

# COMPLETE

Nr. 02/20

The complete machining magazine

[PEOPLE](#) | The intellectual and digital craft of creation | Who is Wolfgang Gattermayr?

[MACHINES](#) | M20 MILLTURN – Smart Machining for maximum flexibility and performance

[myMILLTURN](#) | The multifunctional customer portal

All eyes on:  
The  
MILLTURN  
Innovation

The world of complete machining is reinventing itself and WFL is at the forefront of innovation and new technical possibilities.

Styria. Enjoy with all senses.

A city and a river. Graz and the Mur. The Mur has given the city an additional floor. Because the lively river in his bed gets deeper and deeper, the people of Graz just follow him. They are building a natural riverbank promenade. Put a floating island of steel into the water and enjoy on shell-shaped structures not only their coffee but also a certain seclusion - an island existence. And let the thoughts drift, perhaps to castles and thermal baths, to pumpkin seed oil and wine, to everything the surrounding Styria contributes to making Graz so lovely and unrivalled to do. But I guess that's another story...



„In Chinese, the word ‚crisis‘ is composed of two characters – one meaning danger and the other opportunity. In this case, we are seizing the opportunity.“

Norbert Jungreithmayr

## Dear customers and readers,

### Now what? We'll keep at it.

The coronavirus crisis and the economic downturn are challenging us all and taking us to our limits. It is difficult to say where this crisis will lead or the specific impact it may yet have. However, what we do know is that we all have to think in completely new ways in order to operate on the market as best as possible. Over the past few months, many of us have developed into online communication experts so as to continue to be able to answer questions from customers and partners in these difficult times. What is more, our innovative strength is not waning in the crisis. The further development of products, software and services is therefore essential for us.

In the last issue of our customer magazine „Complete“, we did not promise you too much. We'll keep at it.

One of the central topics is the expansion of our product portfolio to include a new machine model, which is characterised by a particularly innovative, modern design as well as by technical

performance and versatility. The important aspect of automation is also an issue and was incorporated in the development of the machine. We are very pleased to be able to give you a brief preview of our new M20 MILLTURN in this issue.

Where our after market sales are concerned, topics such as online training sessions, webinars, an online tool catalogue and also the online placement of capacities are increasingly coming to the fore. The answer to these is „myMILLTURN“ – our multi-functional customer portal.

Despite these difficult times, we are pleased to present the latest innovations and further developments from WFL. „In Chinese, the word ‚crisis‘ is composed of two characters – one meaning danger and the other opportunity. In this case, we are seizing the opportunity to introduce you to our latest innovations relating to the MILLTURN“.

The WFL Management Team



**Kenneth Sundberg**  
Managing Director After Market Sales

**Norbert Jungreithmayr**  
CEO

**Günther Mayr**  
Managing Director Sales and Technologies



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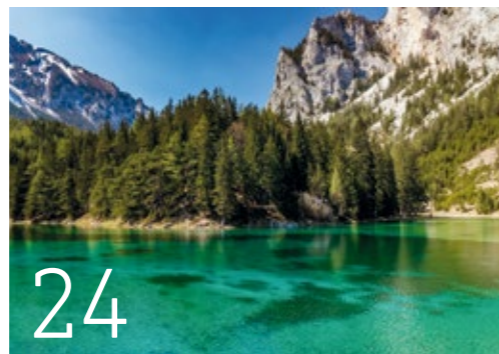
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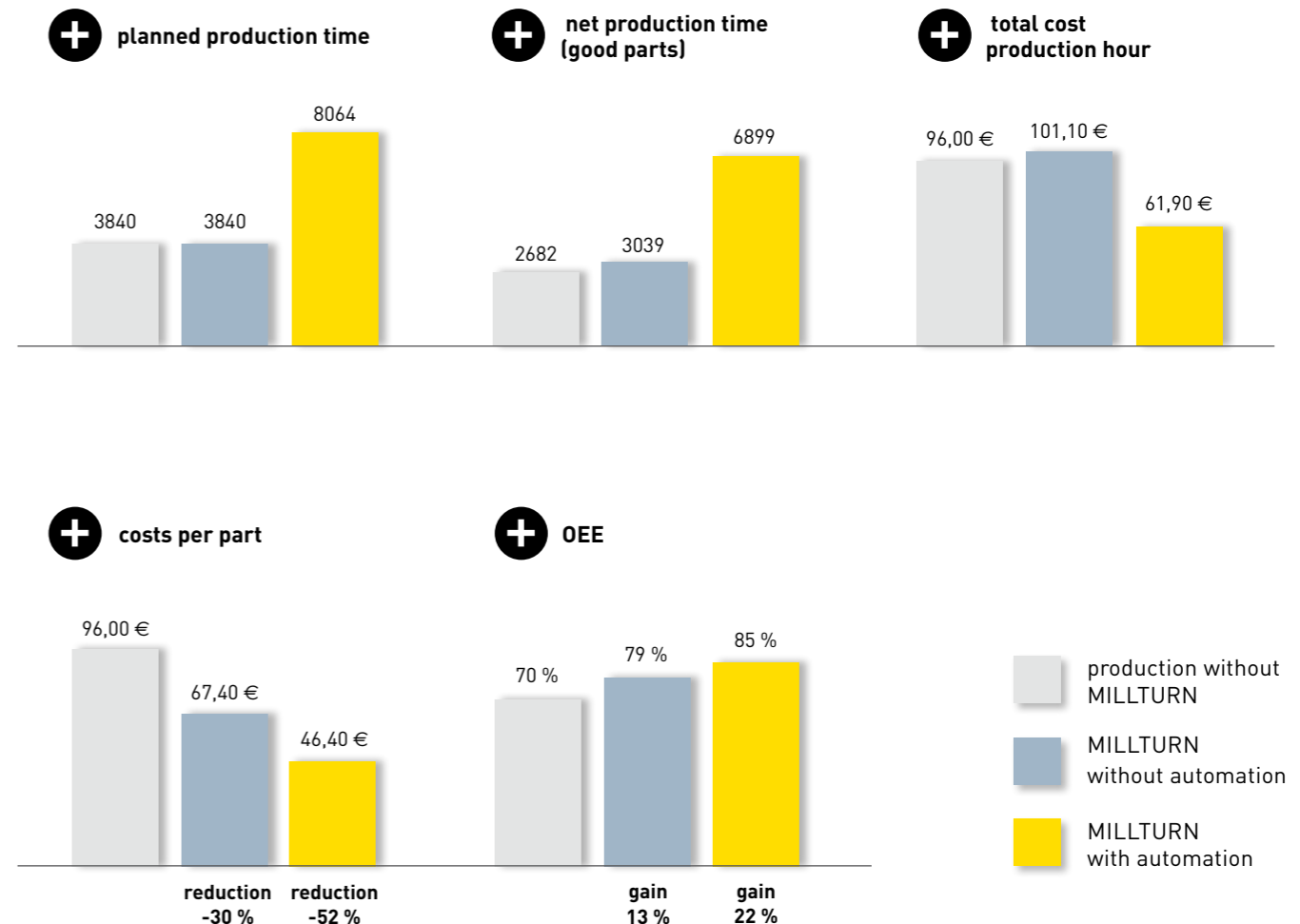
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# The advantage of MILLTURN automation



