

# COMPLETE

Nr. 01/19

The complete machining magazine

PEOPLE | CORE-com-pe-tence | Who is Andreas Kern?

MACHINES | Robotic Solutions | All about the trendsetting high-tech solutions

COOPERATIONS | Innovation needs cooperation

All eyes on:  
**The  
MILLTURN  
Automation**

Take a step towards the automated innovations  
in complete machining and experience the  
digital future



# Hoamatland (Homeland)



Hoamatland, Hoamatland!

han di so gern

Wiar a Kinderl sein Muader,

A Händerl sein' Herrn.

Durih's Tal bin i glaffn,

Afn Hechl bin ih glegn

Und dein Sunn hat mi trückert,

Wann mih gnetzt hat dein Regn.

Dein Hitz is net z'grimmi,

Net z'groaß is dein Frost.

Ünser Traubn hoaßt Hopfn,

Ünsern Wein nennt ma Most.

Und ih und die Bachquelln

San Veder und Moahm.

Treibt's mih woderwill umher,

Mein Herz is dahoam.

Dahoam is dahoam,

Wannst net fort muaßt, so bleib;

Denn d'Hoamat is ehnter

Der zweit Muaderleib.

Homeland, homeland!

I love you so

like a child loves its mother

and a dog its master

I ran through the valley

lay down on the hill

and your sun dried me

when your rain wet me through.

Your heat is not too hot

your frost not too cold.

Our grapes are called hops

our wine we call Most.

And I and the headwaters

are uncle and aunt.

You can take me anywhere

my heart belongs here.

Home is home

If you don't need to leave then stay

as the homeland truly is

the second womb.



## Dear customers, dear readers

„Courage for something new“ is what characterizes the first issue of our customer magazine „COMPLETE - The complete machining magazine“ in 2019.

In September we presented the first issue of our customer magazine, COMPLETE. We are pleased to perpetuate this chapter and announce two editions of our magazine this year.

In 2019, we will be demonstrating our courage to innovate: various new technological topics and a realignment of our corporate strategy will accompany us this year.

Since the founding of WFL Millturn Technologies 25 years ago, we achieved many milestones and goals, largely thanks to the expertise and dedication of our employees. Our goal is to take WFL Millturn Technologies to a new level and extend our technology leadership. The corporate focus of our thoughts and

actions lies completely on the solution of the respective production task and thus the achievement of the customer satisfaction.

We celebrate the 25<sup>th</sup> anniversary of „WFL Millturn Technologies“ and 35 years of experience in complete machining this year. Therefore, our know-how in this area distinguishes us. We would like to share this with you - get an idea of our latest innovations in terms of automation, digitization and additive manufacturing.

„We are pleased to present you the second issue of“ COMPLETE - The complete machining magazine“ with exceptional company, machine and technology innovations!“

Your WFL management team

„The success depends  
on the courage“

Theodor Fontane



**Kenneth Sundberg**  
Managing Director After Market Sales

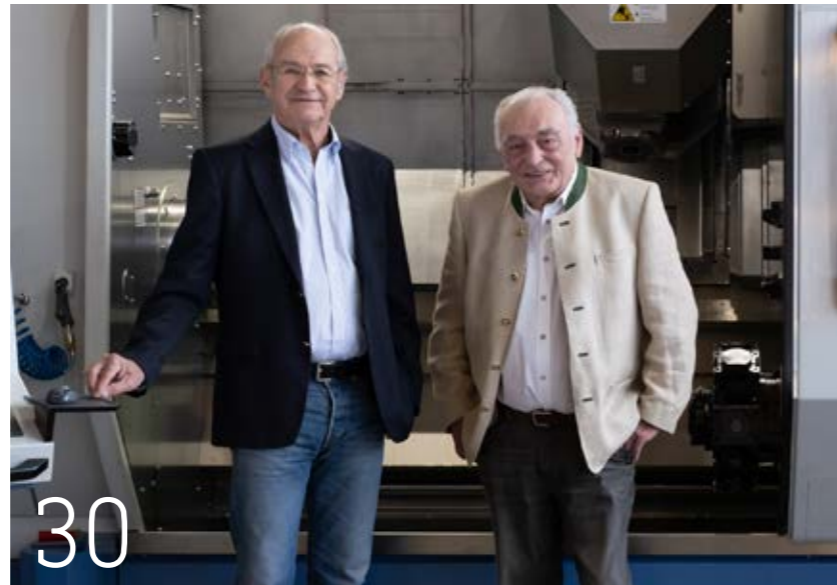
**Norbert Jungreithmayr**  
CEO

**Günther Mayr**  
Managing Director Sales and Technologies





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WFL branch in Diadema, Brasil: Ivan Prando

WFL Milestones



**1982**  
Development of the worlds' first complete machining center: MILLTURN WNC



**1993**  
Partial privatisation of VOEST Renaming to WFL Millturn Technologies GmbH & Co. KG



**2002**  
The new MILLTURN generation M40 and M40-G is presented and the first M120 delivered



**2008**  
Granting of a patent for the CrashGuard real-time collision prevention software



**2011**  
The largest WFL modular system, presented with the M80 MILLTURN



**2016**  
World premiere of the biggest MILLTURN up to date M120 & M40 Redesign Highlight: world record 18xD boring bar



**2018**  
Presentation of the new M50 MILLTURN. Take over of FRAI Elektromaschinenbau GmbH



**1992**  
Production of the first MILLTURN M-series (M30)



**1998**  
After presenting the M100, M60 and M120 also the M65 is introduced



**2005**  
The M30 is substituted by the M35 MILLTURN. Mag. Norbert Jungreithmayr was introduced as third managing director



**2009**  
EN ISO 9001: 2008 company certification



**2015**  
Hybrid manufacturing technologies integrated into a MILLTURN by WFL



**2017**  
Premiere of the new M30 MILLTURN Extension of the management board by Günther Mayr & Kenneth Sundberg





**A SPECIAL INSIGHT**

The place where a successful day ends with dirty hands and a smile on your face is the professional home of Andreas Kern. His work range extends from coordinating his strong team of foremen to providing the necessary materials for assembly.

# CORE-com-pe-tence

An important cog in the WFL machinery

Insights into all the goings-on at WFL Production. The place where machines first see the light of day is where Andreas Kern can be found, directing a key department – Mechanical Production – with meticulous accuracy, control and passion. We are dropping in on him today to chat about processes, teamwork, the future, his life outside work and the key details in complete machining.

Every single WFL machine begins its journey in an atmosphere where the air smells of iron, hands are dirty and a passion for fabrication abounds. Mechanical production is a playground for big boys whose job is to put precisely timed and minutely planned processes into action. Special machines require special measures that have to be stuck to religiously. It is essential to have a perfectly organised team standing by to play their part in these processes. Andreas Kern leads the WFL technicians and motivates them to give their best performance, so the right machines can be delivered to customers on time.

**Mr Kern**, the Head of Mechanical Production, has joined us to answer our questions right in the midst of the MILLTURN's production site.



**Mr Kern, what made you decide to work for WFL?**

Before I joined WFL, I was an apprentice machine fitter at Steyr-Werke. Nowadays, you'd call that a mechanical engineer. It was during a restructuring in the company that I took the opportunity to move to WFL.

**What were the most important cornerstones of your career?**

My father was a driving force in my career. He advised me to look beyond the limits of our town and start an apprenticeship at a bigger company. Like any parent, he only wanted the best for me. So I decided to

follow my father's advice, and that's how I came to be in Steyr. Initially, there would have been an apprenticeship available at VOEST too, but I decided to work for Steyr first of all. Why? It's highly likely I wouldn't be where I am today if I hadn't chosen the more difficult path beforehand.

**What is the most adventurous job you have ever had?**

I have worked in this industry my whole life, but nothing has ever ruffled my feathers yet. I really like this kind of work; even if we run into problems here and there, I always have my sights set on the solution and give my best. In terms of adventures in the job, I have had a few at WFL – usually on business trips in the most varied corners of the world.

*"My team and I are well tuned to each other."*





**ORGANISATIONAL TALENT**  
 Keeping and planning appointments as a new exciting challenge for Andreas Kern.



“We can count ourselves lucky to have such a smoothly functioning team right across WFL.”

