuous monitoring and recording of performance data from coolant pumps or conclusions about the condition of spindle bearings.

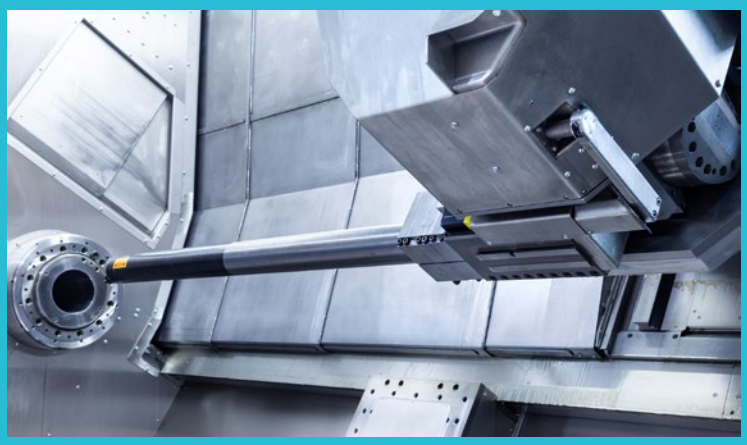
The new "iControl" process monitoring system from WFL gives machine operators of the future a whole package of functions to ensure reliable, cost-effective (series) production processes. It is important that the machine and tools deliver maximum productivity when in use; at the same time, the process needs to be as stable and reliable as possible. The software package provided by WFL is extremely versatile and has a suitable monitoring tool for more or less every possible machining situation. The up to 16 process signals to be monitored are configured by WFL at the factory depending the machine configuration and displayed live on the control screen. Important process signals include the forces or torques of the NC axes and spindles, but also the signals from integrated sensors (vibration, pressure, flow, temperature, etc.). These are built into machine components or tools and can be used for a wide variety of applications such as process control, optimisation or monitoring.

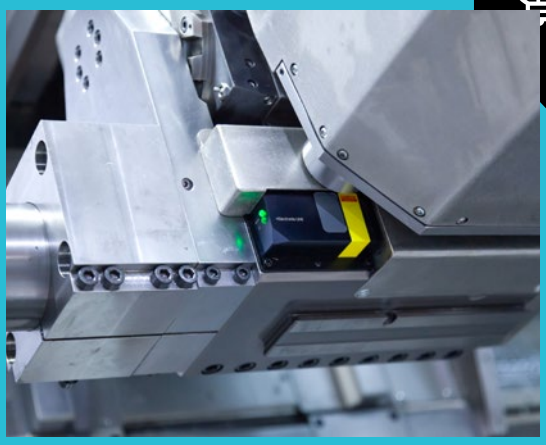
The ultimate protection for machines, workpieces and tools

Process monitoring is typically grouped into functions for protecting machines, workpieces and tools, and functions for recording tool wear and ensuring constant productivity. Key new features for detecting tool wear and total breakage include the "wear limit" and the "tool missing limit." The goal was to develop a solution that would respond sensitively and reliably to all conceivable abnormalities in the machining process. This is complemented by a long-term data recording function for process data that WFL offers as an additional option under the name "iControl Data Recording", an important aspect specifically when it comes to the production of safety-related components.

Basic+ or Advanced+?

WFL is launching two design variants of the new iControl process monitoring system. Both versions include temperature sensors for recording the ambient temperature and the temperature of the milling spindle bearing housing. The "iControl Basic+" version monitors the designated maximum machine loads only and triggers a quick stop within <10 milliseconds in the event that these are exceeded. The "iControl Advanced+" variant includes a vibration sensor for recording the vibration speed and condition of the milling spindle bearing and also allows you to select a customised monitoring strategy for each machining operation and systematically develop a machining process with maximum productivity. The software was designed by WFL to make it easy and intuitive to select the ideal monitoring strategy, and combine it with other limits to suit. For example, the energy consumption per operation can serve as a comparative value when this operation is repeated, making it possible to detect excessive tool wear or a total breakage at an early stage during drilling and avoid serious damage. However, brief and isolated load peaks in the process sequence probably would not have any bearing on this operation and even





small partial breakages on the cutting edge would be acceptable. As a result, the process would not be interrupted provided that the event was not identified as a total failure of the tool. By contrast, when it comes to finish turning, even the tiniest partial breakage on the cutting edge could lead to unacceptable surface quality, even though in principle the tool would still be functional. These types of events happen in a matter of milliseconds and are difficult or impossible for the operator to spot during machining. With dynamic monitoring enabled, iControl can detect the discontinuity, interrupt the process immediately and inform the relevant team member.

The maximum loads on the individual axes and spindles – known as "red limits" – can be freely selected anywhere up to the collision limit. This means that, for each operation, there is a pre-set percentage of the maximum permissible load for each axis or spindle. If no limit is selected, the collision limit set at the factory will apply automatically.

Smart aid

The process signal from a complete machining sequence can be recorded using a teach-in cut. The allocation of upper and lower process limits defines the tolerance band within which the process signal must remain during machining. If these limits are violated, the machine will stop. It is also possible to select a pre-warning limit, otherwise known as a "yellow limit." If this limit is reached, the machine will not stop immediately. Instead, a message will be generated to enable the operator to respond in good time, i.e. before another limit is reached. This primarily serves to ensure uninterrupted operation and makes it possible to replace worn tools even if they have yet to reach the end of their (theoretical) tool life. Typically, the collision limits set at the factory will always automatically limit any process-related forces to a level that is safe for the machine.

Nevertheless, there are often applications where the stability of the workpieces, the clamping devices or the required tools simply does not permit large machining forces. The "red limit" can help in these cases in particular because the machine will stop immediately – even if the limit is exceeded for only the briefest of moments. However, the "red limit" also serves to detect tool breakage, chip jams or blanks that are too large and can always be activated in the background so to speak.

Essential to automated production

The "iControl" process monitoring system is typically characterised by its extremely high sensitivity and reliability. The signal value for process monitoring is derived directly from the drive torques of the NC axes and spindles. A special algorithm eliminates friction and acceleration forces, making it possible to analyse the process signals with ultra precision. "iControl" provides essential services specifically for automation and series production. However, making the machining process fully transparent is also beneficial for complex internal machining tasks. As the saying goes, once you've tried it, there's no going back.

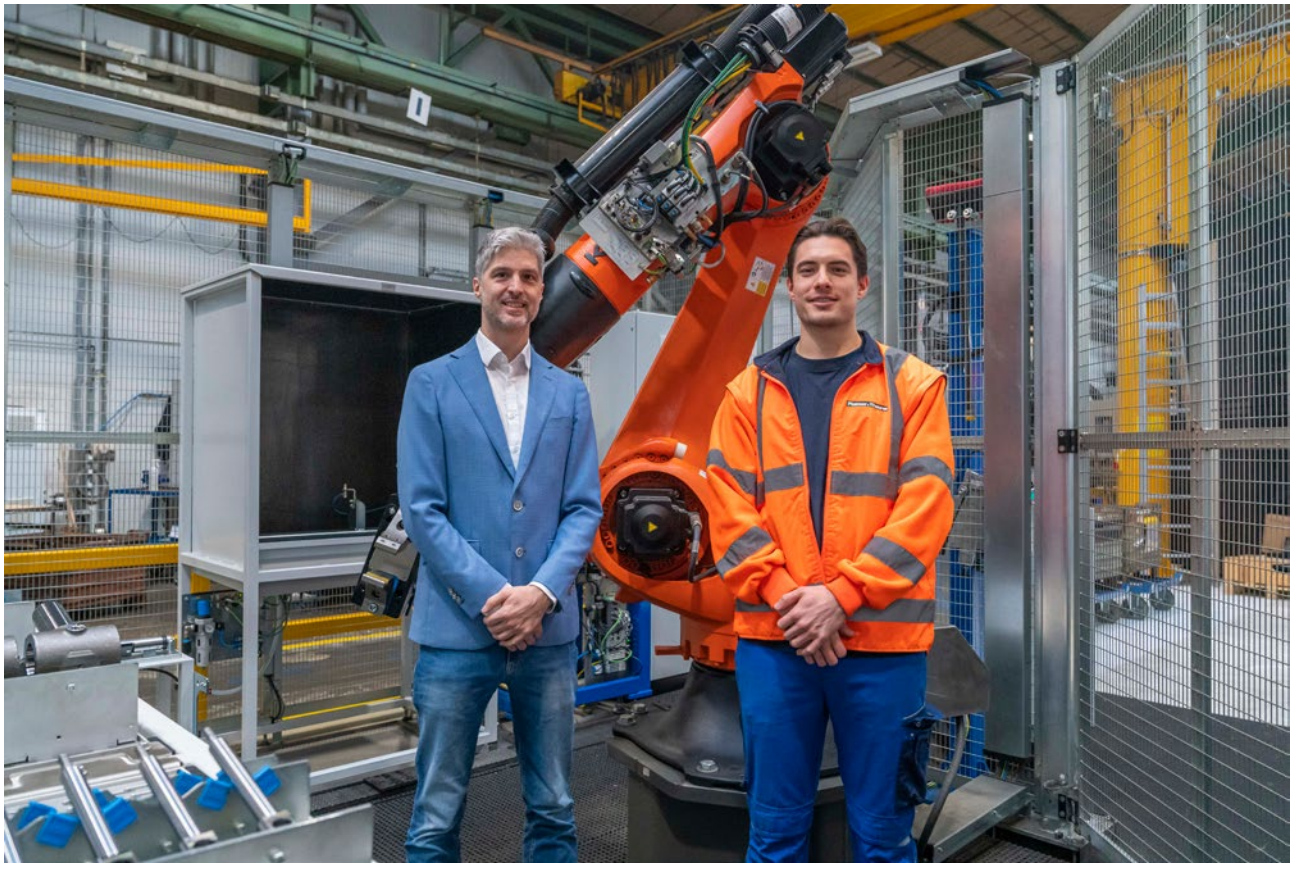
The advantages at a glance:

- Greater process reliability thanks to continuous monitoring of machining operations
- Protects the machine against damage
- Increased productivity and workpiece quality
- Tool cost savings and better utilisation of the tool life due to wear monitoring
- Better utilisation of the machine as process signals are shown on the display
- Reduced workload for operators
- Integration of sensored tools
- Maximum sensitivity thanks to teach-in technology
- Option to perform monitoring without teach-in cut
- Optimum monitoring of machining processes with different cutting depths thanks to adaptive limits
- Option for early detection of machine wear by using myWFL Condition Monitoring

Precision for success: WFL Technology at Plasser & Theurer

Plasser & Theurer has been the global technology leader in track maintenance machines for more than 70 years. Globally active, this family-owned business has the goal of supplying adapted track and maintenance systems to all regions of the world. Even though the fundamental working principles are similar, there is significant variation in the specific requirements from country to country. To succeed in their goal, the Linz-based company counts on reliable and precise machine tools, including an M30-G MILLTURN with automation cell.

The M30-G MILLTURN with automation cell.



Clemens Huber together with a machine operator.

The automation cell makes working on the machine much more pleasant for the operator.

A reconditioned M65 MILLTURN can also be found at Plasser & Theurer's main plant in Linz.