	actual production	MILLTURN without automation	MILLTURN with automation
working days/year	240	240	336
working shifts/day	2	2	3
working hours/shift	8	8	8
labour costs/year for above production €	100.000 Euro	100.000 Euro	100.000 Euro
investment	450.000 Euro	600.000 Euro	850.000 Euro
machining time	60 min	40 min	45 min
planned production time	3840	3840	8064
net production time "good parts" %	67 %	78 %	85 %
net production time "good parts"	2682	3039	6899



**CONSTRUCTION AS  
PASSION**

Together with his strong team, Wolfgang Gattermayr faces all the tasks and challenges of order construction.

Design

# The intellectual and digital craft of creation

**T**he most important upstream processes and elements of mechanical engineering are still the design, construction, configuration and development of innovative technical solutions. In the past, development and design were treated as separate entities. In this day and age, such a traditional distinction is becoming less and less important. Instead, each sector is striving for symbiosis. All ought to profit from one another, thereby carrying out work which is precise and efficient. WFL Millturn Technologies has valuable resources in these areas for solving every constructional problem and simplifying them through brilliant ideas. In this edition of Complete, we would like to introduce the man pulling the strings in the design department. We talk about everyday life at the company and gain a few private insights. Wolfgang Gattermayr – the eminent authority in product design and a teamwork specialist.

**Mr Gattermayr, please tell us something about yourself.**

First of all thank you for your kind words. I'm not sure about being the eminent authority though, I think that may be a slight exaggeration! (laughs)

My motto has been and remains achieving our goals together through collaboration and thinking outside the box. The driving force for this is simply enthusiasm, based loosely on a quote from N. V. Peale: „Enthusiasm is the never-flagging impulse that makes us doggedly pursue our goal“. But first let me tell you a bit about my youth: Thanks to my parents, I was blessed with positive genes in many areas. That's why I found it very difficult to decide which direction to take in life. Many influences, such as a love for nature, the desire to pursue sporting activities, an enthusiasm for teaching or a passion for music, to name but a few, did not exactly make it easy for me to choose a path in my professional life. My predomi-

nant interest in technology was ultimately the deciding factor in my choice of career – everything else became a hobby. Now I'm 62, have a house and garden and have been happily married to my wife Monika for 39 years. Doing activities together with our two sons, their spouses and our two grandchildren (13 and 16) always brings us wonderful and unforgettable moments.

**What path did you have to take to get to where you are now?**

After graduating from the HTBLA technical college in Steyr (majoring in automotive engineering, motor construction and mechanical engineering) and completing my military service, I started my professional life on 1 June 1979. My career began as a detail and design engineer in the mechanical engineering department of VÖEST-ALPINE-AG, in the machine tool sector. In the following years up until 1985, I was allowed to participate in all developments



**WITH A GREAT DEAL OF TACT**  
Solutions and optimizations are handled here with particular accuracy.

»With enthusiasm for common goals, one can overcome even the worst crises and emerge stronger from them.«

in mechanical design, beginning with the „stone age of machine tools“ – i.e. the box column drill and centre lathe – through the first NC slant bed turning machines to the fully automatic, unmanned production line (equipped with the world’s first „complete machining centres“/MILLTURNS).

In 1985, I was entrusted with heading up the mechanical design and order processing department „Production cells and special machines“. It was like jumping in at the deep end, which I dared to do after a short period of consideration. Times were uncertain back then: the machines, the automation (at that time also designed in house) and also all peripheral equipment such as coordinate measuring machines, coolant filter systems, conveyor techno-

logy, etc. were technically immature but for the most part prototypes.

In my youthful exuberance at the time, I subsequently took over the project management of many critical orders simultaneously. Successful acceptance of these projects would have been impossible without my, already at that time, excellent team and the interdepartmental and intercompany collaboration. I raise my hat to them! The success was only possible through team spirit and community. Those „apprentice years“ certainly shaped me and I still benefit from those times today.

In January 1994, I accepted the challenge posed by the role as „Head of Design Engineering“ in the then newly founded company WFL Millturn Technologies.

From then on, WFL developed into a globally recognised company with a claim to technological leadership in complete machining. Together with my team, we were able to make a difference during the company’s development.

**What is the main activity in your department?**

There is no one single main activity really. My team’s area of responsibility ranges from support during the pre-sales phase (project planning support) to order processing, quality campaign, purchasing, production and installation support as well as documentation creation. Furthermore, we support the dispatch up to the after-sales phase, servicing, and we also deal with the constructive pro-

cessing of all after-market sales orders. This means, for example, retrofitting and upgrading of used machines. All activities are important, and the processing of customer orders is treated with the highest priority in terms of deadlines.

**What would you say are the advantages of the MILLTURN complete machining centres? What do you believe makes the machine stand out? Could you name three characteristics.**

Complexity, production security and durability. I believe that these attributes distinguish us and give us that certain edge which we have worked hard for over the years.