**You are an important cog in the huge WFL machine. What is your workflow like – how exactly do you work?**

In my new role as master craftsman, I don't work as closely with my employees and colleagues as I did when I was a supervisor, unfortunately. Nevertheless, I help whenever a hand is needed. The flow of information is never interrupted thanks to my team of supervisors. Therefore we can meet deadline after deadline with mechanical lead times of between 30 and 60 days. We don't just focus on deadlines, but have to manage many different procedures too and work through them from early till late. And speaking of cogs – a big thank you to all of our departments. Our staff's outstanding teamwork,



**TEAMWORK**  
 Together mechanical challenges are solved with great success.

and the fact that it allows us to manage cross-departmental processes perfectly, means we can build around 60 machines per year.

**Where do you see yourself in 10 years?**

My passion is, and always has been, mechanical engineering. Because of that, I plan to stick with WFL for the next 10 years and complete my master craftsman training, and will try to keep finding a solution to every problem.

**How do you manage your work-life balance?**

For me, the only way to do it is to strictly separate work and leisure time. When I was working in a supervisor role, I

couldn't do that. However, I've now found the perfect balance and my team and I are well tuned to each other. Even if an operation can't be completed on a particular day, we always have an exact plan ready for the day after.

**How important is teamwork for you at WFL?**

Teamwork is one of the most important skills in working life. The focus should not just be on one department, but rather should always be on the whole – the bigger picture. Every working step affects every department and so teamwork is required of us all. We can count ourselves lucky to have such a smoothly functioning team right across WFL. If different wor-

king steps and processes are to be carried out in parallel, everything must run like clockwork.

**What makes you think “THAT is something I would love to do...” what's on your bucket list?**

Actually for me, there are really only two major things on my bucket list. The first is to stay healthy, and the second is to cross the Alps on my mountain bike. Fitness is paramount for crossing the Alps. So I need to get training so I can achieve my dream. And no – I won't be using an e-bike.

**When do you lose track of time at work?**

If I'm working on something challenging or complicated, I lose track of time. When



**PROFILE**

Name: Andreas Kern  
Age: 43  
Home town: Pregarten, Upper Austria  
Education/Career:  
1982–1986 Primary school  
1986–1990 Secondary school  
1990–1991 Polytechnic course  
1991–1995 Machine fitter apprenticeship  
Has worked at WFL Millturn Technologies GmbH&Co.KG since 1996  
Worked in main assembly department for the M100 & M120 MILLTURN series until 2005, with numerous assembly projects for customers and some support assignments.  
From 2006: Supervisor for M60 & M65 MILLTURN series  
From 2018: Master craftsman training  
From 2019: Head of Mechanical Manufacturing

I used to work as a supervisor, I had to assemble various modules and constantly lost track of time because I was so immersed in it and concentrating so hard. My new duties involve a lot of deadlines and cycle times. Now I perceive time quite differently; I always have to keep an eye on the clock to make sure orders are completed on time.

**What are you looking forward to in the future?**

At the moment, my master craftsman training after work is taking up quite a lot of time. So the thing I'm looking forward to most of all is having my free time back when I've finished.

**When do you feel like you're in your element?**

Definitely when I'm cycling in the mountains. When I go on short weekend trips to the Alps, it's an exhilarating feeling to scale the summit and be rewarded with a panoramic view. That's when I'm in my element and would most like to press the pause button!

**Last of all, we'd like to know where you see WFL in the future?**

WFL is generally on a very strong course and is already at a high level. I have no doubt at all that the future has even more to bring. Realistically, there will be highs and lows like there are everywhere in the engineering industry, but with our excellent teamwork and perfectly coordinated processes in the different departments, any future 'problems' will be overcome with ease too.

“I have no doubt at all that the future has even more to bring.”

*All eyes on...*  
**WFL**  
**Robotic Solutions**  
by WFL Millturn Technologies

Well-known companies from films such as "UMBRELLA Corporation", "SKYNET" or even "STARK Industries" are often closer to reality than you may think. That's because in this day and age, a lot of action is happening within the field of robotics and even artificial intelligence. If you're looking for futuristic, high-tech solutions reminiscent of that in the films, that's exactly what WFL has been providing over the last few years





All eyes on

# WFL Robotic Solutions

by WFL Millturn Technologies

WFL Millturn Technologies has always been involved in the area of automation. From articulated robots to gantry loaders, every system combined with a MILLTURN brings a high-tech element and a breath of fresh air into the automation of WFL's machinery.

The acquisition of FRAI Elektromaschinenbau GmbH in October 2018 represents another step towards innovation in complete machining, paving the way for a digital future.



### Flexible robotic solutions – tailor-made for your needs

At FRAI, the vast majority of high-grade industrial robot systems are built with KUKA as a systems partner. Other brands can, however, be used at the customer's request. The wide range of robots offered by KUKA enables optimal concept creation for workpiece weights between 0.5 and 1000 kg. The robots can also be installed

permanently on the floor, overhead or on an additional longitudinal axis.

### Gantry loaders for machine tool automation – customer-specific design

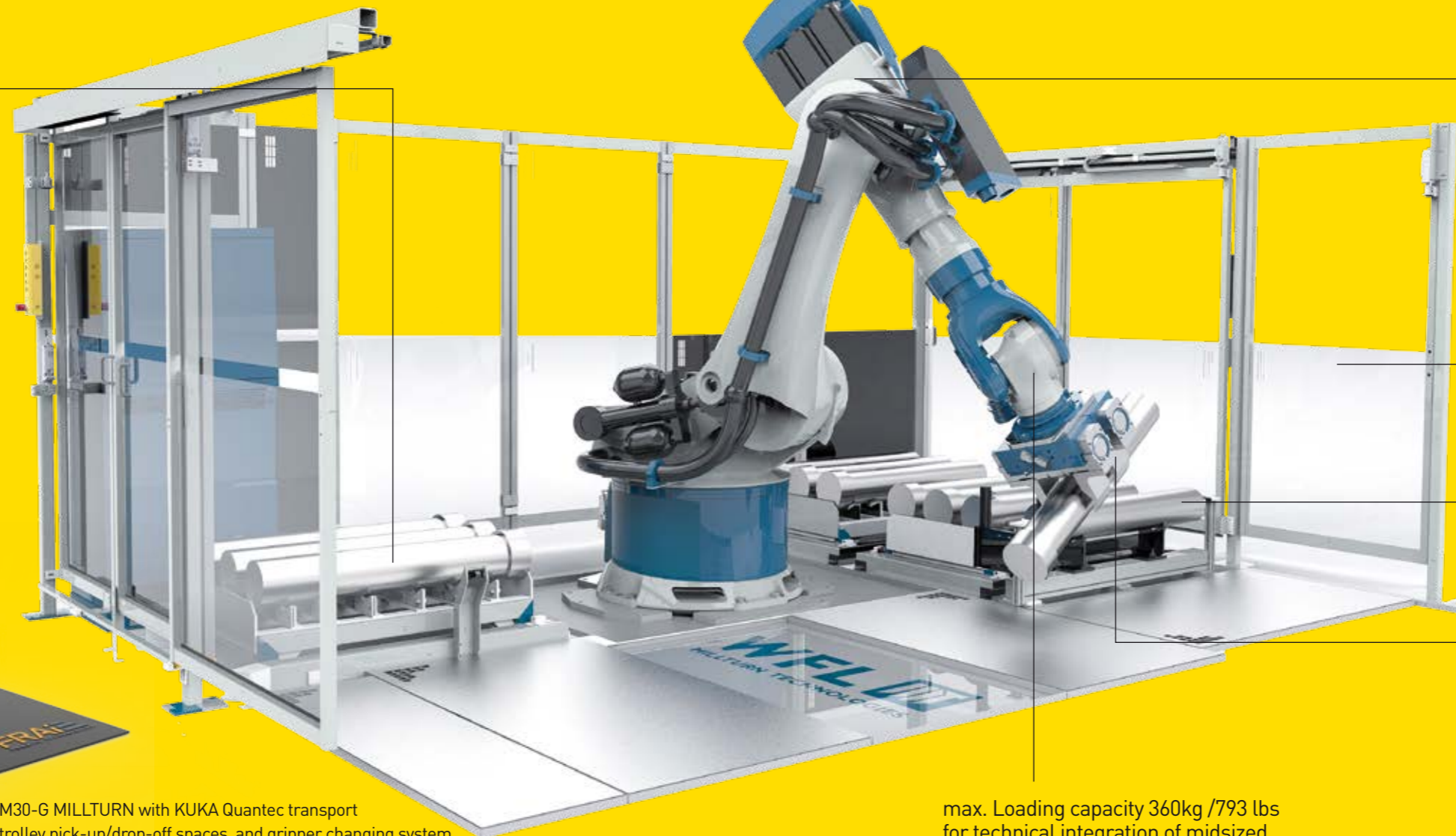
Modular gantry loaders can be used to create economical automation solutions that combine the advantage of outstanding accessibility with a low space requirement.