As full-service providers, Plasser & Theurer and WFL are united in their commitment to producing machines that last. These were among the reasons behind the decision to invest in a MILLTURN with automation cell.

"We drew up a specification ahead of acquisition and invited five companies to submit bids. WFL was the only one that met our requirements for accuracy and machining times. We saw a further benefit in the expectation of receiving very good support, given our two companies are only a few minutes away by car," recounts Clemens Huber, Plant Planning and Procurement. He continues, "Achieving surface accuracy and the concentric running of two different axes in relation to each other was vital. We require maximum radial runout of the cylinder to the central axis over both centres of less than or equal to 0.015 mm. The accuracy value is of the utmost importance here. None of the bidders apart from WFL could give us a 100% guarantee in this respect." Not only that, Plasser & Theurer was keen to avoid problems with the interface. As a full-service provider, WFL supplied the in-house automation system, and also integrated an external coordinate measuring machine and cleaning station. "The fact we could source everything from the same supplier also influenced our decision. Being able to sign off on the whole project with WFL helped speed up the go-live," adds Huber.

Lead times dramatically reduced

The M30-G MILLTURN replaced four other machines. Before the acquisition, the production process was fragmented. Separate machines for sawing, milling, turning and grinding were in use at the main plant in Linz. All machining steps are now brought together on one machine. Actual machining time is about the same as previously the machines ran in parallel, but lead times have dramatically reduced. Blanks can now be produced in less than 30 minutes. Before acquisition of the MILLTURN, it would take a whole day. This represents a major advantage in terms of spare parts availability. It is not just lead times, set-up times have also come right down. We produce a family of products on the M30-G MILLTURN, all the tools for which are there in the WFL machine.

MILLTURN in operation

"The WFL machine was the first to be designed for a lightly staffed shift. Because the WFL is so well automated, it is possible for one operator to work on two or three machines at the same time," states Huber, adding: "The more you can automate these days, the better!" He goes on to highlight the changes to ergonomics at workstations. The handling system is now much easier to operate using the articulated robot. The 15 to 25 kg blanks no longer have to be moved by hand. The operator is now solely responsible for process and quality control on the machine. "The operator's workload has been reduced, while there are fewer demands on our quality control processes, because every part is measured in the measuring station where it is assessed as OK or scrap," explains Huber.

The EuProGigant lighthouse project

The EuProGigant project was just getting underway as the final negotiations were proceeding with Plasser & Theurer. WFL put a great deal of effort into collating energy and measurement data at that time, something the track construction company valued and continues to value in particular in relation to their carbon footprint and sustainability

10 years of track maintenance machines with alternative drives from Plasser & Theurer – ready for a sustainable future, powerful and cost-effective.

Versatile solutions for track maintenance worldwide: Plasser & Theurer's Compact series covers the entire spectrum from tamping and stabilization to profiling.

goals. This led by rapid degrees to the formation of a collaborative arrangement between WFL, Plasser & Theurer and the Vienna University of Technology.

The fact that the WFL machine at Plasser & Theurer runs in shifts allows meaningful measurement data to be captured. To summarise: WFL provides the technology and support, while Plasser & Theurer carries out the field tests. The energy data captured forms the basis for important findings. This has been a win-win situation for all concerned, allowing for significant added value to be generated.

Service support

With WFL, Plasser & Theurer can count on a service partner who is close at hand thanks to their geographical proximity. "Our experience with WFL service has been very positive. Response times are very short and if the job needs to be done quickly WFL will pull out all the stops, including bringing in employees who are not on the call-out team," recounts Huber. He also praises the smooth communication between the different departments at Plasser & Theurer and WFL. The short lines of communication to share information and for support are a big plus.

Second-hand machine

The second WFL machine in the main at in Linz is a fully reconditioned M65 MILLTURN. "As well as being a great example of sustainability, it's also a cost-effective alternative," Huber is keen to point out. Purchasing a new machine would not add up financially for Plasser & Theurer since the machine was intended to run in two-shift operation at most. "Being able to buy a used machine that looks like new and comes with a warranty was a great option for us. We are very satisfied with our purchase and are currently considering buying a second used machine from WFL," adds Huber.

A sustainable future

Plasser & Theurer has set out a clear long-term strategy in which ecology and economy go hand in hand. A few years ago, hybrid drive technology for machines was still the exception. Today, the E³ generation of track-laying machines uses electrical power from the overhead wire and battery power for the working drive. This brings down local emissions (pollutants and noise) on construction sites to virtually zero. There is a huge surge in demand for these machines: sustainability is now the watchword!

"Our average 30-year product service life and lifetime spare parts guarantee ensures sustainable use for the long term. For a production company like ours, the key areas for us to home in on the sourcing of raw materials, energy consumption in processes and transport, and the emission of air pollutants," explains Huber. Plasser & Theurer is taking action to minimise these impacts through targeted measures. It is certified to ISO 14001 Environmental Management and ISO 50001 Energy Management. This certification underscores its efforts in the areas of energy efficiency, environmental management, circularity, etc.

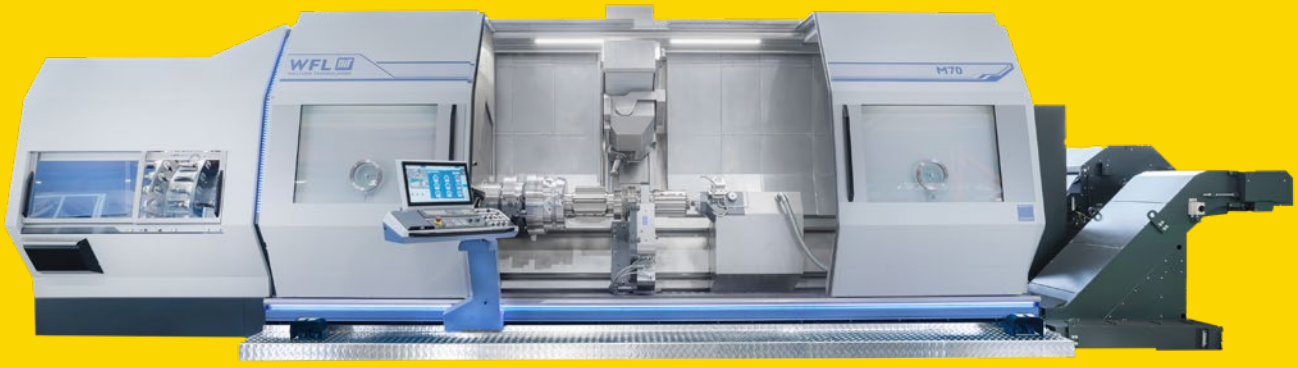
A brief portrait of Plasser & Theurer:

- Founded in 1953
- 2,000 employees in Austria
- 6,000 employees in Austria and 22 international partner companies
- Product range: machines and systems for new build and upgrade projects, as well as the maintenance of tracks and overhead lines
- Supplies more than 17,800 large machines to 110 countries
- Export quota 93 %
- Main plant in Linz, company headquarters in Vienna
- Service, repair and spare parts outlets worldwide
- Largest sales markets overall: Germany, USA, Great Britain, India, Japan, France, Austria, Brazil, Spain, Australia
- Customers: rail operators, construction companies, municipal transport companies, industrial and mining railways

Unfolds New Possibilities

Precision at its strongest with the new M70 MILLTURN.

The M70 MILLTURN impresses with a sophisticated working area concept for working lengths of up to 8000 mm and for a swing diameter of up to 850 mm. Thanks to the well-known and extensive WFL modular system, it offers enormous variety and can be tailored to each customer's requirements.



ALL EYES ON

User-friendly access to the tool magazine thanks to large, easily accessible sliding window and tool set-up during machining.

Height-adjustable, swivelling operator panel with tiltable 24-inch display.

In addition, the new M70 MILLTURN offers optimum stability and geometry for maximum precision, reliable machining thanks to high pull-in forces at the tool interface, and a wide range of additional options for highly productive deep-hole drilling processes and special technologies. With the capability to machine workpieces weighing up to 5,000 kg, the MILLTURN is ideal for heavy-duty applications.

The M70 MILLTURN features the familiar, reliable disc tool magazine or chain magazine with up to 200 tool stations and capacity for tools weighing up to 35 kg with a maximum length of 900 mm. In addition to automatic tool changes, the set-up process can also take place in parallel to the machining time. This allows the magazine to be tooled for different orders without any loss of time.

Two magazine variants are also available for heavy special tools weighing up to 200 kg each. The M70 MILLTURN also features extremely reliable main and milling spindle drives, delivering maximum precision and advantageous versatility for different customer needs. The optional WFL prismatic tool interface by means of a large prismatic tool accommodation enables the use of tools which exceed the maximum dimensions of standard tools. The machine also features extremely reliable main and milling spindle drives. Combining maximum precision with great adaptability, the M70 MILLTURN is ideal for customers with changing requirements.

For the M70 MILLTURN with its large drilling and turning tools, high torque and high performance are extremely important in maximising the performance of the tools.

Enhanced performance thanks to WFL prismatic tool

Specially developed tools which have been designed to work seamlessly with the MILLTURN enable precision machining of complex workpieces. As hard to access machining areas often require the use of long special tools, the use of robust prismatic clamp holders means that boring bars, solid drills, and angular heads can be attached to the turning-boring-milling unit in a highly stable manner. The WFL system boring bar enables automatic changeover of the cutting heads. Two types of magazine are available to provide

Turning-boring-milling unit
Max. drive power 40% (100%)
DC: 40(35) kW

Max. speed: 8000 rpm
Max. torque at the spindle
40% (100%) DC: 300(260)

Main spindle
Max. drive power 40% (100%) DC: 80(60) kW

Max. torque speed 40% (100%)
DC: 5860(4500) Nm
Max. speed 1600 rpm

Control
Siemens Sinumerik ONE

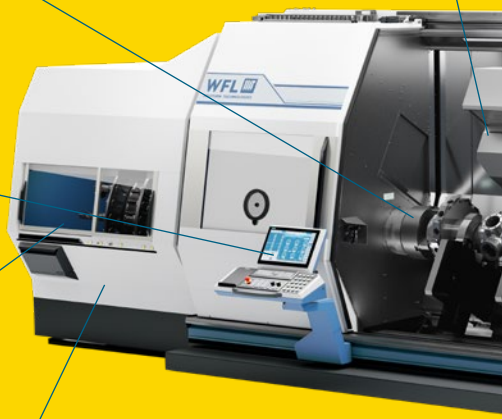
Multitouch screen widescreen
front 24" Format 16:9 and full HD

Tool setup

Ergonomic setup and retooling
during machining from the front

Tool magazine
with up to 200 storage locations

Max. tool weight: 35 kg
Max. tool weight with adjacent tools: 125 mm
max. tool diameter without adjacent tools: 250 mm
Tool system: HSK-A100/Capto C8



automatic handling of heavy internal machining tools. These innovative tool solutions enable users to maximise the machine's full performance potential.

Prismatic tool magazine

- Number of storage locations: 15
- Max. tool length: 2500 mm
- Max. tool weight: 200 kg
- Endless variety of technological applications (bottle boring tool, grinding attachment head, NC facing head, etc.)