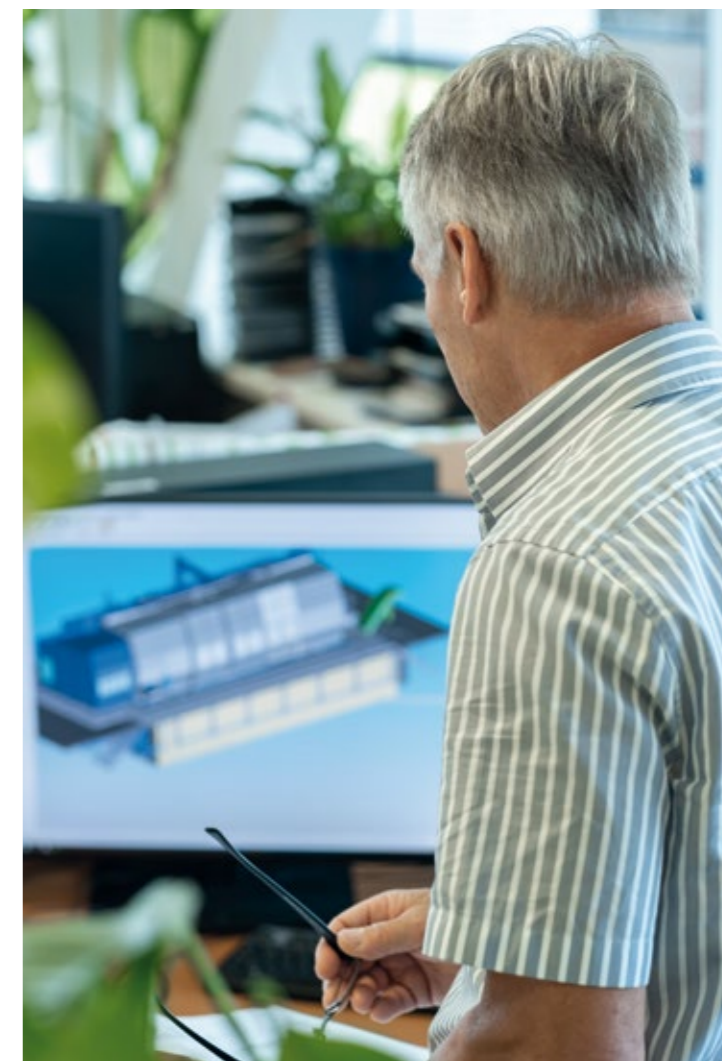
**What will be the next technical quantum leaps at WFL or for the MILLTURN complete machining centres?**

Having worked in the machine tool sector for over 40 years now, I have very high expectations when it comes to quantum leaps. In the past I used to perhaps see this as developing a conventional centre lathe into an NC turning machine, or moving from the NC turning machine to the complete machining centre. While it may be desirable, I believe that there will be no more such fundamentally groundbreaking achievements. Now we are in an era of ongoing improvements made up of smaller steps. In other words, we are on the road towards automation and

digitalisation. However, the demand for production machines that conserve energy and resources must also be taken into account.

**How does your physical and mental balance offset your stressful daily life?**

Having a good balance is crucial! The times when I jumped into my running shoes after a hard day and mentally freed myself on a run are unfortunately long ago as I am not as fit as I used to be. Nevertheless, sporting activities play a very important role. Of course, the all too rare bicycle tours or tennis matches with my active and already retired colleagues have a very relaxing effect. Gardening and mu-



**ADVANTAGE**  
Complexity, production reliability and longevity are the keywords of the MILLTURN.

sic are also soothing counterparts to my action-packed everyday working life.

**What has been the most defining experience during your years at WFL?**

No matter what you are facing, with solidarity, team spirit, and above all enthusiasm for common goals and selfless action, you can overcome even the worst crises and emerge stronger from them. It is important to pass on this positive way of thinking to our next generation of colleagues. My department is ready for this and nothing now stands in the way of a smooth generational change.

**If you could call yourself up for 30 seconds at any time in the past or future, when would you call and what would you say?**

Frankly, I would need some time to think about this question. But from a spontaneous point of view, I would call myself at the time after my technical training and say: „Now take a chance!“ My path would then have gone either in the direction of sport or music. Now that I know that everything has gone well in the technology sector, it would be very interesting to see if things would've also worked out if I'd gone into sport or music. Maybe as a

guitarist? Writing songs, captivating the audience and touring the great stages of the world. Or as a footballer? Thrilling an audience of millions in a running duel with the champion wingers and masters of dribbling... yes, that would have been great, too. I certainly wouldn't have been at the top of the music charts or at the peak of sporting excellence, but I would definitely have enjoyed it very much.

Thank you for the interview!



**PROFILE**

Name: Wolfgang Gattermayr  
Age: 62  
Home town: Ennsdorf, NÖ  
Education, training and career:  
1964 - 1973 Primary and secondary school  
1973 - 1978 Secondary Technical School HTBLA Steyr for automotive, engine and mechanical engineering  
1978 - 1979 Austrian Armed Forces  
1979 - 1994 VÖEST-ALPINE, VOEST-ALPINE-STEINEL  
1994 - present day: WFL Millturn Technologies GmbH & Co. KG



*All eyes on...*

# M20 MILLTURN

by WFL Millturn Technologies

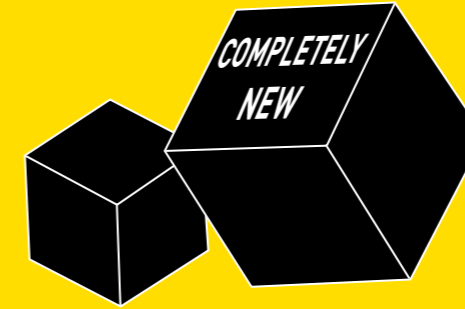
Achieving maximum flexibility and performance with smart machining



All eyes on

# M20 MILLTURN

by WFL Millturn Technologies



## The highlights and advantages of the machine

Its special features include the increased strength and rigidity of the machine as well as the continuous motor-spindle design, which enables machining technologies such as gear skiving or power skiving.

The configuration of the machine allows for a wide range of possibilities: from a pure complete machining centre with steady rest and tailstock, as a counter spindle machine with up to two tool turrets or an individual tool holder at the bottom, as well as an optional integrated robot or bar feeder and unloading tray.

Depending on the customer's requirements, different automation variants are used for automatic workpiece loading and unloading. An integrated workpiece handling and/or loading system on the right side of the machine represents a completely new variant of automation. The guidance system with longitudinal guide pillar protrudes into the machine in the longitudinal direction. The gripper slide moves on the guide pillar and can load and unload workpieces in this way. The workpieces are stored on a strip accumulator.

The machine has a turning-milling head on the upper slide system. The B-axis of the turning-milling head is directly driven and has a swivel range of -120 to +120 degrees for unrestricted contour machining. The new turning-milling head has a motor spindle system with a maximum speed of 20,000 rpm which is integrated as a cartridge unit in the swivel head.