### Workpiece storage tailored to the range of parts and integrated into the material flow

Different demands will be placed on the storage system depending on the range of work-pieces, batch size, cycle times, and the customer's expectations in terms of flexibility and automation times for the production facility.

## Pallet systems

It's not just the sophisticated collaboration between MILLTURN and robots that provides a quick and easy way of supplying raw materials, it's also the unique loading system. The tailor-made pallet system is monitored using a sensor that's synced to the machine, meaning it's always ready to load the machine with raw materials or to remove the finished parts. Stackable pallet systems can also be supplied and a variety of different types are available.



KUKA KR510

Automated cell

Position and length control

Gripper  
(Gripper range 75-220mm / 2.95-8.66 in)

The gripper is a key automation element, which greatly influences system efficiency. It functions as an interface to the workpiece, and is often exposed to coolant, dust and chips.

M30-G MILLTURN with KUKA Quantec transport trolley pick-up/drop-off spaces and gripper changing system, nominal load 120 kg, Rated working radius 2896mm

max. Loading capacity 360kg /793 lbs for technical integration of midsized MILLTURNS, e.g. M65 MILLTURN







*We love...*

# ...Upper Austria

Whether you love mighty natural wonders or eerily beautiful moors, everybody can find peace and happiness in Upper Austria. Granted, you will not find the wide plains of the East or the lofty mountains of the West here, but Austria's fourth largest state makes up for this with its crystal-clear lakes, beautiful mountains, sombre moors and the majestic Danube. This beauty stands in clear contrast to the state capital's bustling industry but together they form the sensational Upper Austria.



**HALLSTATT**  
A bit of world heritage and tradition surrounded by water and mountains



**W**e've all experienced that moment of falling in love with a place at first sight: somewhere straight out of a fairy tale with hidden waterfalls. Or was it the break you took at the view point with idyllic sprawling views of the surrounding hills? Or maybe the panoramic vistas from the Schlossmuseum overlooking the rooftops of Linz? There are so many spots to fall in love with in Upper Austria. Divided into four quarters, which are all just about as different as it gets, the Upper Austrians speak a range of dialects, follow their own traditions and occupy various living spaces. The state's long-established separation into these districts – the Hausruckviertel, Innviertel, Mühlviertel and Traunviertel – dates back to the Habsburg Monarchy of the mid-18th to mid-19th centuries. These days, their boundaries have nothing to do with politics, but the subtle differences remain.

**The Hausruckviertel – Anton Bruckner, Linzer torte, cyberspace and architecture**

With its gentle rolling hills and highlands with spectacular views, the Hausruckviertel in Upper Austria is the best destination for nature lovers and hikers. The Hausruck hills may lend their name to the region and offer magnificent views, but it is the ever-changing city of Linz that lies at the heart of the Hausruckviertel. The city never stops to take a breath, is constantly changing and welcomes these changes with open arms. The highs and lows of its history, the city centre with its sensational architecture and the sophisticated specialities are what make Linz so special. But the locals don't harp on about it, they would rather look ahead and find their zest for life in the here and the now. The 2009 European Capital of Culture and UNESCO City of Media Arts is one of a kind. It is home to a vibrant contemporary cultural scene, the most modern opera house in Europe and many international companies. Young entrepreneurs have breathed life into the Old Town, which boasts a wide array of things to do for people of all ages alongside sensational green spaces and spots with stunning views.



**LINZ**  
The city that lives its changeability and where the unknown can be found in familiar places.

**The Innviertel – cherishes its Bavarian heritage**

The unusual thing about the Innviertel is its origins, as the region belonged to Bavaria, not Austria, not even 250 years ago. But when this all changed, the locals took something crucial with them: the knowledge of how to brew beer. After all, you don't forget what you've been good at doing for virtually 600 years overnight. The tradition of brewing beer in what is now the Innviertel region began back in the 15th century. Farmers and monks acquired a taste for beer even earlier than this. The fascinating history of beer can be explored in one of the local breweries – paired with a beer tasting session with generous sample sizes, of course! So it's not by chance that the Innviertel has the largest density of breweries in the whole of Austria. Just under 150 breweries have been established here throughout the history of beer brewing. It's fair to say nobody is at risk of dying of thirst here.

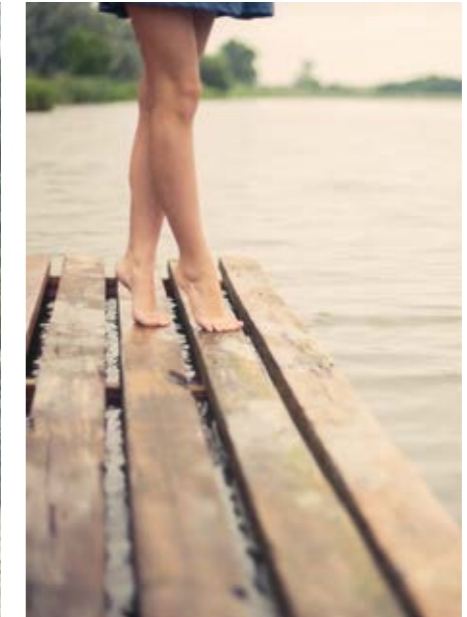
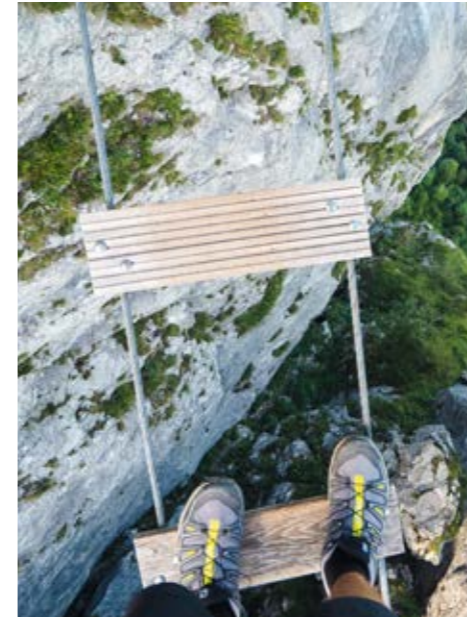
The Innviertel also has plenty of scenic and cultural highlights to offer. One of the most varied and biodiverse moors in Central Europe and Austria's largest moorland lies on the border to Salzburg. The early morning or evening are the best times to visit Ibmer Moor. Hike safely along wooden paths over unsteady ground in the heart of the great outdoors. Straying from the beaten path is risky as the moor is treacherous. The proud old trading towns here leave just as big an impression as the vast moor.

**The Mühlviertel – castles, gothic and old crafts**

The lives of the people living on the granite hills to the north of the Danube are perfectly reflected through the culture of the Mühlviertel region. Traditional craftsmanship and inventiveness are the two main aspects that make life easier for the locals. An excellent example of this ingenuity is the horse-drawn railway from

Linz in Austria to České Budějovice in the Czech Republic. A 500 metre long reconstructed stretch is a worthy memorial to the first European railway and a master stroke in old Austrian engineering. The castles and ruins that rose up from the forests as medieval strongholds are further proof of the successful battle against granite. Reichenstein Castle is arguably one of the most historically important examples. Of the small medieval castle, originally constructed in around 1300, all that remains is the chapel, which is still used to mark religious celebrations to this day. The castle ruins are also home to the Upper Austrian Castle Museum. If you love history, the Mühlviertel region is the place for you. History is revered and stories happily shared here. Many small museums are devoted to local crafts and daily life: everything from the glass-blowing workshop to the traditional Dyeing Museum is open to visitors. And yet, museums and inventiveness are not all the Mühlviertel region has to of-

“There is nothing like the inexhaustible pleasure of taking a refreshing dip in the lake on a hot summer's day or spending a day hiking through the deep dark forest.”