Pick-up magazine

- Separate tool magazine above the headstock
- 3 magazine places
- Max. tool length: 1780 mm
- Max. tool weight: 200 kg

Technological superiority for the highest demands

Thanks to innovative **in-process measurements**, complex measuring tasks can be mastered with simple programming. This enables maximum manufacturing precision to also be achieved with the tightest dimensional and positional tolerances. Analyses can be carried out and measuring protocols can be created at any time.

Another key advantage can be found in regard to the **coolant pressure.** Thanks to targeted chip breakage optimisation and the use of high-pressure coolant (HPC) of up to 150 bar, the machining costs can be noticeably reduced. What's more, ultra-high pressure coolant (UHPC) ensures even greater efficiency, lower tool costs and improved process reliability during machining.

Workpiece transfer is also optimal with the M70-G MILLTURN counter spindle machine. The counter spindle with tailstock and synchronous spindle function combined with the powerful motor spindle and a drive ensure reliable machining processes and maximum machining performance.

Intelligent tool management makes operation even easier. It offers convenient software functions, straightforward and logical menu navigation along with automatic tool correctors, which are automatically converted by the control system and ensure efficient operation.

B-axis
Max. swivelling torque 40% (100%)
DC: 2500(1600) Nm

Indexed holding torque: 15000 Nm
Swivelling range: 220° (-110...+110)°

Counter spindle
Max. drive power 40% (100%) DC: 90(60) kW

Max. torque 40% (100%)
DC: 1800(3200) Nm
Max. speed: 1600 rpm

Oil mist extraction systems

Extraction volume: 2000 m³/h
(adjustable to customer requirements)

Chip conveyor

Compact and easy to maintain

Working area

Max. swing diameter 850 mm
Max workpiece weight 5000 kg

LED status light

LED light strip at the machine base displaying the machine status

LINZ OVER THE YEARS

ANTIQUITY

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

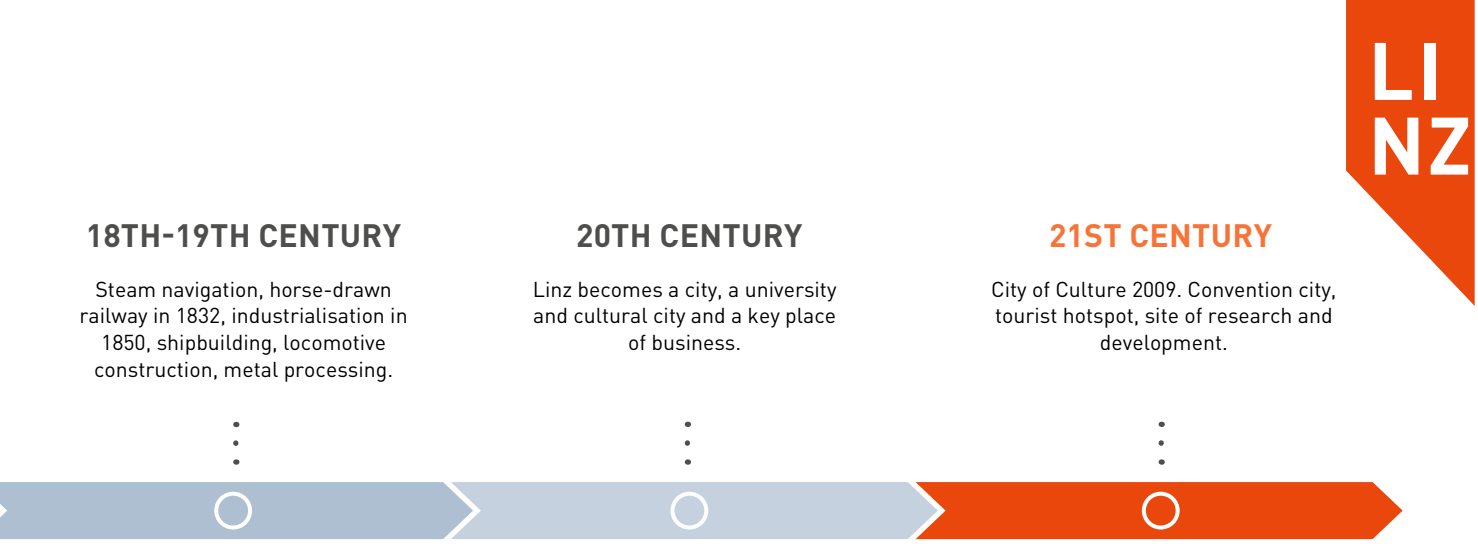
MIDDLE AGES

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 'Woll-zeugfabrik' (wool factory), Austria's first textile factory.

THE KLANGWOLKE FESTIVAL IN SEPTEMBER:
a spectacular multimedia open-air event with music, light, drones and projections.



Linz in the 21st century: a changing economy, culture and quality of life

Linz, the provincial capital of Upper Austria, has branched out from its industrial roots as it enters the 21st century. It has evolved from a classic industrial city to a modern centre for culture, technology and urban quality of life. The increasing significance of Linz as a city of culture has been underlined by initiatives such as the new Lentos Art Museum and the Musiktheater, while existing cultural institutions like the Castle Museum or the Ars Electronica Center have been expanded. The Wissensturm adult education centre and public library has also undergone a thorough redesign.

THE DESIGN CENTER
A perfect location for events.

THE BRUCKNERHAUS
A concert hall and exhibition venue.

Linz named European Capital of Culture
Linz was the European Capital of Culture for 2009 – a milestone which highlighted the city's cultural transformation. It was only the second Austrian city to be awarded this title after Graz in 2003. In 2024, Bad Ischl and the Salzkammergut region became the third to hold the title. Numerous overnight stays and visitors shaped the Capital of Culture Linz in 2009 and press coverage was overwhelmingly positive, not just in the domestic media but internationally too. This success was made possible by the close collaboration across all areas of city life, from culture, tourism and gastronomy to administration, politics and business.
In 2014, Linz was awarded the title of "UNESCO – City of Media Arts". The city thereby became part of the UNESCO Creative Cities Network (UCCN) which aims to strengthen cooperation among metropolises and cities around the world. Culture, digitalisation, creativity and innovation are all at home in Linz.

Today, Linz is known in the cultural sector for the Ars Electronica Center – the "museum of the future" and an acclaimed centre for digital art, media and technology. The Lentos Art Museum, the Posthof events venue and the Brucknerhaus concert hall are also cultural beacons, entertaining visitors with shows ranging from concerts to cabaret. The internationally recognised Brucknerfest at the Brucknerhaus is always a magnet for culture lovers. Another fixed point in the calendar is the Linzer Klangwolke (Cloud of Sound) on the Danube. This multimedia experience, which is staged with music, light, projections, lasers, fireworks, drones and a stage show, is enjoyed by thousands of visitors every September and admission is free.

Linz, a city for conventions
Numerous locations can be reached on foot within the central urban area. Lying on the banks of the mighty Danube, Linz is not only compact but also multifaceted and close to nature – just two of the many reasons why Linz has established itself as a centre for conventions.
Its location within Austria speaks for itself, with 90 % of the national population living within a 250 km radius of Linz.

The Design Centre Linz ranks as one of the most attractive venues in Europe and is ideal for conventions, B2B events and trade fairs. The architectural highlight of a light-flooded glass structure was built according to the plans of architect Professor Thomas Herzog. It is characterized by clarity and transparency, including the daylight atmosphere combined with state-of-the-art technology. A perfect location for all kinds of events, the Design Center spans three levels equipped with multifunctional spaces. A 10,000 m² space is available for up to 3,000 people.

The Brucknerhaus on the Danube also serves as a conference centre. It is perfect for concerts and festivals and the aforementioned annual Brucknerfest is the highlight. The concert hall and exhibition venue was named after the famous composer Anton Bruckner. Impressing with its outstanding acoustics and architecture, it was constructed according to plans by Finnish architects Kaija and Heikki Sirén. Numerous performances by internationally renowned orchestras, conductors and soloists are enjoyed at this venue.

Linz, a city of research
The Johannes Kepler University (JKU) often comes up when talking about Linz's research credentials. Academic research at the four faculties is broad-based and there are lively discussions with internationally renowned colleagues in the fields of science and business. This is thanks to collaborations with some of the world's best universities and with numerous companies of all sizes at a regional, national and international level.

The Center for Medical Research is a central service at the Faculty of Medicine, providing scientists at the JKU with ideal conditions to conduct biomedical laboratory research. Thanks to the high quality of the scientific projects, external parties also carry out outstanding research at the faculty in Linz. The aim is to not only support the process of building new expertise in the field of biomedicine, but also to develop new, innovative approaches in prevention and treatment to benefit mankind and simultaneously support the education of junior researchers. Approximately 1,500 m² of labora-

THE MARIENDOM ‹ NEW CATHEDRAL IN LINZ

tory space is available for medical research as well as numerous research groups and fields of research such as artificial retinal implants, injections to prevent heart attacks, and much more.

The School of Medical Engineering and Applied Social Sciences at the Linz campus of the University of Applied Sciences Upper Austria ("Research Center Linz") is another noteworthy institution in this field. It puts people at the centre of research and development work, with a focus on "Designing future working and living environments".
The research concentrates on applied technologies as well as methods and procedures that improve people's lives and support their work.

Furthermore, an economic and research strategy called #upperVISION2030 has been developed for Upper Austria for the period of 2020 to 2030, to ensure the long-term sustainability of Upper Austria as a business, industrial and research location and to remain competitive on the global market. The key technologies and core competencies of the Upper Austrian economy (such as materials technology or mechatronics) and highly trained people form the basis for this. The goal here is to not only boost the competitiveness of Upper Austrian research institutes and companies, but also to create modern jobs in Upper Austria.

Linz – a characterful city that is looking to the future
Linz shows that change represents an opportunity. This city has managed to combine its industry with an open, creative and innovative environment. Whether as a centre for technology, a centre of commerce and industry, a cultural destination or a city for conferences, Linz is now a multifaceted, dynamic and forward-looking location.
A combination of digital innovation, artistic diversity, quality of life and an international outlook make Linz a lively city that is open and attractive to all, whether professionally or personally.

EDITOR'S TIPS

Although the **Linzer Mariendom** is not the tallest, it is the biggest cathedral church in Austria and is also known as the "New Cathedral". This architectural masterpiece with beautiful glass windows and a fascinating sacred space has capacity for 20,000 people and was finished in 1924. It can be found on Herrenstraße.

Taking a tour of the tower rewards you with breathtaking views across Linz. Special tours are also available of the church's beautiful interior in the accessible inner gallery. At 15 meters above the ground, it is the perfect vantage point to take in the building's splendour. Several events take place in the Mariendom and the Domplatz square in front of the cathedral.

Europe's biggest graffiti and mural art gallery can be found in Linz's harbour. It is also known as **"Mural Harbor", the harbour gallery.** Over 300 pieces of graffiti, created by artists from around 30 nations, can decorate the facades of the old industrial facilities and building walls. Where there was once just grey buildings, the harbour is now a lively place for street art. Guided tours led by professional guides are offered on foot or by boat and visitors even have the opportunity to pick up a spray can and leave their mark in the Linz commercial port too.