### Machine highlights:

- New, innovative and modern design
- Machine bed made of spheroidal graphite iron for increased strength, rigidity and optimum damping behaviour
- Powerful motor spindle
- Option with individual tool holder at the bottom
- Two B-axis systems in one machine for simultaneous B-axis turning
- Very small gap in the lower system, as no telescopic plates
- Extensive sensor technology
- Diverse machining technologies
- Integrated workpiece handling
- 24" multitouch display
- New design of the operator panel
- Production cell with integrated loading and unloading

### Typical areas of application:

- An extremely wide range of types of gear cutting
- Blades in aircraft and turbine construction
- Components for suppliers to the automotive industry
- Drives for electromobility
- And many more

### Tool management & automation:

- Magazine with up to 80 locations available
- Maximum tool weight is 10 kg
- The maximum tool diameter is 90 mm (full occupancy) or 130 mm (free occupancy)
- Tool accommodation is carried out with HSK-A63 as well as Capto C6
- The lower tool holders can be equipped with 12 tools each
- Option with bar feeder
- Automatic tool change into the lower individual tool holder
- Setting-up of the tools parallel to machining time
- Automatic access to the stock in the magazine possible
- Coolant supply is automatic, with up to 80 bar coolant pressure

## Technical data

- Workpiece diameter up to max. Ø 500 mm
- Chuck diameter: 250 mm or 315 mm
- 33(29) kW main spindle at 40%(100%) duty cycle with 4,000 rpm
- Travel X1-axis: 575 (-100 ... +475) mm
- Travel Y1-axis: 260 (-130 ... +130) mm
- Travel Z1-axis: 1100 mm
- Travel X2-axis: 295 mm
- Travel Z2-axis: 1020 mm (only with single tool holder option)





DESCH Antriebstechnik GmbH & Co. KG

# Milling down to the finest detail

For many years now, DESCH has been a keen advocate of the concept of complete machining. Using a machine park that already includes eight different MILLTURN complete machining centres, drive solutions are designed and produced for a wide variety of machining industries. Components for driving presses and switchable couplings through to highly complex specialised gearboxes, or even large gear units for rolling mills and smelting works, are just a few of the typical applications that DESCH is currently manufacturing.

## EVERYTHING FROM ONE SOURCE

Special gear boxes, press drives and innovative coupling technology. With its wide range of products from shiftable clutches to highly complex special gear units, DESCH covers customer requirements for modern, innovative drive technology.

## Traditional company from the Sauerland region

DESCH GmbH & Co. KG has been run by the Desch family since it was founded in 1906. The company is busy all over the world in modern machine and plant engineering applications, yet remains proud of its roots in the Sauerland. DESCH is seen as the drive engineering specialist that delivers innovative, customised complete solutions for the entire drive train.

The DESCH Group employs more than 450 people worldwide and has a reputation for the highest levels of quality and first-class service. The company is well ahead of the pack in the relevant markets in Germany and Europe and is growing strongly with new premises in Canada,

the USA, China, Brazil, Italy, and other developing markets. In 2019, DESCH took the next big step towards the future by establishing an important strategic partnership with the Nidec Corporation and its subsidiary, the Nidec-Shimpo Corporation of Kyoto, Japan. Strengthened by their strategic partnership, DESCH and Nidec will play a leading role in drive technology in Europe, particularly in the field of mechatronic system solutions.

A wide range of products and an extensive service offering address the drive technology requirements at the interface between the drive and the machine. The company develops and produces planetary and special gearboxes, press drives, plus innovative coupling technologies for modern machine and plant engineering applications.

Wherever high levels of power and force need to be transmitted, DESCH drive technology will be equally at home in asphalt milling on motorways or in crusher plant in quarries. DESCH drives power rudder propellers in ships, swivel ultra-precise parabolic antennae and are widely used in machine tools and agricultural machinery. The company is also developing pioneering technologies, such as drives for the tidal power plants that convert sea currents into electrical energy.

The DESCH product portfolio has changed over time, becoming steadily more complex and technologically demanding, thus paving the way towards complete machining. The overriding objective of DESCH was to manufacture highly sophisticated small series in a cost-

effective and reliable manner while keeping lead times to a minimum. Which is why in 2013 contact was established with WFL Millturn Technologies. It all began with a meeting between WFL regional sales manager Reinhold Wieland, former production director Detlef Ebert and Dirk Müller, who was manufacturing manager at the time. „Among the stand-outs for us as far as WFL was concerned were how sales dealt with the project management and the technological execution on the machines. The projects were implemented very quickly and accurately,” noted production director Dirk Müller. Three different types of machine, posing various technological challenges, were installed in the factory and up and running within a year. The technology was tested and run in at the same time as the installation at the Millturn Innovation Center in Linz before being implemented in the machines on site. Reinhold Wieland fondly remembers the exemplary teamwork at all stages of the project: „Everything ran so smoothly, from planning right through to implementation and production. Above all, we were able to satisfy the challenging quality requirements.”

### Applications in the „MILLTURN machine park“

Crankshafts for presses or pumps, enclosures for machine tools, couplings or centrifuge gearboxes, drive and output shafts for construction equipment, ships and machine building: they are all produced on the MILLTURN machines at DESCH. The manufacture of gearwheels, which are primarily found in planetary gearboxes, pump drives or synchronously driven construction machinery, is another application area.

Manufacturing batches on the various machines range from 1-50 parts. By far the largest share is made up of batch sizes of 1-5 parts. Manufacturing times were reduced by as much as 70 %. „The MILLTURN concept and its supporting slogan „Clamp once – Machine complete“ were totally justified,” comments a delighted Dirk Müller. In particular, the number of clamping operations and the alignment overhead were reduced significantly, which had a positive impact on the quality of the components. This in turn led to a marked improvement in

geometrical and positional tolerances. Lead times and wait times were reduced to one sixth of their previous levels.

The accuracy of the machines came under close scrutiny when deciding which one to choose, as it was going to be equipped with an extremely precise measuring system and the corresponding software. The highest levels of quality had to be achieved, both in the production of single parts as well as with small series of differing workpieces, using all possible technologies. A great deal of importance was placed on the high-quality finish of the machine. Other factors, such as ease of maintenance, accessibility to the machine and the visibility into the working area, also played a key role in the purchasing decision. Last but not least, the many years of experience in complete machining was another decisive factor behind the decision to buy the WFL MILLTURNS.

DESCH now has a total of five MILLTURN models in use in a number of factories at

its Arnsberg site. The last four machines were acquired in 2018 to increase capacity, particularly for the manufacture of gearboxes. A new production site has just been created. The machines were purchased on the basis of component classes (sizes) and the required capacities. „Our current machine park allows us to react flexibly to the market,” says Dirk Müller.