**CONTRAST**  
The contrast between crystal-clear lakes and rough Alps forms a unique scene.

Just under  
**150**  
breweries have been established here throughout the history of beer brewing.

fer. There is, after all, one other thing the Mühlviertel is famous for: it is Austria's organic region. Despite the barrenness of the ground and the short summer, the harvest is plentiful and held in high regard. A different kind of indulgent tour with exciting new creations and traditional dishes can be taken at any time in any

Mühlviertel destination.

**The Traunviertel – the region of mountains and lakes**

The Traunviertel and the Salzkammergut mountains with their diverse landscapes provide inspiration day after day. The crystal clear lakes and imposing mountain backdrops combined with the unmistakable weather and genuine locals are what make the Salzkammergut so spectacularly beautiful. The down-to-earth locals make visitors instantly feel at home with their fresh care-free attitude and natural warmth. Sometimes it feels as if time has stood still here. The fisherman haul the char caught in the lake just as their predecessors did 100 years ago. The miners in the salt mine also do their work dutifully. To this day, visitors to the Salzkammergut marvel at how they feel comforted as soon as they see their pristine surroundings.





Relentless, snow-covered spaces and rugged mountains in winter. Bright limestone summits, mountain forests and meadows of flowers in summer, along with blue lakes offering the perfect place to bathe, promoting pure relaxation and helping you to find eternal inner peace. Dotted in between, villas and small castles have plenty to say about the noble guests who once stayed there. There is nothing like the inexhaustible pleasure of taking a refreshing dip in the lake on a hot summer's day or spending a day hiking through the deep dark forest. We love Upper Austria with all its traditions and openness. With all its highlights and exciting stories of the past. With all its culture and its latest trends.



**FACTS**  
 Population: 1,473,576  
 Size: 11,979.91 m<sup>2</sup>  
 Capital city: Linz  
 Districts: 18



## HIDDEN GEMS

### Musiktheater Linz

Linz's Musiktheater am Volksgarten is one of the most modern opera houses in Europe. Designed by London-based architect Terry Pawson, its opening ceremony was held on 11 April 2013.

### Offenes Kulturhaus (OK) Linz

The Upper Austrian Culture Quarter is home to the Ursuline School and the OK. The building complex also houses the Kunstsammlung Land OÖ (Upper Austria State Art Collection), the Memento cinema and many restaurants.

### Mural Harbor open-air gallery

More than 100 examples of graffiti, some on a monumental scale, by artists from 25 nations adorn the external walls of old industrial buildings and houses in Linz's harbour.

### Bogner brewery

Take a tour of one of the smallest wheat beer breweries and enjoy unforgettable moments in the extraordinary setting of the Hausbrauerei Bogner brewery.

### Reichenstein Castle

Castles were once the focal points of many manors. As defensive residences and administrative seats, they formed the basis for power to exert dominance

over land and people. Feel like you've been transported back in time and discover more.

### Dachstein caves

The giant ice caves in the Dachstein glacier rank among the greatest natural wonders of the Alps. People come from all over the world to see the underground ice landscape inside the Dachstein glacier.

### Almsee nature reserve – experience the great outdoors

The Almsee lake lies at the foot of the majestic mountain backdrop of the Totes Gebirge. Visitors can see this group of mountains reflected vividly in the shimmering water of the lake.

### 5 Fingers on the Krippenstein mountain

The 5fingers viewing platform opened in early October 2006. Built in the shape of a hand (with 5 fingers), the platform juts out of the wall 500 m above ground and boasts sensational views of and insights into the Hallstatt UNESCO World Heritage Site and the Inner Salzkammergut mountains.

### More information on Upper Austria:

[www.oberoesterreich.at/](http://www.oberoesterreich.at/)  
[www.linztourismus.at](http://www.linztourismus.at)  
[www.innviertelbier.at/](http://www.innviertelbier.at/)  
[www.muehlviertel.at/](http://www.muehlviertel.at/)  
[www.salzkammergut.at](http://www.salzkammergut.at)



## PEACE

The peace one might discover in the water will guide throughout a lifetime.

*All eyes on...*

# WFL Tooling Solutions

by WFL Millturn Technologies

With WFL Tooling Solutions, customers don't just receive a sophisticated tool but a comprehensive tool solution that ensures outstanding component accessibility. Each solution is like a human hand which has been improved with sensors and measurement technology.





# WFL TOOLING SOLUTIONS

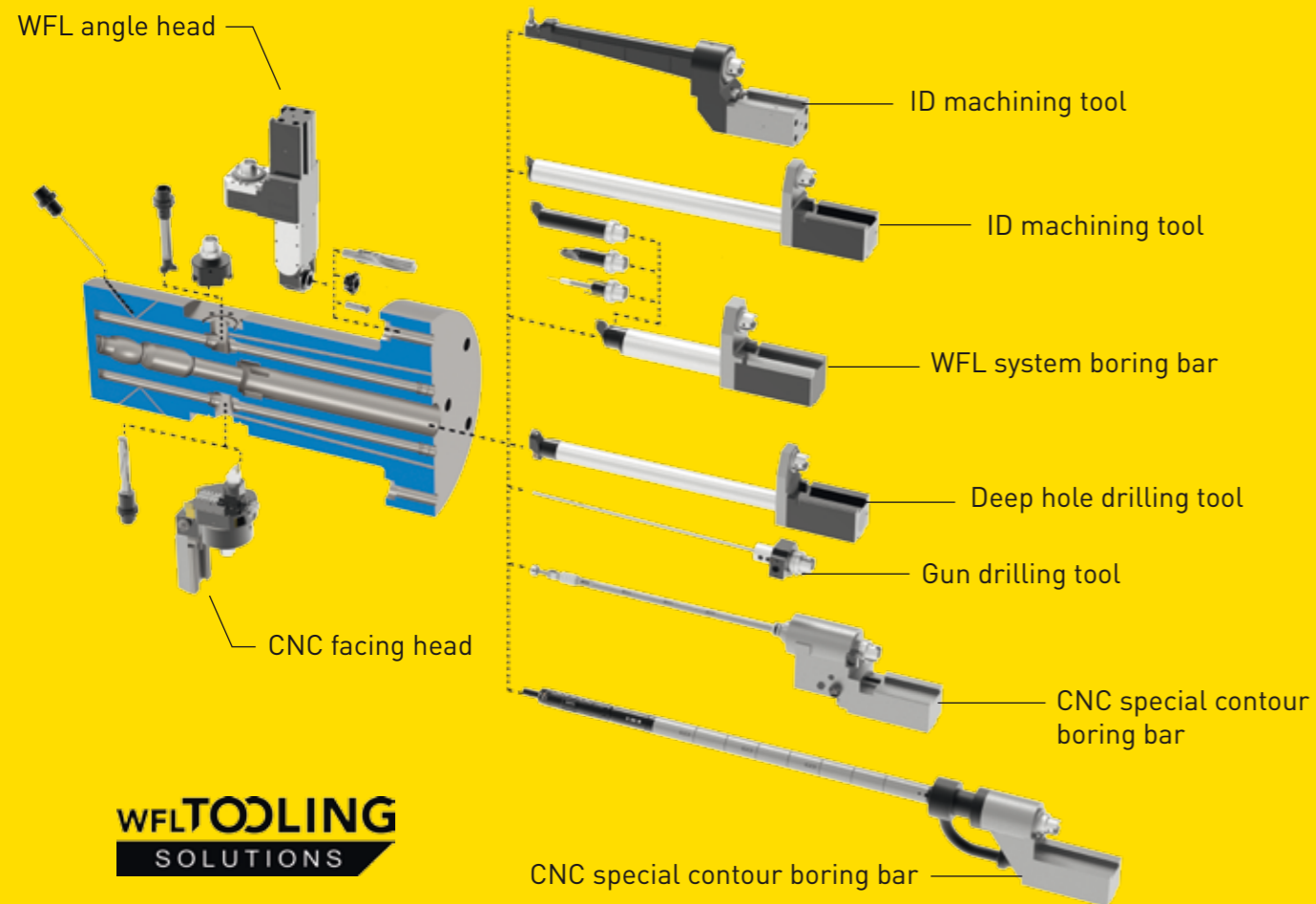
by WFL Millturn Technologies

### Sensor technology pioneer

WFL Tooling Solutions specialises in cutting complicated machining sections. It focuses in particular on sensor technology in order to ensure optimum protection for tools. WFL is a pioneer in this area as, thanks to these smart tools, the machine is able to identify load peaks and respond immediately to them. The CoroPlus® boring bar is already equipped with this mechanism to detect the tool's load capacity.