To find out more, visit:
www.linztourismus.at

BWXT now uses six M65 machines and one M35, each with different bed lengths and equipment.

Multitasking technology reduces set-up times in production

By using milling-turning units from WFL, BWXT has been able to considerably reduce set-up times and boost the efficiency of its production processes while increasing process reliability with simulation software.

When manufacturing highly complex components, which can take several years to produce, process improvements are extremely important – both in terms of efficiency and quality. For BWX Technologies at their facility in Euclid, Ohio, this was a good reason to invest in multitasking machines in order to exploit potential for optimization. Thanks to the WFL MILLTURN machines, not only have they reduced set-up times, they have also improved their programming and inspection processes.

Precision for the most exacting requirements

BWXT supplies customers in industries such as nuclear, defence and aerospace. Production at the Euclid facility focuses on electromechanical components for the US Navy's carriers and submarines – highly complex parts which subsequently undergo further processing at other sites to create large assemblies. Failures are not tolerated in this environment. The components must function reliably for decades, adhere to tolerance limits of up to ± 0.00025 mm and be manufactured from materials such as Inconel, hardened steel or special stainless steels.

The component sizes vary from smaller formats to workpieces measuring three meters in length and 60 cm in diameter. Up to 15 welding operations are often necessary, and an assembly can consist of over 70 individual parts. Due to small batch sizes (between 10 and 50 pieces), fully automated production is not economically viable. Instead, BWXT relies on a wide range of CNC-controlled machining centres—particularly MILLTURNs from WFL. These enable largely automated, process-reliable machining within the machine (close-door machining) and thus make an important contribution to efficiency and quality in production.

Strategic investment in WFL machines

In 2014, BWXT commissioned its first MILLTURN – an M65 with a 4.5-meter bed length. The aim was to reduce the number of changeovers required for complex machining sequences, as each of these steps is not only time-consuming but also a potential source of errors. In some cases, up to three shifts were required for setup.

The combination of turning and milling in a single machine promised not only greater process reliability but also sig-

nificantly shorter throughput times. With the use of MILLTURN machines from WFL, setup times were reduced considerably and manufacturing processes were made significantly more efficient. In addition, the simulation software contributed significantly to increasing process reliability.

In fact, for certain components, the number of work steps was reduced from over ten to just three to five—with a productivity increase of 200 to 300 percent. The integrated turning and milling functions achieve performance values that can compete with conventional single machines and also open up new possibilities in the selection of tools and clamping devices.

Machinery fleet systematically expanded

Based on the positive experience, additional machines were purchased. BWXT now uses six M65 machines and one M35, each with different bed lengths and equipment. It is noteworthy that one of the M65 MILLTURNs has nine mounts for prismatic tools, while most only have two. However, all machines have 90 slots in the tool magazine, which represents a significant increase in capacity compared to the machines used previously and allows for redundant tooling.

The simple conversion of the machines also allows flexible machining of small quantities without any loss of productivity or throughput. This enables, for example, the production of internal and external gear teeth on the M35 thanks to various milling cycles – a machining step that could previously only be carried out manually. BWXT is underlining its decision in favor of a MILLTURN with a further expansion. This time, it will be an M50 MILLTURN.

Process reliability through simulation

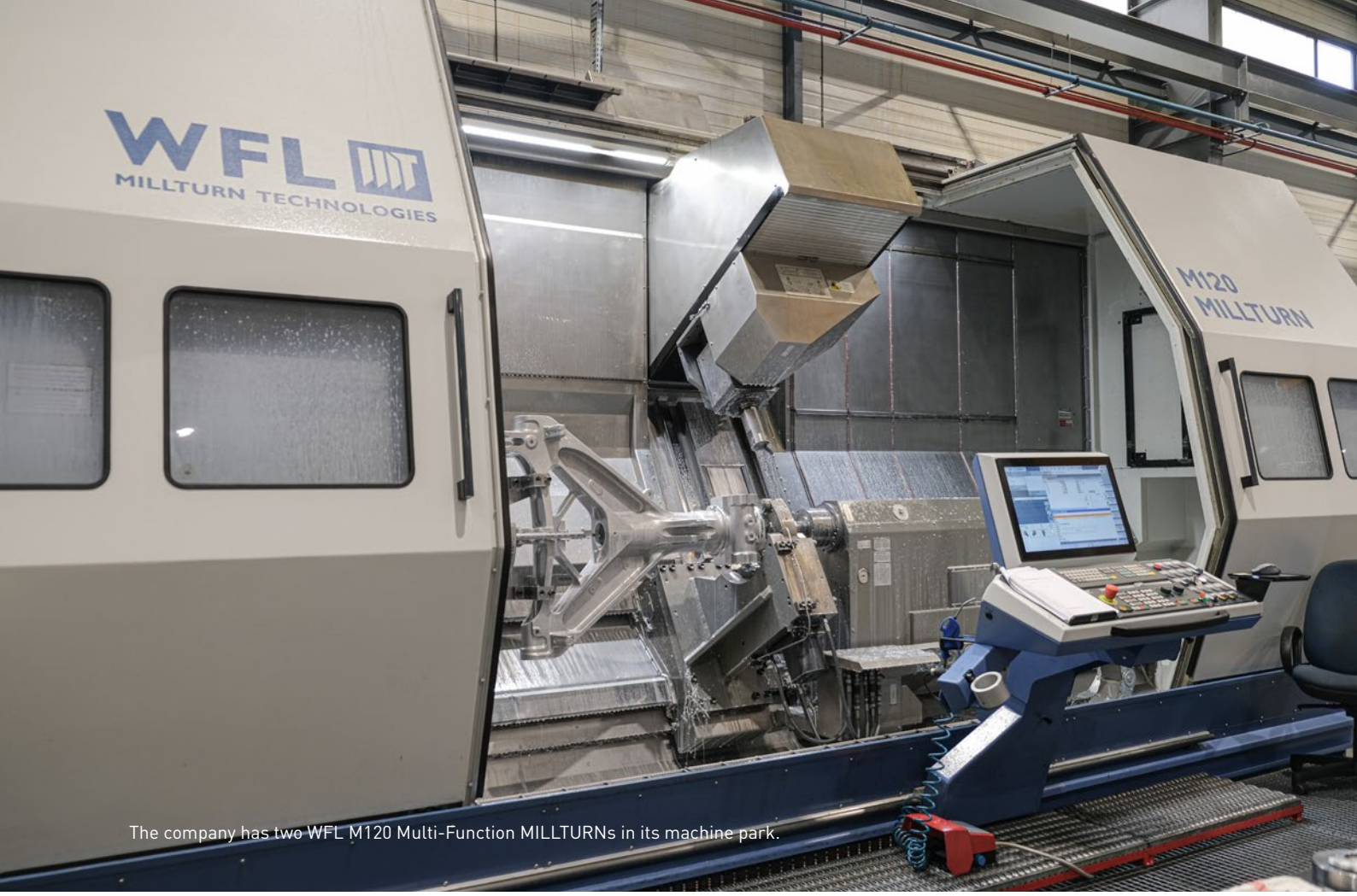
However, all these enhancements are irrelevant if the individual components are faulty. For this reason, BWXT attaches particular importance to the CrashGuard software that the company has purchased for the WFL machines.

ALL EYES ON

Aequs Aerospace France:

Innovation driving industrial excellence

Based in Cholet (France), Aequs Aerospace is a key player in the machining of complex parts for the aerospace industry. With a 65-strong team and experience spanning decades, the company epitomises industrial excellence. This success is down to a winning combination of highly qualified employees on the one hand and cutting-edge technology on the other. Taking the starring role are two WFL M120 MILLTURNs that have provided unparalleled performance in precision engineering over many years.



The company has two WFL M120 Multi-Function MILLTURNs in its machine park.

A story of partnership and technology

Aequs Aerospace France has been known by its new name – derived from the Latin "aequus" (meaning equal) – since 2016. The choice of name reflects the company's philosophy that has a particular emphasis on equality and partnership with all its stakeholders, whether they be employees, customers, partners or suppliers. This collaborative approach is also evidenced by Aequs's commitment to creating enduring value through innovative and efficient global ecosystems.

The Cholet site, the group's centre of excellence for the manufacture of engine parts and landing gear, enjoys a unique synergy between tradition and modernity. Aequs combines proven expertise with cutting-edge technology to meet the growing demands of the aerospace sector. Their approach is perfectly exemplified by the choice of WFL, specifically the M120, for their machining needs.

The WFL machines: a huge asset for Aequs

For Aequs, having the right equipment is key. The company has two WFL M120 MILLTURNs in its machine park, capable of performing turning and milling operations on large parts with exceptional precision. These machines are central to production at the Cholet plant and play a crucial role in manufacturing critical aerospace components, such as engine parts and landing gear.

Laurent Gouin, HSE Technical Manager and a prominent figure at the company, was there when the machines first joined the production line at the plant, and saw first-hand the difference they made. Gouin, who has been with Aequs for more than 30 years, received training in Linz (Austria) when the first M120 was acquired in 2000, and similarly on acquisition of the second machine in 2004. In his words: "We heard about these machines through our customers and, having done so, were left in no doubt of the need to invest in equipment capable of performing complex operations on large parts. The same machine now allows us to carry out a whole range of different operations. Looking back over our experience, I can affirm that these machines are absolutely central to our production process."

The M120 from WFL is more than just a machine; it's a strategic tool that enables Aequs to remain competitive on the global market. Thanks to its versatility the M120 can take demanding specifications in its stride, while also boasting an impressively long service life. "We have been using our machines for 24 years, and they still run like new. We are hugely impressed by their quality and how tough they are", adds Gouin.

Successful upgrade process

Aequs took the decision to upgrade its machine park in 2024. One of the two M120s was replaced with a recon-

The machine has been impressing Aequs with its quality and toughness for 24 years.

ditioned model, a complex operation that was more than a year in the planning. Frédérique Baudin, Production and Maintenance Manager, explains the challenges surrounding this ambitious project: "The main objective was to ensure the continuity of deliveries to our customers. For this to happen, we had to plan around production needs, adhere to a tight schedule, and ensure a smooth transition between the old and new M120."

The refurbishment process was planned and organised down to the last detail. WFL technicians delivered and installed the new reconditioned machine over a single day. On the same day, they took away the old M120, which had been bought back by WFL and was due to be refurbished in Austria for another customer. "The plan ran like clockwork. We scheduled a production stop of three weeks during the end-of-year holidays to minimize the impact on our operations. This meticulous planning was essential for the success of the switchover", believes Baudin.

The success of the project was also down to the part played by the maintenance teams and operators. Noël Bellanger, operator and fitter, was among those responsible for bedding in the new machine. "The main difference lies in the numerical control system, which has been completely redesigned and updated. However, the short training session we received allowed us to get up and running again without any delays in production and without any downtime", he explains. The new machine engenders confidence among operators who appreciate working with a tool that is both modern and reliable.
Claude Octave, Team Leader Maintenance, expresses his enthusiasm: "The process of integrating the new machine into production ran perfectly and went without a hitch. The seamless switchover, meticulous planning and coordination with the WFL team meant no production time was lost. Technical support from the team and their willingness to listen to us was crucial in ensuring the success of this operation. Now we have seen this process run so successfully, we have no reservations about replacing the second M120, which has now been in operation for 24 years."