### Gear cutting technology

At present, the MILLTURNS are mainly used for the manufacture of spur gears and cylinder wheels. Even as the machines were being purchased, additional software options and technological features were being considered to enable other geometries to be produced in the future. For example, the InvoMilling method makes it a simple matter to modify the gear cutting. The whole process is much more flexible compared with using a gear hobbing cutter. The technology available with a MILLTURN comple



### MINIMAL NUMBERS OF CLAMPINGS

The steel workpiece is finished in only four clampings.



### PRODUCTION

The crankshafts are manufactured on the M120 MILLTURN.



te machining centre facilitates powerful cutting to the highest levels of precision. In addition, the full spectrum of cutting tools can be utilised, leading to the development of new machining strategies.

Desch uses the TopSolid 7 CAD/CAM system as well as WFL's own CrashGuard Studio package, which allows the sequence to be simulated before machining commences.

### The service clinched it

Another reason behind the decision to buy the machines was the fact that there had already been many positive experiences with WFL Service. „Super-fast response times, easy to get hold of, good communications, the technical people in the internal and field sales teams, and the excellent availability of spare parts were important factors that put the icing on the cake. The solution-oriented working method means we're in good hands over the entire life cycle of a MILLTURN,” observes Dirk Müller.



### HIGHEST DEMANDS

At present, the M80X MILLTURN is being used to manufacture splined hollow shafts with lengths of 820 mm and diameters of 350 mm.



### Process reliability through automation

The DESCH Group utilises the most modern machining strategies and is pressing ahead to increase its production capacity and efficiency. The development and extension of all DESCH subsidiaries is intended to pursue the common target around the world of focussing even more on complete drive and system solutions. All production facilities are being significantly and continually upgraded with the most advanced machines to meet the differing requirements of series and one-off manufacturing. „Automation is very important to us. In the first stage we intend to concentrate on the automation of our small series, for instance on parts with a high degree of repeatability,“ concludes Dirk Müller.

**ALWAYS-ON – ENDLESS MANUFACTURING POSSIBILITIES:**  
In its modern production locations in Europe, North America and Asia, Desch is additionally offering a broad performance spectrum in the field of toll manufacturing and the manufacturing of customer specific components.

**The portfolio includes:**

- Turning/multicutting
- Milling/boring
- Grinding
- Gear cutting
- Grooving/balancing
- Measurement technology
- Robots for small component series

**Machines in use at DESCH in :**  
2013 – M120/3000 mm/DESCH Canada Ltd.  
2015 – M120/3000 mm/DESCH Canada Ltd.  
2015 – M120/3000 mm/DESCH Antriebs-technik GmbH & Co. KG  
2018 – M40X/3000 mm/DESCH Antriebs-technik GmbH & Co. KG, Werk 6  
2018 – M65/3000 mm/DESCH Antriebs-technik GmbH & Co. KG, Werk 6  
2018 – M80X/3000 mm/DESCH Antriebs-technik GmbH & Co. KG, Werk 6  
2018 – M65/3000 mm/DESCH Antriebs-technik GmbH & Co. KG  
2018 – M120/3000 mm/DESCH Canada Ltd

**Facts about:**  
Foundation of the company: 1906, founded and managed by the DESCH family  
Employees: ~450  
Global distribution network:  
[www.desch.com](http://www.desch.com)



### PLANT IN THE COUNTRYSIDE

Desch uses three different MILLTURN complete machining centres in its Factory 6. Gearing components for gears are currently being produced on these machines.

*All eyes on...*

# WFL SCREW PROGRAMMING

by WFL Millturn Technologies

The proprietary simulation and programming software CrashGuard Studio enables users to perform preliminary verification of NC programs on the PC and carry out easy workshop-comparable programming using the programming editor MillturnPRO. The functionality has been significantly enhanced with the option to easily program screw geometries.



# WFL SCREW PROGRAMMING

## The „worm screw“ workpiece at a glance

Geometries like these are needed for screws for machinery for plastics such as extruders or injection moulding machines, where solid granulates are pressed through one or more rotating plasticising screws in a cylinder. A heating system, friction and pressure cause these granulates to melt during the conveyor process through the screw, at which point they can be processed further. During the melting process, the feed or removal of materials or gases can influence the properties of the end product. This process produces high pressures and forces, not to mention wear due to friction and high temperatures. Suitably resistant materials are therefore needed, which poses a major challenge during machining. Because of these requirements, the manufacture of

cylinders and screws is an ideal area of application for the MILLTURN from WFL.

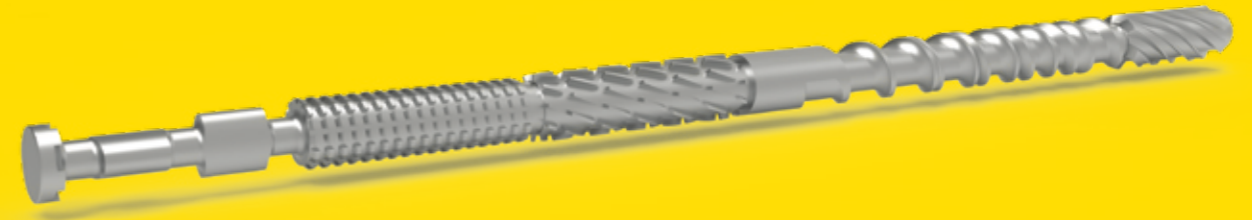
**Demands on the production of screws**  
Modern screw geometries with the associated compound and shearing parts can only be manufactured by means of complex milling operations; the machining process and programming needed are extremely demanding.

In many applications, the inclined walls can be produced using standard tools, e.g. solid carbide end mills with corner rounding, instead of expensive special milling cutters. This is facilitated by an automatic „best-fit“ calculation algorithm together with the B- and Y-axis.

The entire range of requirements are perfectly covered with the capabilities

of the MILLTURN from WFL. As well as wanting to be able to program screws in an easy and flexible manner, very specific clamping devices are also required. WFL has responded to these requirements and now offers a range of new solutions.

Screws are often produced in a customised manner and therefore in very small batches in line with demand. In many cases, especially when manufacturing spare parts, only 2D drawings are available. The new software solution from WFL is designed for such demands and offers particularly simple, quick and flexible programming with direct simulation options and collision checks. Even prototypes can be efficiently and reliably programmed and produced.



## Key features of the new WFL screw programming software

### Advantages

The WFL screw programming software, which is integrated into the 3D simulation software of CrashGuard Studio, gives the customer the option to use different geometrical and technological functionalities.