### Fit for the future of metal cutting

One trend is currently emerging in terms of the development of complex components, namely the tendency to avoid joints so as to manufacture each workpiece from just one single blank. It is harder to manufacture these for certain machining sections. When used in conjunction with WFL Tooling Solutions' optimally shaped tools the hand is able to reach previously inaccessible machining sections. Specially shaped angular heads and other special tools provide the ideal solution.



**WFL**  
TOOLING  
SOLUTIONS



### Minimising and even replacing grinding processes

Another product segment is milling tools for the production of difficult milling contours, which make it possible to get nearer to the end contour. A revolution is taking place here in particular with regard to the manufacturing of rotors for compressors. By eliminating the grinding process, which is feasible under certain conditions and with adapted tolerances, WFL Tooling Solutions is able to efficiently redesign the manufacturing process.



### Next-level measurement technology

WFL is also seriously redefining measurement technology standards. The young WFL Software Development Engineer Stefan Huber has developed ingenious measurement software, adapted in line with the WFL form cutters, which makes WFL Tooling Solutions an unbeatable choice. The entire circumference of the milled profile can be scanned without the workpiece having to be unclamped from the machine. After the measuring cut, the forming tools are automatically corrected so that, when it comes to the finish cut, machining qualities are achieved which are very close to the grinding quality.



### Maximising potential together

For WFL, consulting with clients to highlight all workpiece machining options is of paramount importance. The specified workpiece tolerances can be carefully examined in detail by WFL's cutting experts to reduce production costs by making small changes to the component.



WFL Tooling Solutions Product Manager Manfred Baumgartner is your professional contact person. As an application engineer, he mastered complete machining directly on machines before going on to work as a project manager for 20 years. As such, he has first-hand experience of the challenges and requirements of our customers from all over the world. This know-how forms the beating heart of the Tooling Solutions division.



# The MULTITASKING theory

The company Toyo Matic Aerospace Ltd. invited us to visit their factory in Brasil. We talked to owner and CEO Mr. Edvaldo da Rosa and learned about the main reasons for the purchase of the M120 MILLTURN / 3000mm. The market is asking for flexible, fast and precise solutions, which are excellently covered by WFL's multitasking machining concept.



Edvaldo da Rosa  
CEO Toyo Matic Aerospace

**CHANGEABILITY...** is a major feature from Toyo Matic. According to the customer's wishes, the produced workpieces are adapted and produced in the small town of Bragança Paulista (80 km outside of Sao Paulo).

**Facts about Toyo Matic:**  
**Mr. Edvaldo da Rosa, please give us a short overview about your company's history.**

The company Toyo Matic was founded in 1987 and focused on the renovation of machinery and equipment at this time. Due to the lack of spare parts in the market, the company improved its techniques and skills in machining in order to meet its own needs. Some years later, around 1998, the telecommunications market was growing rapidly and an opportunity for change arose. Toyo Matic gained its first experience in the production of high precision and serial parts. In the same

period, the doors of the automotive market opened. In 2001, a wish came true when we entered the aerospace market. Throughout these years and through our experience, opportunities have emerged in other segments, such as energy generation and medical areas, as well, thus diversifying our range of activities.

**Mr. Da Rosa, what is your company's core competence, what kind of parts are you producing and what machinery and equipment do you have on site?**

First of all, I can give you a short overview of the area we are located in: we have 118,000 m<sup>2</sup> of which 10,000 m<sup>2</sup> is built-up area, divided into a factory floor (6000 m<sup>2</sup>), an administrative area (2000 m<sup>2</sup>) and a leisure / dining area (2000 m<sup>2</sup>). Toyo Matic's 3, 4 and 5-axis machining centres, lathes and multi-tasking machines constitute our vast fleet of machines and prove that investing in new features and technologies is a constant concern of Toyo Matic.

Our competence is to always act fast and according to our customers' needs. We want to exceed their expectations in meeting the deadlines and ensuring the quality of our products. Another competence I would like to underline, are our 70 employees. Our personnel management

policy is focusing on the training of our employees, taking their potential and individual capacities as a driving force for our company. We use the software Autocad, Solid Edge, NX (Unigraphics) and UNICAM for developing programs and projects. We also have Vericut software for programming, simulating and optimising processes.

**Why did Toyo choose the WFL multi-tasking machine and why especially the M120 MILLTURN?**

I have seen the machine on my customers' site for the first time and was very impressed. Not only because of its variety, but also because of requests from my customers, I decided to buy one. Furthermore, the machine is perfect for manufacturing complex parts for the aerospace industry and the technical data perfectly fits the production of our customers' work pieces. The M120 MILLTURN allows for one-hit machining of complex work pieces with a length up to 12000mm and swing diameters up to 1140mm. We also bought an M80 MILLTURN for the manufacturing of longer parts and for making deep holes, especially for work pieces used in the oil and gas industry. Unfortunately, the oil and gas industry is not yet in a very good situation. However, we





**FOCUS: AEROSPACE**  
The aerospace parts for a specific helicopter were manufactured on the M120 MILLTURN / 3000mm.

**FLEXIBILITY**

The various number of machining possibilities in the MILLTURN were one of the main reasons for the purchase.

**TWO MILLTURNS IN ACTION**

The M120 MILLTURN, with a nominal center distance of up to 3000 mm and a milling spindle power of 55kW, was the first WFL turning-boring-milling center at Toyo Matic.

are still hoping to receive an order from a customer in the near future. Perhaps we will use the M80 to manufacture parts for the aerospace industry as well. As flexibility is one of the machine's key characteristics, we can use it for machining a huge range of different work pieces.

**What kind of work pieces are you producing on the M120 MILLTURN / 3000mm at the moment?**

We bought the machine because of an order from an European customer from the aerospace industry. They are producing helicopter parts and more precisely rotor shafts. Nevertheless, not only the aerospace industry, but also the automotive industry as well as the oil and gas industry are important for us. The main reason for buying a MILLTURN multitasking centre was the high quality of the machined work pieces.

**Regarding service and support: have you always been satisfied with WFL's services?**

We never had any problems so far. For this reason I can't say anything about the promptness of WFL services. It has been working in a plug and play mode so far, as no incidents have occurred. Only when we first installed the machine, we had some alerts for approximately 1-2 weeks. However, the WFL service acted very fast and we have been satisfied. That you have a service team here in Brazil is great of course.

**What do you think about the advantages related to the multitasking functions of the MILLTURNS? Would you please name some key facts about the multitasking idea and what is important for you?**

The main reason why we bought this kind of machine was the better ability to prevent mistakes. You can save time and even prevent errors as you do not need to move the part from one machine to another. When you have the suitable program for your part, the machine is almost able to work alone. „Complete machin-

ing" is the key word: putting the part into the machine once and manufacturing it completely. The defined process and program needs to be perfect in advance, then machining in one clamping becomes reality.

**How many operators are working on the M120 MILLTURN at the moment?**

We have 10 multitasking machines with two operators. We have many machines but not all of them are working at the same time. For this reason the operators can care about their projects in a good way. Although we have many different machines with different control panels, our team is able to manage all the orders in a good way as they are well trained on diverse controls. If you dispose of good programs and processes from the beginning on, everything is done and the machine runs. Therefore we are satisfied with MILLTURN multitasking.

**What are the strategic plans for Toyo Matic? What do you believe in?**

“When you have the suitable programm for your part, the machine is able to work almost alone.”

At the moment we have many jobs from the automotive industry and we are producing fixture systems for engine blocks. However, as the automotive industry is not that stable, I am hoping for the incline of the oil price. We are ready to provide parts for the oil industry, but need to wait until the price is going up. Customers know what we are producing and doing and they reach out to us, when they need special parts. They know that we are able to deliver, that we are flexible and that we can provide the very work pieces and machining processes they need. If a customer has a difficult part, they know that we are the perfect partner and supplier. Generally speaking, Brazil is still in a crisis, but from my point of view things are getting better.