Commitment to sustainable industry
Innovation at Aequs is not just about equipment; it extends to a vision for sustainable industry. The Group is seeking to be carbon neutral in electricity consumption by 2025 thanks to investment in renewable energy, including the installation of solar panels at its sites in India.

The company is based in Cholet (France).

Alongside this commitment, the company is pursuing a strategy of insourcing more processes in order to reduce transport operations and therefore minimize environmental impacts. Projects are in hand to bring production stages that were previously outsourced, such as the surface treatment of parts, back in house. This would allow the company to reduce transport operations while also boosting internal expertise.

A new approach to safeguard unique expertise

Olivier de Rohan Chabot has led operations at the Aequs Aerospace France Cholet site since January 2022, with the aim of improving the work environment and injecting new momentum into the group's innovation centre. Under his leadership, the company is supported by a highly skilled team that continues to develop its competencies while strengthening its strategic role within the group.

The technical parts produced in Cholet, which account for around 10% of global turnover, illustrate the importance of the site to Aequs's business. To meet the challenges of today's aerospace industry, which is undergoing significant upheaval, the company relies on continuous innovation and adaptation to the new realities of the post-pandemic market.

A future marked by growth and innovation

Aequs Aerospace France is gearing up to meet the challenges of an expanding aerospace sector, with demand growing by more than 30% year on year. To remain competitive, the company is upgrading its production facilities and pursuing a sustainable strategy in order to ensure its capacity to meet the future needs of the industry. "That's why we took the decision to upgrade one of the M120s – to enable us to increase capacity on this machine," explains de Rohan Chabot.

The Cholet site is central to this dynamic, and continues to play a crucial role thanks to a combination of cutting-edge technology and proven expertise. Aequs is a model for how tradition and innovation can coexist harmoniously and help maintain a leading position in a demanding market. The WFL machines, critical to their success, will continue to be at the heart of this quest for excellence. With a clear vision and ambitious goals, Aequs is well placed to drive innovation and grow sustainably in the coming years.

The storage tower:

for space-saving intermediate storage with added value

Not only do clean, tidy production halls look modern, they also increase motivation and create an environment where people enjoy working. This insight has become widely accepted, but there are still some places where it is yet to be applied. The WFL storage tower represents a huge step forward for one such area in the production process.

In addition to clearing away the raw material and finished parts to free up valuable production space, it can also provide sufficient storage capacity for long unmanned production phases when combined with WFL automation.

Although the components are physically relocated, transparency is maintained by intelligent cell management. This cannot be achieved by conventional means and in some cases extends far beyond what is usually possible. Thanks to interfaces to the ODA and customer's ERP systems, the stock and order overview can be integrated into the entire higher-level production planning system and not just the cell itself.
WFL automation cells can be equipped with numerous innovative features, meaning they are not limited to large-series production and can also be used to produce small series and single parts economically, automatically and highly efficiently in unmanned shifts.
Universal pallets or bin picking solutions significantly reduce the tooling times and play a key role in increasing efficiency and lowering costs.
Jaw/collet changing systems and changing systems for gripper and gripper fingers allow for self-equipping systems to be set up.

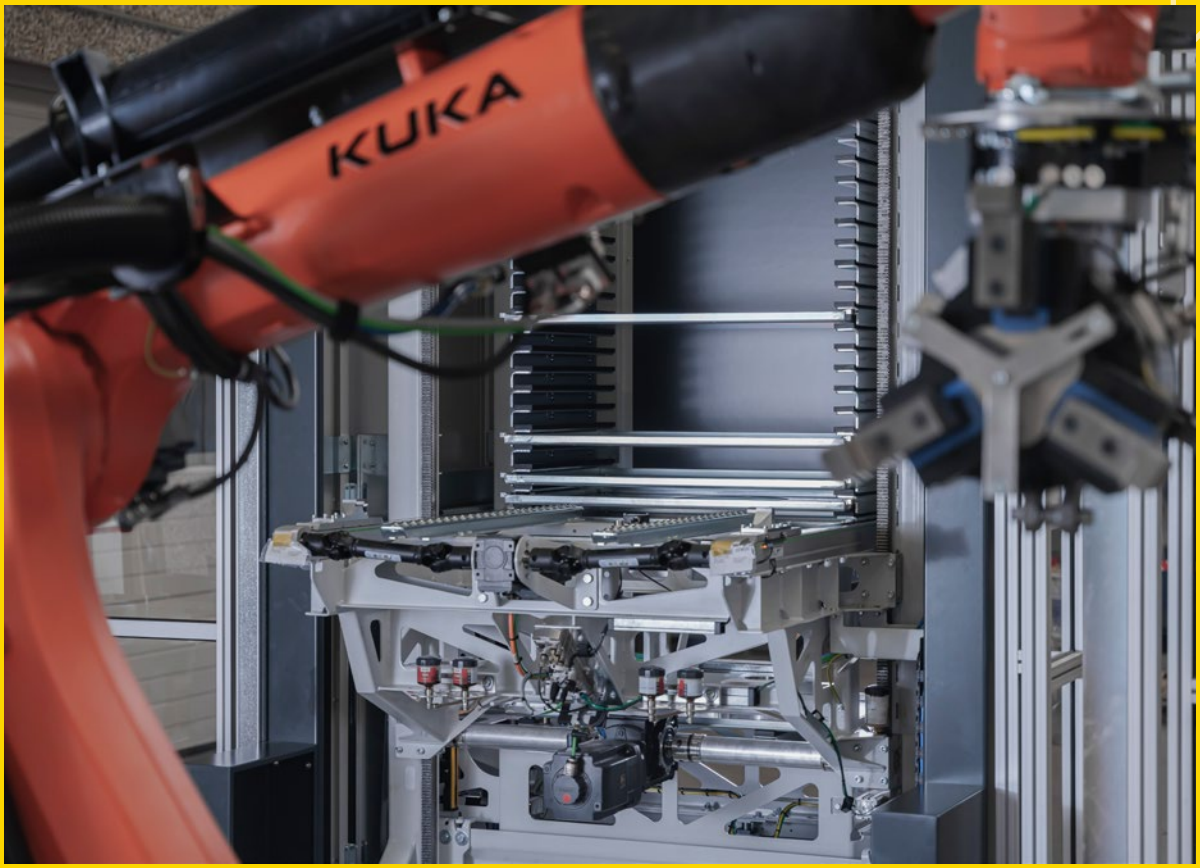
As the interchangeable parts can also be stored away again in the storage system and the software manages the resources, this results in highly flexible production cells.
Operators are well supported with a user-friendly, intuitive user interface along with a continuously available system status display. This enables precise, real-time range analysis incorporating all relevant variables: the current stock of raw materials, the release status, the production orders, the availability of necessary clamping devices and interchangeable parts as well as the remaining tool life.

But it's not the end of the story for the cell itself!
Not only does the system feature software interfaces, it is also increasingly being combined with AGV connections to suit customer requirements.

As we will be showcasing a storage tower at the EMO, you will have the opportunity to combine a viewing with a personal consultation, where we can discuss your specific situation in order to produce the perfect production system for you!

We look forward to seeing you there!
Hall: 13 | Booth: A50

Storage towers come in a range of heights to suit different requirements.



Not only does the system feature software interfaces, it is also increasingly being combined with AGV connections to suit customer requirements.

ALL EYES ON

A trip to Senegal

TOOLS FOR LIFE have been working tirelessly since 2008. The TOOLS FOR LIFE foundation, which was established in 2008 by Dr Helmut Rothenberger, aims to give people in every corner of the world access to the essential resources needed to live a healthy life. In 2025, TOOLS FOR LIFE CEO Dr. Sandra Rothenberger visited several projects in Senegal with a delegation. One of these was "Plastic Revive for Life", a project close to her heart. She visited an entrepreneur who empties the "plastic-eating fish" and uses the plastic to make hoses for drip irrigation systems.

Dr Sandra Rothenberger finds her foundation work an enjoyable and fulfilling task.

The aim of this project is to give plastic a new lease of life and make it clear that plastic isn't waste, but a resource.

Plastic waste poses an acute challenge in developing countries, causing far-reaching problems for the environment and society. These regions often lack suitable infrastructure for the disposal and recycling of plastic waste. As a result, large quantities of plastic end up in public spaces or on unused land, causing ecological damage. Not only does uncontrolled disposal of plastic waste have a negative effect on biodiversity and ecosystems, it also poses a risk to the health of the population. The fight against plastic waste in developing countries therefore requires international support as well as local waste management initiatives, in order to implement sustainable solutions and minimise the effects on people and the environment.

Giving plastic a lease of new life

The "plastic-eating fish" are metal structures in the shape of a fish made by a local metalworker, designed to encourage pupils in the region of Thíes and beyond to collect plastic waste. They are set up in schools in the region of Thíes and beyond by TOOLS FOR LIFE and their partners.

The first "plastic-eating fish" can be found in the schoolyard of the Ngollar secondary school. The pupils there are actively collecting plastic waste in the schoolyard and even bring rubbish from the street and from home. Karou, a passionate entrepreneur, collects the plastic and pays the school a fixed price per kilogram. The collected plastic is used as a base material for the manufacture of recyclate, which in turn is used to produce hoses for drip irrigation. These hoses are used by local farmers so that they can also grow vegetables in the dry season with little evaporation loss and make some additional income.

At the Ngollar secondary school, the "plastic-eating fish" are emptied every two to three weeks. The collected waste weighs around 75 kilograms and is bought by the entrepreneur for 50 CEFA (approx. 7.5 euro cents) per kilogram. It can be used to make approx. 400 meters of hose. The money raised goes directly to the school, so they can buy new school books or chalk. The headmaster is currently planning to build a football goal with the proceeds.

To find out more about how the plastic is processed, the CEO of TOOLS FOR LIFE Dr Sandra Rothenberger and her delegation visited the school and Karou's company, along with some of the school's pupils.
This cycle shows how local initiatives and educational institutions, such as the secondary school in the village of Ngollar, can work together to reduce plastic waste and create sustainable solutions for reusing the material.

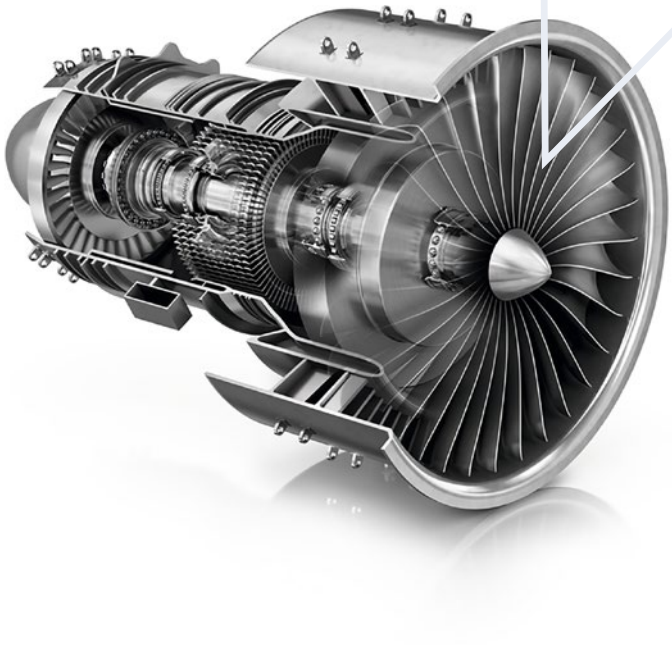
Dr Rothenberger with entrepreneur Karou, who uses the plastic to produce hoses for drip irrigation of fields.