During the modelling phase, the software uses the parameters which have been entered, such as diameters, pitches, wall inclines, radii, bar or channel widths, etc, to interactively create a 2D model representation of the cylinder development of the boundary contours and a 3D model of the screw.

### The following geometries can be produced:

- Single or multi-flighted screws, including changes to the number of flights
- Changeable depth
- Any change in pitch
- Wall shaping with radius to the channel base and wall inclination angle in the longitudinal cut or in the channel crosssection

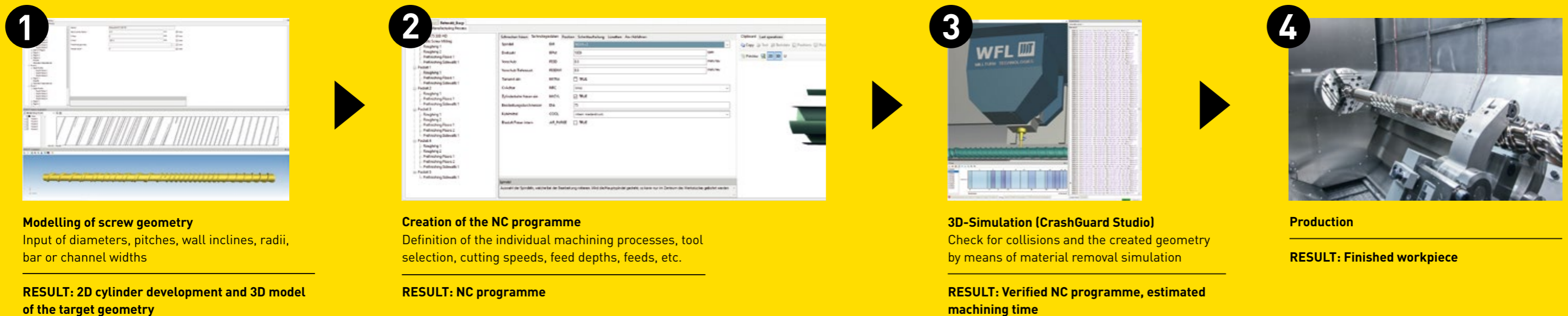
The NC programme is then generated based on the target geometry of the screw. For this, the appropriate tools must be defined for the different machining areas and the technology parameters such as cutting speeds, feed depths, feeds, etc. must be determined.

### With regard to the technological implementation on the workpiece, the following machining processes are used:

- Rough machining with automatic cut distribution and Y-offset control (turn-milling)
- Finishing of walls with automatic „best-fit“ tool positioning (B- and Y-axis)
- Finishing of channel base
- Chamfering of barrier bars

Before machining the actual workpiece on the MILLTURN, there is a comprehensive 3D simulation in CrashGuard Studio. The machining time is already evident at this point.

## The process until the screw is produced is as follows:





*We love...*

# ...Styria

The state of Styria appeals to each of your senses in the most breath-taking way. Whether old, young, a nature lover or urban jungle tiger – you'll be sure to find your favourite here. There is a reason for the saying: if you come once, you'll keep coming back.



**ALTAUSSEE**  
in the Styrian Salzkammergut

**WORTH SEEING**  
is especially the clock tower in Graz.

**W**arm rays of sunshine make your skin tingle and the summer wind heralds the evening. The smell of fresh black bread is in the air, and juicy tomatoes are waiting to be cut. The Murtal Steirerkäs cheese and fresh farmhouse bacon are ready to be enjoyed. And with a glass of white wine in your hand, the evening finale is ready to begin. Styria extends from the northernmost point, the Dachstein (2,995 m above sea level) to the southernmost point of the Vulkania spring (2,843 m above sea level). In between, Graz lies at 353 m above sea level and is therefore the unique, urban center. The variety this region has to offer is barely tangible and yet so captivating that you cannot help but be affected.

### Over hill and dale

A lush and green spring, the vines are slowly beginning to grow and a real sea of blossoms adorn the countryside: the perfect backdrop for a bike ride. Trees providing shade and cosy cabins with homemade dishes which entice a vast number of hikers during the summer. The autumn bustles with a blaze of colours and invites you again and again for a stroll. In addition to the vibrant orange colours of the pumpkins and the array of red-brown colours of the leaves, the young wine also tempts you to just sit and enjoy and linger. 788 peaks above 2000 meters call out to any hiking enthusiast. A particular highlight is the hiking route „From the Glacier to the Wine“. The northern route takes in 548 km and takes you through 35 stages from Bergkönig Dachstein to the healthy thermal springs and on to Bad Radkersburg, whilst the southern passage takes you through 25 stages along 382 km from Dachstein into the wine country and on to Leibnitz. At the latest when the ice crystals are glistening and ski resorts present fresh slopes, even the remaining sceptic is now convinced. A special highlight is the FamilySkiFestival Styria in December, which heralds the active winter season especially for children.

The experience of landscapes that reflect a contrast between the alpine north around Dachstein, Gesäuse and Hochschwab with mountain lakes, alpine pastures and cabins and the gentle hills around wine, apples and pumpkins in the south, is a unique spectacle of nature. Whether skiing, cross-country skiing, hiking, cycling, mountain biking or golfing – everything is possible.



### POWERFUL PICK-ME-UP

The traditional Styrian coldcuts are an absolute must after a day on the move.

### Gusto with a view

The greenest state in Austria not only reveals a breathtaking natural setting. Styria is, especially in the south, the most fertile state in Austria, yielding an array of high-quality luxury foods, from apples to arolla pines, as well wine which has been grown here for two and a half thousand years. Styrians are fully aware of this natural bounty relating to the culinary trilogy of wine, pumpkin (seed oil) and apples, which are such an important part of the Styrian way of life. Vineyards cover approximately 5,000 hectares of Styria farmland. Every year, grapes grow here to produce 220-280,000 hectolitres of wine. The large 5,100 hectare apple-growing area, with a harvest of 140,000-180,000 tonnes of apples, is primarily used to produce juice, cider and vinegar. The vast 9,000 hectare pumpkin-growing area too produces an impressive harvest, which is turned into 3.2 million litres of pumpkin seed oil.