**What do you think about Industry 4.0? How common is that in Brazil right now? In the machine tool industry everybody is talking about Internet of things and connectivity. Please tell me your opinion about industry 4.0, predictive main-**

**tenance, communication between machines and so on.**

I think the most important thing is that you have good machines, good processes and of course good people to get all the stuff done. Good machines and equipment in general are really important, but what they are doing between each other or what data they generate, that's still a future topic for us. Perhaps we have 100 of robots in 10 years that are working (is laughing) – I don't know. Nevertheless, automation is one of the topics I believe in. A topic where we still have potential and where processes are optimized. Last but not least, I can state that I don't know the formula of success, but "customer is king" is the most important thing for us. And for that we act.



**30 SUCCESSFUL YEARS**  
Toyo Matic was founded in 1987 and its headquarters have a total area of 118.000m².





All eyes on

# WFL DATA ANALYZER

by WFL Millturn Technologies

The WFL DATA ANALYZER is a software package for capturing and analysing the data of WFL Millturn Technologies machines. All production data can be accessed anytime, anywhere. Data can also be maintained and managed using smartphones, tablets, notebooks and PCs. As such, all information about the machines and their statuses can be obtained within a matter of seconds. The WFL DATA ANALYZER helps users to record and call up statuses and production data. What's more, the software package enables them to react quickly and make any adjustments deemed necessary. The WFL DATA ANALYZER's applica-

tions unlock a multitude of possibilities for controlling upcoming production processes perfectly.

### How does the WFL DATA ANALYZER work?

The WFL DATA ANALYZER runs on a separate computer, which is integrated in the control cabinet of the machine. The system records the machine's process data and this is saved to a database and made available via a web server. The process data can be displayed on a network-compatible end device via an up-to-date browser.



### IN USE

Keep the overview and exploit the optimization potential for your smart factory

## Benefits of the WFL DATA ANALYZER

- Machines, tools, equipment and measuring devices communicate with each other
- Transparency & monitoring: What is running where? Which machine is idle? Has the machine already been retooled for the next orders?
- Regular assessments of productivity and availability
- Data can be called up anytime, anywhere – whether on a PC, tablet or mobile
- No "cloud solution" (data stays within the company)
- Reduction of cycle, process and machining times
- Visualisation of data via web browser

## Little helper

As such, the WFL DATA ANALYZER provides a 24/7 overview and leverages optimisation potential the Smart Factory. Not only does it offer a transparent user interface, it also improves machine utilisation. All data from the production environment is collected and analyzed with the aim of increasing productivity. As a result, shorter production times go hand-in-hand with more effective organisation of smart factory processes.



**Dashboard Overview**  
overview of all machines and their statuses

## Applications



**Production Overview**  
maps the statuses of the machines over the course of time



**Alarm monitor**  
shows the most frequent alarms sorted by duration and number



**Machine-Live**  
up-to-date information and statuses are provided in real time



**Parts overview**  
display of NC program runs, including individual view



**Statistics**  
captured data is compiled and an analysis is generated in accordance with OEE (Overall Equipment Effectiveness)



**NC program changes**  
different NC programs are logged and can be compared with each other



**Variance**  
the variance of the actual machining time per component is analysed and offers opportunities to find possibilities to optimise processes



**Spindle monitor**  
shows current data (e.g. capacity utilisation, speed range, availability) of all the spindles in real time



# There was no such thing as “it won’t work”

In conversation with Peter Skutl and Rudolf Siegart

We celebrate 25 years WFL Millturn Technologies and 35 years of complete machining



#### A STRONG TEAM

Rudolf Siegart und Peter Skutl (f. l. to r.) paved the way for WFL Millturn Technologies and laid the foundation for innovation in complete machining

We joined former managing directors **Peter Skutl** and **Rudolf Siegart** to explore the origins of MILLTURN and the beginnings of WFL. With their combined forces and a highly motivated team, the two leaders managed to stake their claim in the world of complete machining despite all of the initial difficulties. Find out in this interview what it means to devote yourself to an idea, to have the determination to see it through and to succeed by pulling together.

#### What feelings and recollections do you have when you think of WFL?

**Skutl:** I have been thinking about WFL a lot recently, particularly because it celebrated its 25th anniversary in 2018. In October 1993, very few people would have bet on our company lasting for 25 years. The machine tool industry was in a historic slump back then. New order intake in the sector had declined by more than 50%. One by one, businesses were slipping into insolvency. In addition, profound structural changes took place during the transition from VA-Steinel to WFL. Changing the entire parts procurement system to purchasing without reducing the quality of our machines was a logistical challenge. We were all conscious of the fact that we could only have one attempt, and it had to work.

**Siegart:** At the start, we had problems building up our workforce, because a lot of people were still in an employment contract with VOEST until the end of 1993 and then had the option to join the VOEST Steel Foundation. The people I wanted to attract were of course aware of the risk involved in our undertaking. If we failed, they would have missed the chance to join the Steel Foundation's retraining scheme. So I began to take steps to make it possible for WFL to become part of the Steel Foundation, even though we were a private-sector company. For many people, that was the crucial moment when they decided to come on board with us.





#### RETIREMENT

After a successful time at WFL, the retirement was duly celebrated.

#### WFL is considered a pioneer in complete machining. How did that come about?

**Siegwart:** Unfortunately, our attempt to develop our own tool turret with rotating tools for genuine complete machining failed in some respects. That was partly due to the number of tools, the collision problems and the size, and partly because the technology was too complex and could not be implemented. In addition, there was no standardised tool system available.

That's why I decided to integrate our own slide to accommodate our own milling unit with our tool magazine for standard milling tools (SK40) into a turning machine, in addition to a standard turret for turning. That was in October 1982, and the result was the first MILLTURN.

**Skutl:** At this point, we set a milestone in the history of complete machining. The competition was green with envy and played the whole thing down as a technical gimmick with no practical value. But I have to add that the market was not quite ready for it. There were reservations. The conviction that turning machines had to be used for turned surfaces and milling machines for milled surfaces had to be dispelled first.

#### How did the name "MILLTURN" come about?

**Siegwart:** The name originated in the VOEST era. Back then, there was a large-scale development programme under which various generations of machines were developed. There were machines with robots, and they were named AUTOTURN. We had to think of something for our multitasking machine too. Then I said, "It's a MILLTURN." That was in 1983.

#### What has been the most significant technical or economic development in your view?

**Skutl:** For me, one of the most significant was definitely the step towards a single tool holder in conjunction with an external magazine. Suddenly there were barely any limitations any more on the tool side. It also meant the rigid separation of fixed and rotating tools was history, plus the whole thing was collision-free too. This new concept meant machines could be equipped in parallel to machining time, which had a positive impact on the degree of utilisation, lead time and hence cost-effectiveness.

Another step was the integration of a second tool accommodation on the single

tool holder to accommodate long boring bars. The restriction on the maximum tool length was suddenly eliminated.

That reminds me of a situation at an IMTS trade fair in Chicago: a showcase programme was under way and a visitor was standing watching the process take place. When a flap opened and the machine changed a two-metre boring bar, he uttered an awestruck 'Oh boy...'. The machine was the main attraction at the trade fair.

#### What has been the biggest area of interest and main inspiration for you in your work?

**Skutl:** In terms of complete machining, we were at the start of a development and no-one then could guess how big it would become. The MILLTURN concept is aimed at customers who manufacture complicated workpieces in relatively small batch sizes. It wasn't yet clear whether the risk of fully concentrating on this field could pay off. The exciting thing was that there were new challenges and tasks practically every day, and the solutions to them were being welcomed by the market. That had an incredibly motivating effect and felt very rewarding after all the hard work.

**Siegwart:** We received a very positive response bit by bit without really being aware of it. For example, we gained an order in Norway from the aviation industry. Their specifications were just monstrous. However, they did not give up after we initially turned them down, and brought us over to Norway. I said to them I was prepared to go to the limits of what was technically feasible. These people were so interested; it was a mystery to me why. It was only later that I found out they had recruited an expert as a consultant for this project – who was a former competitor of ours. He believed our machine was the most suitable one for their requirements. That was high praise indeed.

#### What memories do you have of your colleagues?

**Skutl:** I genuinely only have great memories, particularly of the group that got WFL off the ground. Their motivation was outstanding; there was no such thing as 'it won't work'. Whether it was a hush-hush operation to get a machine ready for an important demonstration at a trade fair the next day, or whether they had to



#### FASCINATION

The magic of the MILLTURNs keeps the two former managing directors in the spell to this day.