Pupils collect plastic in these metal containers called "plastic-eating fish".

Helping to connect

TOOLS FOR LIFE donation account
Bank: HypoVereinsbank UniCredit Bank AG
IBAN: DE35 5032 0191 0032 0671 58
SWIFT: HYVEDEMM430

Scan for more information about the "Tools for Life Foundation"



Schaeffler Aerospace:

Precision, integration and innovative strength – complete machining with WFL MILLTURN for the most stringent requirements in the aerospace industry

Schaeffler Aerospace Germany GmbH & Co. KG based in Schweinfurt is a subsidiary of Schaeffler Technologies AG & Co. KG. With around 600 employees, the company is a leading developer and manufacturer of high-precision roller bearing systems for the aerospace industry. In addition to manufacturing, the company specialises in developing, designing and rigorous testing complex bearing systems, each one tailored to the unique demands of its intended application. As well as producing new items, Schaeffler Aerospace also offers a comprehensive MRO programme to sustainably recondition bearings and thus ensure long-term supply reliability. To master all these requirements with precision, the company has purchased a total of six WFL MILLTURNs in recent years. The latest addition is an M50 MILLTURN with automation cell.

The main shaft of the Rolls-Royce Trent 900 engine with a total of 8 roller bearing positions. Manufactured on MILLTURN machines
Participants: from left to right: Andreas Lehner, Michael Koberstein (Turning-Milling Trainer), Thomas Memmel (Technology Development), Valeri Chevalier (Plant Manager), Markus Hein (Shopfloor Turning-Milling Technology)

Roller bearings used in the aerospace sector must be able to withstand extreme temperatures, challenging load profiles and high speeds. The industry also requires over 70 years of traceability and documentation with the highest levels of component quality and reliability. What's more, production of the bearings must be guaranteed over the entire usage cycle spanning several decades.

At Schaeffler Aerospace, 75% of bearing components are used in engines for passenger and military aircraft and 25% are used in helicopters and aerospace applications. The materials used, such as Inconel 718, case-hardened steel M50Nil or Cronidur 30, are extremely tough and difficult to machine. At the same time, the tightest of tolerances must be met during machining and thin-walled geometries created without causing any microstructural damage.

Efficiency through complete machining

Schaeffler Aerospace has been using WFL MILLTURN machines to meet these requirements since 2006. Prior to the purchase of these machines, many machining steps were carried out separately on classic 2-axis turning and 5-axis milling machines. Thanks to the MILLTURN, the company was able to achieve process-integrated complete machining for the first time. Machining steps such as turning, milling, drilling or measuring are now carried out on a single system, which reduces set-up times, prevents reclamping errors and improves the machining quality. In the case of average batch sizes between 15 and 50 pieces, the number of set-up processes plays a decisive role. "One of the particular advantages of the MILLTURN machines is the integrated B-axis. Thanks to swivelling tool positioning, complex component geometries can be created with a small number of tools in just one clamping operation," explains Thomas Memmel, Head of Technology Development at Schaeffler Aerospace.

Despite occasionally longer overall cycle times, combining the machining operations is economically advantageous, especially in regard to autonomous shifts or multiple machine operation.

The MILLTURN machines also offer convenient CNC programming and are perfectly integrated in CAM environments, which means that machining strategies can be implemented efficiently alongside rapid adjustments and optimum planning of the machining steps. At Schaeffler Aerospace, this has reduced the programming time and maximised process stability, even for small batch sizes and variable geometries.

The decision to work with WFL was mainly due to the machines' characteristic properties of maximum rigidity thanks to the slant bed design as well as a B-axis mounted on a double-bearing. As a result of the many years of positive experience with this machine concept and the highly skilled service team, Schaeffler Aerospace has been using WFL machines for almost two decades now.

Another key factor is WFL's range of complete solutions.

The M50 MILLTURN with automation cell is the latest addition at Schaeffler Aerospace.

"It's a huge advantage for us to be able to procure the machine and automation technology from a single supplier," says Thomas Memmel.

Fields of application

The finished bearings can be found in modern Rolls-Royce aircraft engines such as the Trent 1000, Trent XWB or Pearl 10X models used in the 787 Dreamliner and A350 airliners or business jets. Components from Schaeffler Aerospace are also installed in engines for the new A320neo and 737MAX short and medium-haul planes. These engine programmes are of central importance to the aviation industry.

Helicopter manufacturers also put their trust in bearing solutions from Schaeffler Aerospace. These bearings feature in gear units, transmission shafts and swashplates, where they ensure the ultimate in smooth running properties and reliability – even under changing loads and difficult climatic conditions.

Another outstanding area of application lies in aerospace. Schaeffler bearings are used, for example, in the turbopumps of the RS-25 engine – the high-performance engine used in the first stage of NASA's SLS (Space Launch System). These bearings must withstand incredible speeds and operate in unique environmental conditions.

The bearings are lubricated with liquid water and oxygen at operating temperatures below -200°C: requirements that can only be met by absolutely reliable and precisely manufactured components.

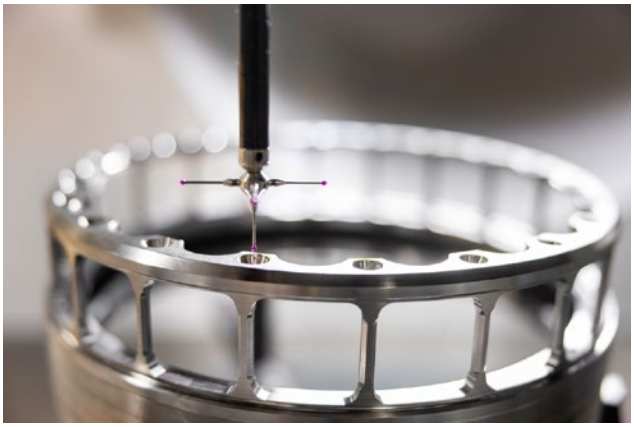
The process reliability is supported by state-of-the-art measurement technology within the M50 MILLTURN, such as integrated scanning measuring probes, which enable exact process monitoring during machining. The tolerances required are in the range of 20 µm for turning and up to 10 µm for milling – values which can only be achieved with consistent process control.

Digitalisation, automation and sustainability

Schaeffler Aerospace got on board with digitalisation at an early stage to make processes more efficient and to ensure the high level of traceability that is essential for the aviation sector. "We develop our own software applications to gradually move towards a paperless production model and to develop a more consistent process chain. This proactive approach shows that we anticipate and set trends rather than merely respond to them," explains Thomas Memmel.

When it comes to metal cutting, Schaeffler Aerospace relies on connectivity to drive process optimisation or extend service life using data. Particularly noteworthy is the

Technology developer Thomas Memmel and WFL sales representative Andreas Lehner at Schaeffler Aerospace



Outer ring of an engine bearing on a coordinate measuring machine (top)
Schaeffler Aerospace based in Schweinfurt, Bavaria (bottom)

company's focus on the quality of high-performance components, which is always the utmost priority. These measures demonstrate a deep understanding of the industry and a clear alignment with future-proof, high-quality and production-related processes.

The company is also making headway in regard to automation. Thanks to robot-assisted loading and a largely unmanned third shift – including at the weekend – the company is able to compensate for shortages in skilled workers and reduce costs. The challenge lies in the sensitivity and high quality of the components; loading errors must be reliably detected and prevented. This requires intelligent process monitoring using sophisticated sensor systems, which have been developed by WFL itself.

The rapid pace of technological development means Schaeffler Aerospace has to be clever about selecting and integrating megatrends. In the field of automation, it is clear that there are challenges in regard to small batch sizes and changing geometries. Nonetheless, the company places great value on programming systems quickly and minimising set-up times during type changeovers. Michael Both, Head of Industrial Engineering Aerospace, emphasises the decisive role of automated and complex solutions when it comes to ensuring a competitive edge in a high-wage economy such as Germany. Efficiency and precision are essential in the aerospace industry, which is why advanced technology is used to reduce errors and increase production quality.

As a leading motion technology company, Schaeffler regards sustainability as a holistic, overarching topic and assumes ecological and social responsibility throughout the entire value chain. In order to put its ambitious sustainability strategy into practice, the company relies on collaboration – with customers and suppliers, executives and staff as well as other stakeholders. Technology, innovation and the pioneering spirit that has shaped the Schaeffler Group for decades all play a key role here.

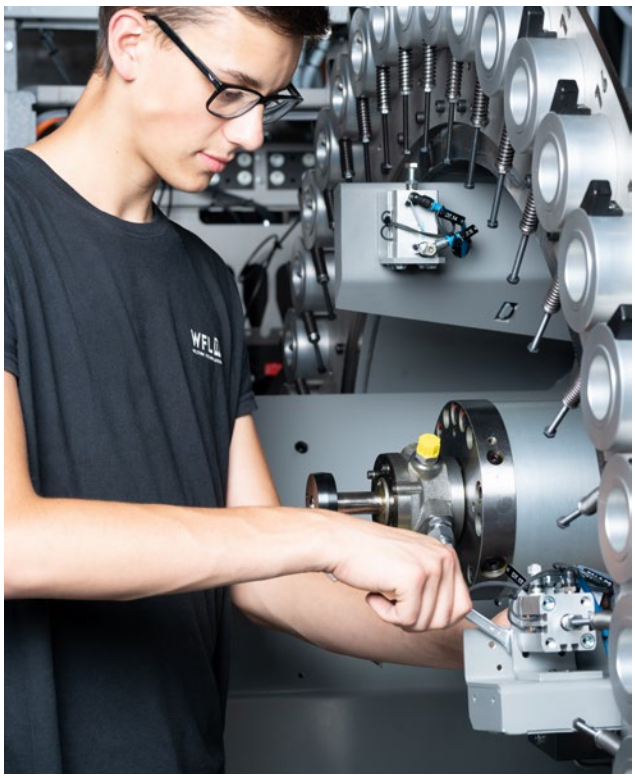
"Thanks to WFL's MILLTURN machines, we have been able to keep improving our processes for over 15 years and meet increasing customer requirements," emphasises Thomas Memmel.
The use of MILLTURN technology is a strategic key for Schaeffler Aerospace in meeting stringent quality requirements – both today and tomorrow. Combined with digitalisation, automation and sustainability, the company continues in its role as a reliable and innovative partner to the global aerospace industry.

The geometry toolbox.