### The power of water

The abundance of water between Dachstein and the wine region is always extremely appealing. Rivers with drinking water quality, gushing waterfalls, taps from which healthy drinking water flows – this natural resource is the perfect basis for a period of relaxation and a unique

experience of nature. Relaxation comes in many forms, whether it's at the largest Styrian lake, the Grundlsee, at the end of the Riesach waterfall or in one of the nine thermal springs with pure thermal water. The slogan for this Austrian state is „Grünkraft Steiermark“ – Green Styrian Energy. This „green energy“ goes all the way back to that inner balance and fresh energy of life. This is backed by regional products, from apples to arolla pines, and the thermal waters with their proven stress-reducing qualities.

### Towns and villages – urban jungle

When creative minds and history come together, the result is something quite unique. The state capital Graz is a perfect example. The futuristic-looking island in the Mur and the art museum fit harmoniously into the old town. The opera, theatre, open-air and cabaret theatres as well as the cathedral in the mountain offer everything the heart desires. And don't forget the Graz Advent with the heavenly lighting, ice nativity and atmospheric Christmas markets.

No matter what you experience, the relaxation and peace offered by Styria will remain with you forever. Even in the middle of the city of Graz you'll find havens of peace and tranquillity through art and culture. „The green heart of Austria“ welcomes anyone longing for the perfect time-out.



### ARTISTIC AND ARTIFICIAL

the Murinsel is one of the modern landmarks of the city of Graz.



### RELAXING

by experiencing nature at the green lake couldn't be easier anywhere else.



### EDITOR'S TIPS:

[Bad Aussee Alpine Garden](#)  
Hauptstraße 48, 8990 Bad Aussee

[Mariazell Basilica](#)  
Benedictus-Platz 1, 8630 Mariazell

[Brewery of the Senses](#)  
Raffaltplatz 19, 8850 Murau

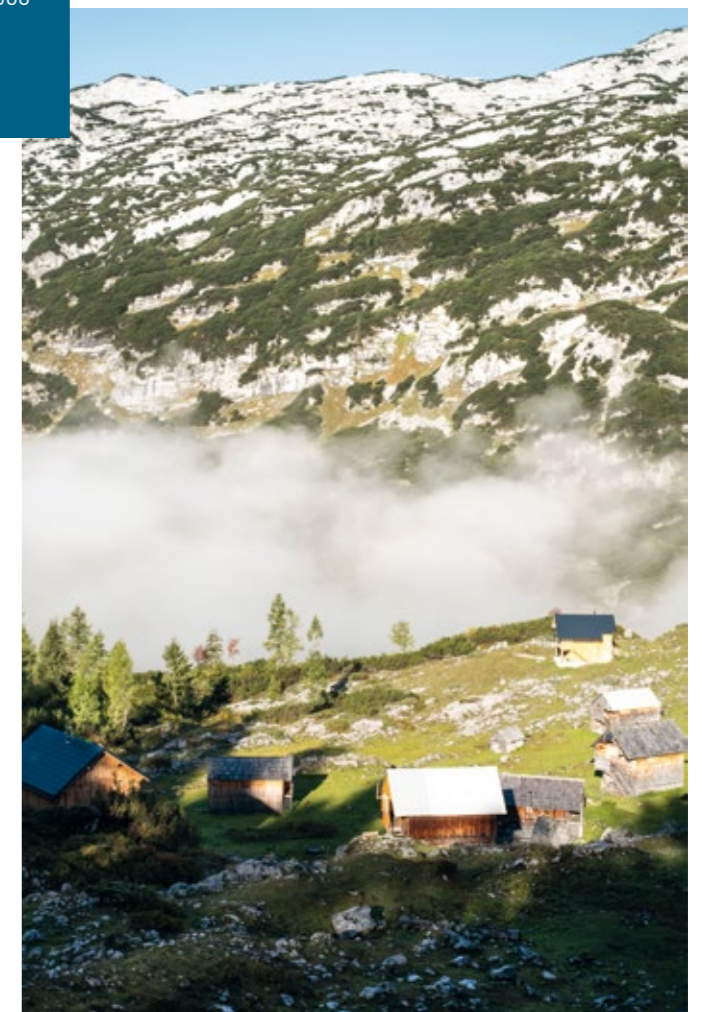
[Burgruine Gallenstein](#)  
St. Gallen 86, 8933 St. Gallen

[Gsellmann World Machine](#)  
Kaag 12, 8332 Edelsbach

[Hiking Route](#)  
[From the Glacier to the Wine](#)  
The 546-kilometre north route which takes you through 35 stages as far as Bad Radkersburg in the thermal springs country or the 377-kilometre south route which takes you through 25 stages to Leibnitz in the Southern Styria Nature Reserve.

For more information on Styria:  
[www.steiermark.com](http://www.steiermark.com)

**FACTS**  
Population: 1.243.000  
Size: 16,401 km<sup>2</sup>  
Capital: Graz  
Districts: 287



### TRADITION

is still alive here – Ausseerland.



All eyes on

# Complete machining of chuck parts

## in the aerospace industry

Centring on the core competence of „complete machining“ according to the motto „clamp once – machine complete“, a number of challenges have already been overcome. This also applies to the complete machining of chuck parts in the aviation sector. A MILLTURN completes these complex production tasks to the highest levels of productivity and precision. For chuck parts where the diameters are often the same or considerably bigger than the workpiece length, WFL has been able to gain quite an advantage over the years.

Popular chuck parts include „blades“, „discs“ and „rings“. The latest projects show that chuck parts up to a turning diameter of 1700 mm can be machined on a M175 MILLTURN. With a M175 MILLTURN (Large Swing), it is even possible

to machine parts up to a diameter of max. 2000 mm. This means that tremendous dimensions can be machined, all in a single clamping setup.