»When a flap opened and the machine changed a two-metre boring bar, he uttered an awestruck "Oh boy..."«

Peter Skutl

work an unplanned nightshift to rescue an acceptance test, they took everything in their stride without needing lengthy discussions. That awful, corny quote 'the sales department is not the whole company, but the whole company better be the sales department' actually described us quite accurately.

#### What boosted the team spirit?

**Skutl:** At the start, it was the "backs to the wall" situation – the awareness that there was no going back and we really only had one chance. Although we never were owners, we felt like we were and took responsibility like owners.

**Siegwart:** There was a global recession on the machine tool market in 1993, the year of our foundation. Many commentators – particularly our competitors – believed our chances of surviving the first six months were minimal. What helped the team spirit and motivation of the whole company was that we only approached those people who believed in our product. By doing so, we were able to start out with a motivated, skilled team.

#### What major events really stand out in your memory now?

**Siegwart:** Above all, the development of the new M100 MILLTURN generation and the purchase of the property we had been renting, because then we became masters in our own house. WFL was taken over by the Germany-based Rothenberger family in 1993. Once we were out of the

woods after the first few years and our orders and results were good, we gained a fairly free hand both in terms of technical activities and market activities. That then led to the establishment of different branches with their own sales and support staff, while business grew continuously.

**Skutl:** Having local addresses in different countries – for example in the USA – also saved us from our customers asking if we had travelled from Austria by car.

#### What trends do you see for the tool machine market in the future?

**Skutl:** I believe the complete machining market will continue to grow. In addition, a stable market for replacement investment will develop, with customer satisfaction remaining high. I think that the difficulty our customers have in finding enough qualified staff will increase pressure towards automation. Automatic processes prevent human error. This is opening up a broad field for development.

#### What was your key to success in your time at WFL?

**Skutl:** I read somewhere that if, on a Sunday evening, you're not looking forward to work on Monday, you're in the wrong job. I have to say I have never enjoyed going to work so much as I did during my time at WFL.

**Siegwart:** Don't rest on your laurels. Discuss new application ideas on the market and at your customers, and take them

into consideration whenever possible for an order or when developing the next MILLTURN models.

#### What advice would you like to leave WFL with?

**Siegwart:** Concentrate on gaining and expanding global technology leadership.

#### What would you do differently today?

**Skutl:** I would go into the cosmetics industry so I could be surrounded constantly by lovely fragrances and beautiful people. (laughs)

#### What is your favourite book?

**Siegwart:** I haven't got a favourite book. I don't like seeing things through the thoughts of some poet or other – I prefer to have my own. But I do like reading about politics, especially geopolitics, history and technology. And every day I check what the Russians and Americans are writing about it.

**Skutl:** The MILLTURN operation manual.





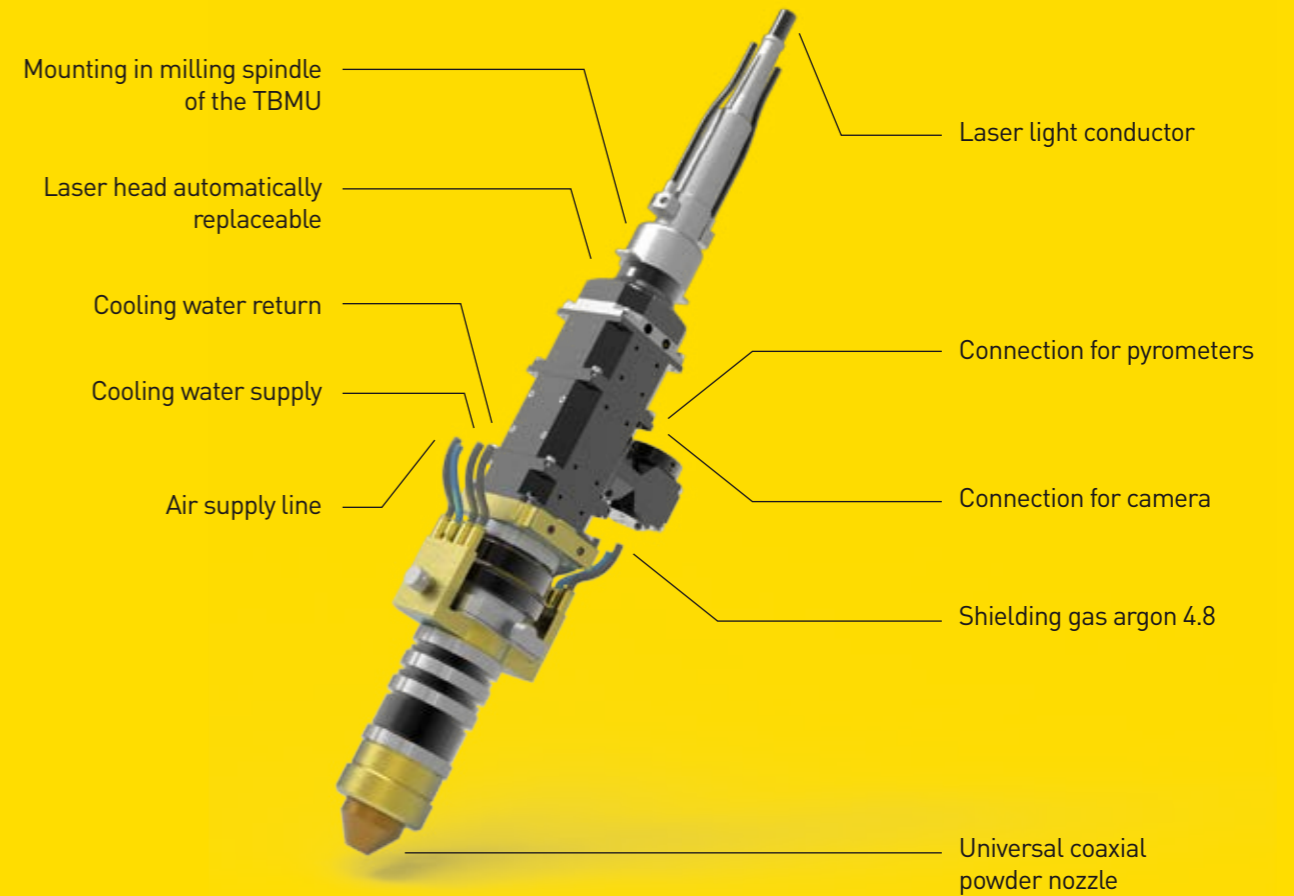
All eyes on

# LAMIX - WFL Laser Solutions

## by WFL Millturn Technologies

The benefits of additive manufacturing in a MILLTURN are particularly evident in the production of complex geometries, which cannot be produced or are at least very difficult to produce using conventional manufacturing processes. Thanks to the five interpolating axes of the MILLTURN machines, the 10 kW diode laser can be pivoted over a large area and also be used to process free-form surfaces. The application head consists of a nozzle, through which the metal powder particles are transported in a focussed manner to the application site. An inert gas is used to prevent oxidation processes and also serves as a carrier and transport medium. Depending on the applica-

tion nozzle being used, material cladding can even be carried out horizontally. In addition, it is possible to achieve a range of effects by using different nozzle geometries and powder combinations. With structures that protrude out of the workpiece, there is no need for oversized blanks, which means that cutting rates can be reduced. This saves machining time, reduces tool costs and means that machining can be completed without the need for reclamping. The key to productive operations is understanding the entire process, which is something which WFL expedites and further develops with continuous research.



### Laser welding

For laser welding, a particular head with a different lens is required. During gap welding and deep gap welding, a substantially narrower focal point is required for the laser beam in order to achieve increased welding depth on the one hand and to keep the heat-affected zone as small as possible on the other. The aim is to develop an alternative to thin deep hole drilling.

#### Facts:

- Impressive welding depths can be achieved
- Simplified processes
- Concentric welding possible

### Laser cladding

For cladding, the powdered metal is focused on a point of impact through a ring nozzle with the help of an inert gas. The laser beam is also focussed on this area, which results in the creation of a melt pool. The molten powdered metal settles in this pool and then solidifies. The width and height of the resulting material cladding is determined by precisely balancing the energy input and traversing speed of the laser beam with the amount of powder being fed through. The diode laser used consists of a high-performance lens and a coaxial powder nozzle.