You can rely on us anywhere in the world – regular checks for optimum service

WFL Maintenance & WFL-Health Check

At WFL, our commitment to our customers doesn't end with the delivery of the machine. Our comprehensive service concept guarantees maximum machine availability, rapid assistance in times of need and the very best quality when it comes to spare parts and advice. With over 80 experienced employees at nine sites around the world, modern remote diagnostics, and over 24,000 original WFL spare parts in stock, we ensure your productivity – today and in the future. Place your trust in WFL's expertise, reliability and a service promise that delivers what it says. Regular checks and maintenance are extremely important in ensuring the longevity and operational safety of your WFL MILLTURN. Our committed customer service team provides our customers with reliable support across the entire life cycle of your machine.



»We keep your MILLTURN turning!«

You send your car in for a routine service every year to extend its life and avoid any costly, unexpected repair work. But when did you last subject your WFL MILLTURN to a health check or a service by a WFL customer service professional who knows your WFL MILLTURN inside out? Regular, preventative maintenance is a tool for controlling the operational safety, efficiency and durability of machine systems. WFL Customer Services have the perfect complete package for you if you want to ensure your production remains free from unwanted downtime and guarantee consistent quality for your workpieces.

The advantages of annual WFL basic maintenance are clear:

- Maximum operational safety achieved through function testing of all relevant machine components
- Active prevention of faults and production downtimes
- Increased efficiency through longer service life
- Maintenance can be scheduled with 100% certainty
- Your WFL MILLTURN maintains its value
- Longer service life
- Reduced maintenance expenses and lower labour costs
- Optimum collaboration with regular and specialist support from WFL
- Preventive measure assessment through continuous maintenance
- Lower repair costs thanks to preventative maintenance assessment
- Comprehensive machine check including replacement of wear parts
- Transparent documentation of the machine status in a maintenance log
- Inspection of the machine geometry

The additional advantages of a basic maintenance agreement (annual maintenance with a minimum term of three years with fixed conditions) are:

- Free remote diagnostics for the duration of the maintenance agreement
- Maintenance can be planned with even greater precision

Get the best out of your MILLTURN with our Health Check
With the Health Check, our experts take a close look at the entire system. The focus is on checking the general condition of the machine and giving you an overview of which repairs and maintenance measures are needed. These may be short-term, medium-term or long-term measures.

You can use the Health Check log to help decide which measures to carry out on your own MILLTURN.

If you have any questions about WFL basic maintenance or our Health Check for your MILLTURN, please contact us at **hotline@wfl.at**

UNLOCKING THE POWER OF KNOWLEDGE: In-depth technological training

Two technicians, one goal, ...

A high-tech WFL machine on its own is not enough to unlock success. To really maximise its performance on a day-to-day basis, you need the right expertise too. And this is exactly where WFL's training department comes into play. In an interview with Complete, we shine the spotlight on two technicians, two perspectives and one powerful goal.
One covers the practical aspects directly at the machine, the other ensures that everything is right on the screen too – from the control system to the programming. Together, they create training sessions which aim to generate enthusiasm as well as teach. Stefan Diesenreither and Roland Aschauer make the perfect training duo who teach everything you need to know about the MILLTURN and how it is all connected. Customers realise right away that this isn't about simply passing on know-how, it's about understanding, trying things out and making progress. The two experts gave us an insight into their work, what motivates them and what really makes for good training nowadays.

General questions about the training department:

What makes the training department special?
Our training department boasts a highly qualified team with wide-ranging expertise and many years of experience. Each trainer brings specific expertise to the table and this allows us to respond to the needs of our customers with a customised and practical-oriented offering. This means we can ensure that users are optimally prepared for projects in the fields of programming, operation, metal cutting, maintenance and repair.

What does a typical customer training session look like?
We begin each training session by quickly welcoming the participants and holding a structured kick-off meeting in which we define the structure and objectives of the training together. We then get stuck straight into the actual training to make the most of the time available and achieve the objectives we have set.

How do you ensure that your training sessions are suitable for both beginners and experienced customers?
Our training sessions are always tailored to suit the customer in question, based on their prior level of knowledge as well as the requirements and the objectives of their company. This tailor-made approach means that we are able to provide targeted support to both beginners and experienced users alike.

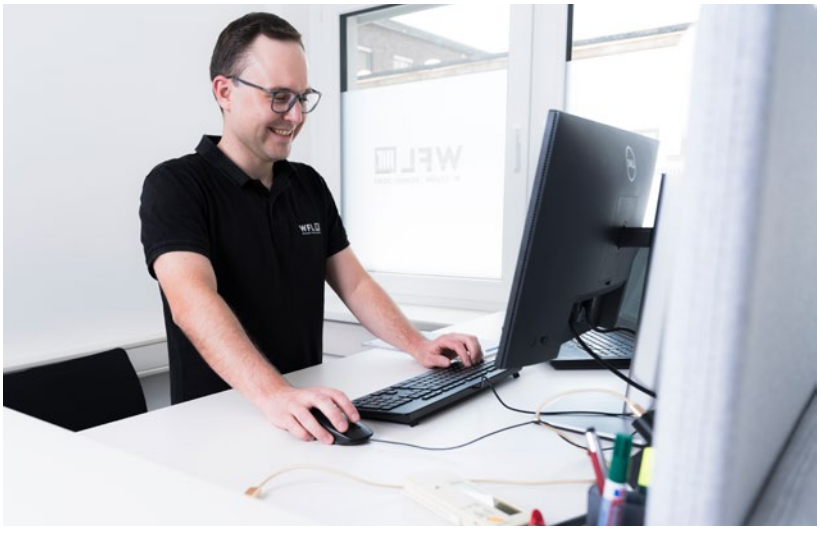
What kind of feedback do you typically receive from your customers?
Our customers really appreciate the practical, customised nature of the training content. The modern training centre, the high level of specialist expertise of our trainers, the quality of the machines and the WFL philosophy that we follow all result in positive feedback across the board.

How do you both approach working together as a team to produce optimum training sessions?
Interdisciplinary questions require close collaboration. So we support each other before and after training sessions as well as when we are developing documentation. This constant dialogue allows us to ensure that complex topics are presented in an easy-to-understand and practical manner.

What role does the interplay between theory and practice play in your training sessions?
A combination of theoretical knowledge and practical application is a key component of every training session. We work through theoretical concepts and possible solutions with the participants and then put them into practice on the machines themselves. The aim is to take what you have just learnt and apply it straight away to ensure maximum efficiency during operation.

Do you make changes to your training concepts regularly or develop them further?
Our training concepts are subject to a continuous improvement process. New technologies, industry-specific requirements or region-specific aspects are incorporated in an ongoing manner, so that our offering is always up to date and relevant in the real world.

What are your plans for the department going forwards?
Our aim is to continue to increase the added value of our training sessions with innovative methods and digital learning formats. At the same time, we want to make it even easier to access the world of WFL so that our customers can develop their skills in a sustainable manner.



Questions to Stefan Diesenreither (Trainer Maintenance & Service)

How do you prepare for and carry out a training session?
When we receive a request for a training session from a customer, the first thing we do is schedule a suitable date. Then we adapt the training content in line with the customer's machine, which essentially means focusing on the modules installed on the machine and preparing the training documents accordingly. This ensures that the customer receives customised training tailored to the needs of their team and requirements.

Once the customer arrives here, we evaluate what prior knowledge the team already has at the start of the session. We can then identify specific areas where there are gaps in their knowledge so that the training is as effective as possible. For new customers, we usually begin with the basics.

Mechanics:

- General machine documentation
- Machine geometry
- Mechanical components of the machine
- Checking and adjusting individual components
- Energy supply: hydraulics, pneumatics, etc.

Electrics:

- Wiring diagram
- Network topology
- Machine control: Sinumerik
- NC machine data
- Compensation functions
- Adjusting the tool changer systems

Which topics come up the most during training sessions?
Our customers' situations vary widely, depending on whether they are already using WFL machines or are a new customer.

Recurrent topics include:

- The different changer systems
- iControl
- Reference point relocation
- The complexity of our milling machines
- Adjusting and setting the machine components

It's very important to work together with the customer at the machine when covering these aspects, to ensure everything works correctly.

How do you choose the right machine for a training session?
Normally we use the same machine type as the customer has during the training session, so that we can train them directly on the machine in a practical and real-world environment. The customer also learns how to handle the machine in a specific working environment.

How do you handle questions during the training sessions?
Questions often come up during the training and we're happy to answer them. We explain the theoretical background and give specific recommendations as to how to best approach a problem. In this case, the aim is to show how a quick and effective repair can be carried out.

How do you handle different levels of knowledge in a training session?
During training, we always ensure that all participants have the same level of knowledge. Should a participant have less knowledge than the others, then we bring this person up to the required level, so that they can fully understand and follow the content.

Questions to Roland Aschauer (Trainer Programming)

Which software or control systems does the training focus on?
We focus on Siemens machine control systems in our training sessions as these are the only control systems used in our WFL machines. We also cover other control systems and draw specific comparisons to make it as easy as possible for our customers to get started.
In addition to the machine control systems, programming and simulation software also play an important role – especially CrashGuard Studio, which has been developed by WFL. Thanks to CrashGuard Studio and the digital twin of the customer's machine, theoretical solutions can be implemented and tested directly during the training session.

How do you teach complex content such as CNC programming or machine parameters in a way that's easy to understand?
CNC programming and metal cutting are very extensive and challenging topics. To teach these properly, the customer's participants need to have a certain amount of specialist knowledge and experience.
If they have this as a basis, then we begin by explaining the theory. Then we develop specific programming examples for a range of applications together with the customer. These examples facilitate understanding and often serve as a template for subsequent implementation of complex components.

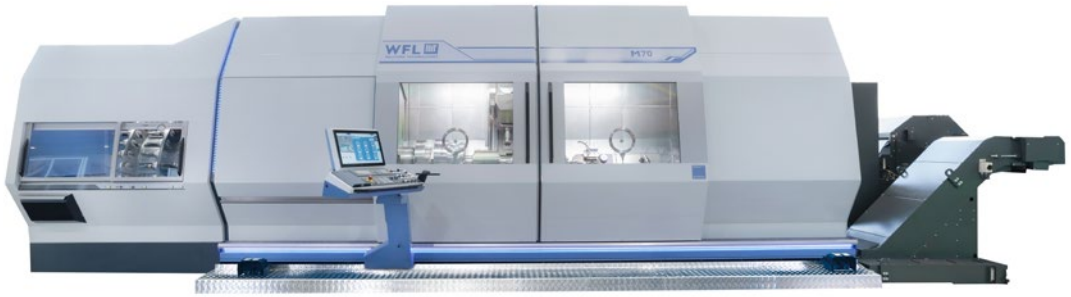
Do you use digital tools or simulations for support?
Yes, for programming and simulations we use CrashGuard Studio. With this software, we can implement theoretical concepts in a dedicated programming environment and then check them in the simulation.

How do you keep yourself up to date with the latest technological developments?
One of the main ways is through a regular exchange of information with colleagues. This keeps us up to date with new products, processes and potential solutions.
Thanks to the outstanding working environment at WFL, this dialogue takes place across departments as well as within them. When it comes to new developments, we test a lot directly on the machine itself so that we can give our customers sound, targeted and practical advice.

What challenges do you face when training customers with little IT experience?
Customers with little IT knowledge find programming modern machines particularly challenging, as programs today are created and checked on a PC and the machine control systems function like a computer.

A basic understanding of IT is therefore a prerequisite if you want to program successfully. It is difficult for participants who lack this knowledge to follow the training and carry out projects independently in the future.

Roland Aschauer (center) with his team Stella Blum and Christoph Mayrhofer.



The new M70 MILLTURN will be presented to the public for the first time at the EMO in Hanover.

EMO Hannover:

Launch of new products, innovations and fascinating talks on the WFL trade fair stand

It's that time of year again: from September 22 to 26, visitors to EMO Hannover will once again have the opportunity to learn about the latest trends at WFL in person, on more than 500 m² of exhibition space. In addition to the presentation of the newly developed M70 MILLTURN, visitors will get their first look at the automation solution with storage tower on the trusty M20 MILLTURN. Live machining demos will take place on workpieces using the two MILLLTURNs on display in the exhibition area. Not only that, fascinating talks on groundbreaking trends and developments in the industry await visitors to the WFL stand (A50) in Hall 13.

The M70 MILLTURN is a high-performance machining centre that complements the WFL portfolio of machines. It is ideal for machining situations that demand the highest standards of productivity and precision. The M70 MILLTURN impresses with a well-thought-out working area concept for machining lengths up to 8000 mm and a swing diameter of up to 850 mm. Thanks to the familiar comprehensive WFL modular system, it offers a huge range of options and can be tailored to individual customer requirements.

In addition, the new M70 MILLTURN provides optimum stability and geometry for maximum precision, reliable machining thanks to high pull-in forces at the tool interface, and a wide range of additional options for highly productive deep-hole drilling processes and special technologies. The MILLTURN is ideal for heavy-duty applications, allowing for workpieces with weights up to 5,000 kg to be machined.

The M70 MILLTURN features the familiar, reliable disc or chain magazine with up to 200 tool positions, tool weight of up to 35 kg, and maximum tool length 900 mm. In addition to automatic tool change, setup can also be carried out in parallel with machining. This allows the magazine to be loaded for different concurrent orders without any loss of time.

Two magazine types are also available for heavy-duty special tools weighing up to 200 kg per tool. A further feature can be found in the extremely reliable main and milling spindle drives. The M70 is a MILLTURN that provides for maximum precision and adaptability to customer requirements.

Storage tower: smart solution for when space is limited

Clean, well-planned production environments not only convey a modern image, they also help people work more efficiently and promote a working environment where staff are motivated to give of their best. This understanding has come to be accepted across the industry. Putting it into practice, however, is a different matter. The WFL storage tower is a real gift here, providing a distinct solution in one area of production.

It means raw materials and finished parts can be tidied away from valuable production space and, when used

The M70 MILLTURN impresses with a well-designed working area concept for machining lengths up to 8000 mm and a swing diameter of up to 850 mm.

The storage tower has a maximum height of 5,9 metern.

in combination with WFL automation, sufficient storage capacity can be provided for long unmanned production phases.

The vertically aligned storage system ensures the best use of space. With a modular design, the system can be flexibly adapted to varied requirements. Suitable for retrofitting, the storage tower is available in the basic height of 2.9 m, going up to 5.9 m, and offers individual equipment options.

Alongside the software interface, an increasingly popular option is for the system to be combined with an AGV connection, depending on customer requirements.

Join us on our stand at the EMO in Hanover where you can see our recently developed storage tower in action for yourself, as it automatically loads and unloads an M20 MILLTURN.

The M20 MILLTURN will appeal to users who need a compact, powerful turning-boring-milling centre. With the addition of two further centre distance versions (2000 mm or 3000 mm) the M20 MILLTURN is also available for longer shaft parts. The benefits can be seen in the outstanding stability and precision of the machine as well as in its extra powerful drives.
Visitors to the trade fair in Hanover will be able to watch a technically challenging chuck part for the aviation industry being machined live on a workpiece 150 mm in length and 300 mm in diameter.

Digitalisation
WFL will be showcasing the latest versions of its CrashGuard, CrashGuard Studio, Millturn PRO and ScrewCAM software products at EMO. These products are subject to ongoing, long-term development based on user feedback.

For complex and large workpieces, the available 3D geometry memory in the CrashGuard online collision prevention system has now been enhanced to cover up to 660,000 triangles. A new GUI framework in CrashGuard Studio offers improvements when working with high-resolution 4K screens. The new windows manager now allows you to split the user interface across several screens.

Millturn PRO now offers new functions for the grinding cycle package for the first time. The lower single tool carrier with the B2 axis in the M20 is also fully supported.

ScrewCAM is the WFL software for modelling and generating NC programs for complex plasticising screws and will also be available for demonstrations at EMO.

CrashGuard Studio and Millturn PRO have gained a broad user base since their introduction 15 years ago. In the interim, WFL has supplied more than 500 virtual machine models to end users worldwide, used as digital twins for programming and simulating the real machines.

The myWFL product range has also been expanded. The common basis of these products is local data capture and storage on the machine control system and processing of this data for the different data consumers. myWFL Cockpit is an operational data acquisition system that displays machine and program status information over time. It zones in on machine status information, program runs, machine productivity and technical availability. The data acquired is visualised either on the control system itself or via a web interface in the customer's network on the workstation computer or on a mobile device. myWFL Energy makes it easy for users to analyse and optimise energy consumption for workpiece production.

Join us on Booth A50 in Hall 13 for all this and more.

MIC - Millturn Innovation Center: Modernisation for customer engagement and market leadership

In a time of rapid technological developments and intense competitive dynamics, it is essential to constantly promote our spirit of innovation and pioneering role. The renovation of the WFL Millturn Innovation Center is a strategically important step in meeting the demands of our customers and strengthening our position on the market in the long term.

The fully equipped machines – an M35-G MILLTURN with automation, an M20-G MILLTURN, M50 MILLTURN and the M80X MILLTURN – form part of the new exhibition area at the Millturn Innovation Center Linz.

The exhibition area is complemented by around 30 different workpieces, ranging from landing gear to helicopter rotors, compressor rotors and turbine blades.

The new innovation centre is a clear commitment to a future-oriented, customer-friendly and market-leading corporate strategy. Together, we are shaping the future and setting new standards in the manufacturing industry. Come and see our Millturn Innovation Center for yourself and let's start a successful, dynamic partnership.

Save the Date

UPCOMING TRADE FAIRS

EMO Hanover
September 22–26
Hall 013, Stand A50

CMTS Toronto
September 29 to October 2

Aerospace Meetings Casablanca
September 30 to October 2

MSV Brno
October 7–10

K Düsseldorf
October 8–15

Siane Industries Toulouse
October 13–16

Motion + Power Technology Expo Detroit
October 21–23

Global Manufacturing Technology Show
Liverpool
November 19–20

Engimach India
December 3–7

Global presence enhanced – new branches in Italy and Canada

Our branches in Canada and Italy were founded over the last few months. Not only does this strategic development strengthen our global presence, it also underlines our clear commitment to customer proximity, excellent service and sustainable growth in key international markets.

These branches play a key role not only in machine sales but services too. The new sites mean we can work even more closely with our partners and customers – quickly, flexibly and coordinated locally. This is another key step on our path to becoming a global partner with local expertise.

WFL at EMO Hanover 2025 – precision meets planning

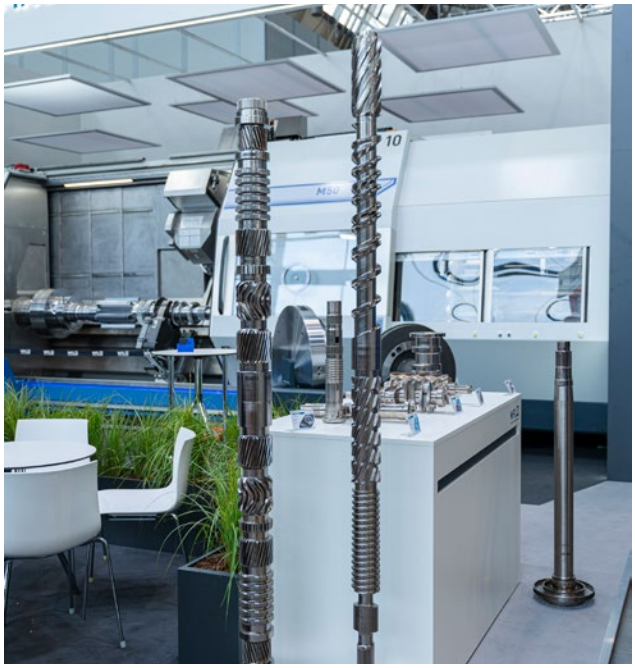
Right at the start of this year, WFL began its preparations for one of the trade fair highlights of the year: EMO Hanover 2025. Straight away the marketing team wanted to know which machines will be on display, and which automation solutions would be showcased.

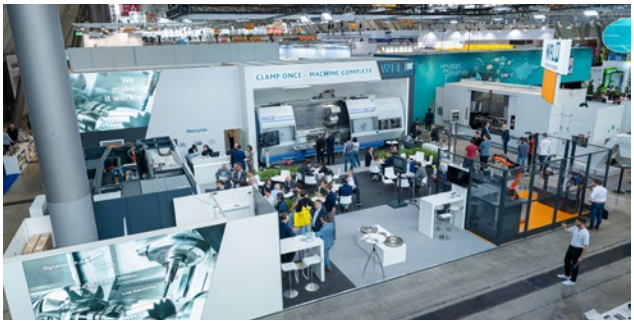
Once the scope has been defined, it's time for close coordination with the Engineering, Logistics Operations and Production departments. Transport routes are checked, the first hauliers are contacted and changes to the exhibition site are clarified.

In April, the machine numbers and equipment levels are determined. Crane parts, the hall and stand number, and organisational deadlines are set. A detailed schedule is drawn up, covering such aspects as when will the stand be constructed, which equipment will be needed, and whether stand assembly work can be started early.

The team begins to pack the machines around four weeks before dispatch. A special feature of this year is the storage tower that will be added to the M20-G MILLTURN at our site in St. Konrad prior to the trade fair. In addition to four trucks and an abnormal load from Linz, there will also be another abnormal load and two curtain-side trucks from St. Konrad making the journey.

By mid-October, all machines and components should return to Linz unscathed – a visible sign of the successful team effort behind a strong trade fair appearance.





Technology Meeting 2026

WFL Millturn Technologies invites you to the next Technology Meeting, taking place between May 5-7, 2026. The fair will take place inside the WFL production halls and will give visitors the opportunity to find out about all the trends and developments in the industry over three days on an area spanning over 4,000 square metres. At the same they will be able to get to know WFL, the leading supplier in the field of complete machining
WFL would like to offer its customers a fantastic supporting programme, so that they leave with pleasant memories not only of the exhibition, but also of their time spent here. Alongside the technological highlights of the fair, there will be excellent evening entertainment featuring some fine culinary delights. But we don't want to give away too much!

TECtalks

Technology worth spreading

by WFL Millturn Technologies

Coming soon:

TECtalks
Technology worth spreading
by WFL Millturn Technologies

M70 MILLTURN

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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