#### Facts:

- Set-up of wear, heat and corrosion resistant coatings
- Repair of wear areas
- Broad range of materials possible

### Laser hardening

The cladding laser head for the welding can also be directly used for laser hardening, and optionally a lens, which has been optimised for the hardening process, can also be switched. In this way, tooth flanks can be immediately hardened after milling for example during the manufacturing of gear teeth.

#### Facts:

- Scope of application: gear wheel flanks, bearing positions, contact surfaces
- Size of laser spot adjustable
- Hardening process directly in the machine
- High processing speed





# Innovation needs cooperation

**It was Henry Ford who already knew that success consists in disposing of the abilities required at the very moment. It takes not only a company's masterminds, but also a new generation of High Potentials, exceptional ideas and practical influence of the modern economy to meet this challenge. Regarding research, WFL Millturn Technologies counts on two excellent partners and intense cooperation.**

At the close of the 20th century, Professor Keith Ridgway and local businessman Adrian Allen began to work with Boeing to apply Sheffield's traditional expertise to new materials, focusing on machining research. The AMRC (Advanced Manufacturing Research Centre) was established in 2001 as a £15 million collaboration between the University of Sheffield and aerospace giant Boeing, with support from Yorkshire Forward and the European Regional Development Fund. Over the years, the AMRC has become a global centre for benchmarking of tools and aerospace techniques.

The AMRC with Boeing is part of the AMRC Group, a cluster of world-class centres for industry-focused research and development of technologies used in high-value manufacturing sectors. The group has specialist expertise in machining, casting, welding, additive manufacturing, composites, designing for manufacturing, testing and training. The AMRC Training Centre, which provides training from apprenticeship through to doctorate and MBA level, is amongst the best training facilities within the manufacturing sector. It was necessary to found this centre and create a worldwide network in order to establish a community which is characterised by effective collaboration of research, design, manufacturing and studies. A community which strives for putting technology into practice.

Even though their vision might have been underestimated in the beginning, the two founders succeeded because of their relentless dedication and effort. WFL Millturn Technologies and the AMRC have been working together from the very start and the longstanding partnership proves that one can achieve significantly more when cooperating with others. The cooperation ranges from basic research to application development. Early recognition of market developments and knowledge development is crucial for their success. A large network of research resources allows for being on the very top of innovation. Therefore, WFL and AMRC succeeded in creating values.

## Innovation environment for companies and universities

OMIC R&D (Oregon Manufacturing Innovation Centre) is modelled after the AMRC established with Boeing at Sheffield University in England. Oregon's research centre unites manufacturers and universities within one innovation environment. The centre's objective is to solve real problems for experienced manufacturers by means of applied research together with university lecturers and students. The research is applied directly during the manufacturing process and addresses relevant problems followed by a prompt reaction of the manufacturer. This allows for generating added value and tackling the roots of problems in a timely manner.

Unique technologies and expertise, which can be transferred to regional, national and international companies, are identified and developed for industrial purposes. The principle of the research and development facility is based on the following fact: investments in research and innovation alone are not sufficient for creating a dynamic innovative economy. Research must focus on supporting the domestic industry in increasing their competitiveness and being part of the local economy.

It is for cooperation, and more precisely shared research and development costs, that WFL is able to consider critical technology requirements. The Research Centre enables the development and use of new innovative tools, techniques and unique technologies.

Kenneth Sundberg, Managing Director After Market Sales at WFL, remembers his first visit to the Research Centre and shares his impressions: **"I visited OMIC on the occasion of their first anniversary after the opening. I had the opportunity to meet the other partner companies and open new doors for future projects. I was especially impressed by the highly qualified and motivated team. They are working hard to make the Research Centre one of the leading technology centres of the country."**

WFL Millturn Technologies supports this valuable partnership by providing a M80 MILLTURN. The machine is mainly and successfully used for research and training purposes. It masters the most challenging manufacturing tasks due to its sustainability and robustness. Thanks to this successful cooperation, WFL is able to optimise applied technologies in metal processing together with their customers.

WFL Millturn Technologies is very proud of these stable and dynamic partnerships. Because innovation needs cooperation.



## WE HELP TO CONNECT



The TOOLS FOR LIFE Foundation helps to connect people in all regions of the world with vital resources: water, energy and education. Education refers to both school and craft education for children, adolescents and adults. Help for self-help is the basis of the foundation's activities.

Since its founding in 2008, the foundation has successfully supported and implemented around 60 projects worldwide. The focus is on sustainability and helping people to help themselves. The project volume to date amounts to about 850,000 euros. The foundation has already built six schools and supported, co-funded or supported numerous international energy and water supply projects in cooperation with partner organizations and local residents and institutions.

Get to know the TOOLS FOR LIFE Foundation! On our website [www.toolsforlife.de](http://www.toolsforlife.de) you can see what we have implemented in 10 years. We look forward to you and your support



Dr. Sandra Rothenberger,  
1. Chairwomen TOOLS FOR LIFE



# Closer than you think

WFL is located all over the world



## Events

March 26-28, 2019	WFL Technology Meeting Linz	May 7-11, 2019	EXPOMAFE Sao Paulo
April 11-13, 2019	AGMA Arizona	May 14-17, 2019	MetalShow Bukarest
April 15-20, 2019	CIMT Beijing	May 14.-17, 2019	MACH-Tech Budapest
April 16-18, 2019	Aeromat Montreal	May 27-31, 2019	Metallobrabotka
April 29-May 02, 2019	AeroDef California	June 4-7, 2019	ITM Polska Poznan
April 30 -May 03, 2019	IDEF Istanbul	June 17-23, 2019	SIAE LeBourget Paris
		September 16-21, 2019	EMO Hannover



## Focal Point: Diadema, Brasilien



**Our customers are situated all over the world. Your nearest WFL Millturn Technologies branch is not far away, thus guaranteeing a reliable partnership. With sales partners from 50 different countries and 7 WFL subsidiaries worldwide, we are a global enterprise with extensive resources. Find your local representative and contact us!**

So that you can get to know WFL better, in each issue of COMPLETE we will be introducing one of our WFL branches. For this reason, we contacted the responsible branch managers and asked them about relevant topics that may be of interest.

repair and advice at our headquarters in Austria.

**What does our range of clientele look like?**  
 Most of our customers in Brazil are in the aviation or oil and gas industries. The majority of them are very well-known international manufacturers. We also have a number of smaller producers within the market. There is additional interest in our products in the crankshaft industry and gear manufacture. We are also keeping our eye on exciting developments in the wind energy market. These ongoing market changes keep our spirit of discovery and eagerness for innovation at the highest possible level.

## WFL BRANCH IN BRASIL Interview with Ivan Prando



**What makes WFL in Brazil what it is?**

The reason why WFL has had such a long-standing active market presence in Brazil is down to the fact that, with a population of 210 million, the country is of great economic importance. WFL is very well established in Brazil's machinery engineering industry. In 2012 it was decided that a new branch would be opened in Diadema, which is located in the metropolitan region of São Paulo and has a population of over 20 million. Around 90% of our customers are based within a radius of only 150 km. Our branch in Brazil has enabled us to have an extensive selection of spare parts available at all times. This allows our service technicians to respond rapidly to our customers' needs. Alongside taking care of new customer business, we are focused on providing technical support for machines already installed so that customers can always rely on us to respond quickly. Our team in Brazil is highly motivated to offer our customers the best possible support. Our technicians are well trained in maintenance,

**Please, tell us a bit about yourself!**

The machine tools industry has been part of my life since childhood, as my curiosity was sparked back when I was a pupil at secondary school in Senai. There I took a course in mechanics, and then in college a more in-depth course in machine engineering technology. I then studied machine engineering technology, specialising in maintenance and repair. After my postgraduate studies in marketing, I knew exactly what I wanted to do. I began my career at ROMI, the largest manufacturer of machine tools in Brazil. For 25 years I worked in application and sales engineering. In 2008 I became the Head of Sales at Prensa Jundiaí, the largest Brazilian manufacturer of metal presses. After seven successful years there, I was looking to take my career in a new direction and began working at WFL in the machining sector. This industry is where my heart truly lies. The motto "Clamp Once - Machine Complete" - the multitude of machining possibilities contained within one machine - never ceases to inspire me.



## » QUESTIONS | COMMENTS | IDEAS?

You have questions regarding our products, technologies or chipping? We are looking forward to your mail at [marketing@wfl.at](mailto:marketing@wfl.at)

## » FACTS COMPLETE

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



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