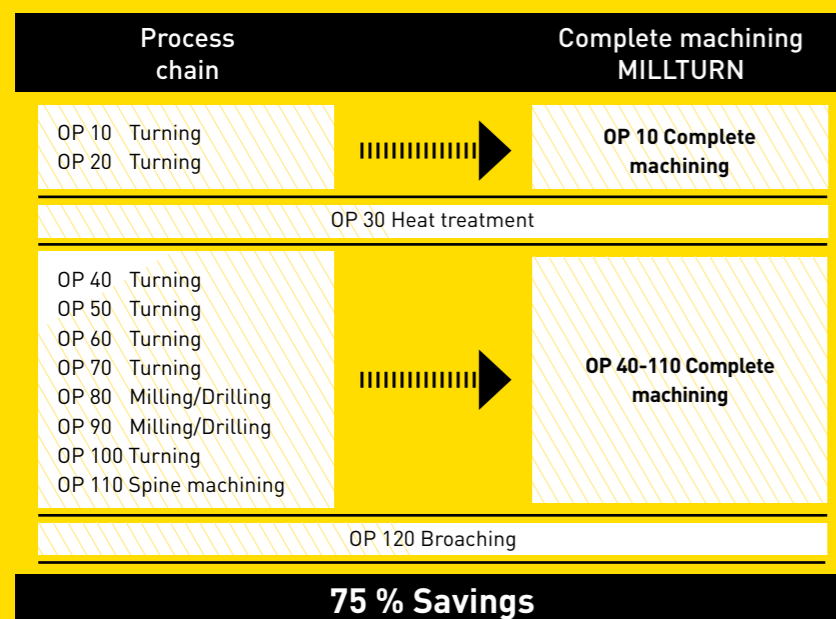
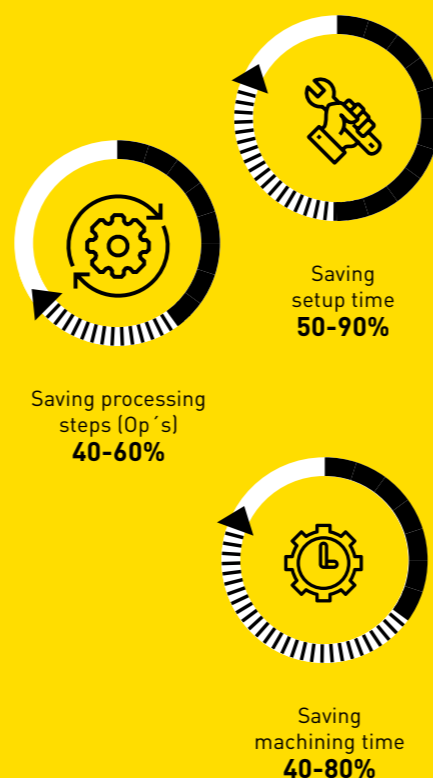
By using special machining technologies and software tools, it is possible to make machining extremely efficient. For complex chuck parts, an all-round concept is needed which delivers excellent results for the customer. The T-series and TB-series have fared particularly well in this regard. The T40 – T150 series are slant bed turning machines with one or more tool turrets for difficult machining and the high-precision machining of shafts and chuck parts. In addition, the matter of internal turning with long boring bars also becomes a reality. The TB series offers the optimum solution for complex turned parts and for turned parts which

require a high tool stock level. The TB40 to TB150 enable high-precision machining of shaft and chuck parts up to 1500 mm in diameter and a workpiece length of max. 8000 mm\*.

The complete machining of chuck parts is diverse and requires an individual solution to every project. Automation solutions, for example, are the perfect addition for an even more efficient production environment. An automated system with robots or gantries allows chuck parts to be optimally stored and machined in pallet systems.

\*Higher values available upon request

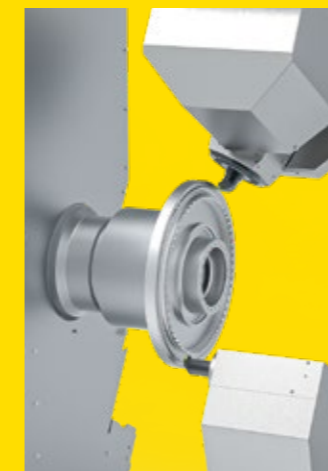
### Potential savings in chuck part machining



### Machining example 1:

4-axis complete machining of discs (top/bottom concept)

By enabling the workpiece to be machined from the top and bottom and by using two single tool holders, maximum productivity is guaranteed. The top system can hereby be designed as a turning-boring(TB) unit, turning with X-, Z-, Y-, B-axis, or as a milling-turning(MT) unit, 5-axis complete machining. The bottom system is then set up as a T unit. Both tools can be exchanged automatically – and above all, very quickly – at any time.



4-axis complete machining of discs

### Machining example 2:

4-axis complete machining of rings (top/bottom concept)

By using two single-tool holders (top/top), this variant allows you to achieve a compensation of the cutting forces. For workpieces with thin walls in particular, this produces a significantly better workpiece quality and shorter machining time. The top system in this case is set up as a TB (turning with X-, Z-, Y-, B-axis) or MT (5-axis complete machining) unit. The bottom system is set up as a T-unit (turning with 2 axes). Both tools can be exchanged automatically and very quickly.



4-axis complete machining of rings

### Other features for machining chuck parts – the WFL pallet system for workpiece clamping:

Traditional clamping devices take up a lot of time during clamping and adjusting. The new WFL solution allows quicker, more flexible and, above all, very precise changeovers. The workpieces can be clamped and aligned parallel to machining time into the clamping device on the loading station in front of the machine. The clamping device and workpiece are then exchanged manually, semi-automatically or automatically to the interface on the spindle nose and are clamped automatically. This concept eliminates the need for clamping device setup times in the machine. The major benefit here is the quick and, above all, precise exchange of the equipment.



Loading station for chuck parts

## The benefits are clear

- Clamp once – machine complete
- Highly efficient 4-axis complete machining of disc-shaped chuck parts
- Compensation of the cutting forces as a result of opposing tools for workpieces with thin walls
- Setting up of equipment and workpieces parallel to machining time
- Quick and precise exchange of the equipment incl. workpiece in the machine
- Production of locating holes with very precise positional tolerance
- Process monitoring
- Manual, semi-automatic or automatic loading
- Adapted coolant supply HPC/UHPC (up to 350 bar)
- Automatic exchange of all tools and measuring probes
- Large magazine capacity for machining heat-resistant super alloys, such as HRSA and titanium materials
- Highest levels of productivity and quality
- Durability
- Automatic run-out and roundness measurement with scanning measuring probe
- Turn-milling instead of turning for uninterrupted cut
- Process design and turnkey solutions by WFL

Hoffmann Group

# Pushed to the maximum

**W**ith over 4,000 employees and an extensive range of tools, operating equipment and personal protective equipment, the Hoffmann Group is one of the major players in the industry. In 2019, its parent company, Hoffmann SE, celebrated its 100th anniversary. The first WFL Mill-turn complete machining centre was also commissioned last year at the Hoffmann Group. This machine takes on a highly unconventional role – rather than producing components, it is used to test and optimise tools. These are ruthlessly pushed to their very limits. The result is a huge amount of chips and valuable tool data.

## Everything revolves around the catalogue

“We don’t make tools in this department, they are developed in conjunction with suppliers,” explains Dr Jens Rossaint, Director Engineering, who is responsible for the Technology department and therefore the quality management of products developed for the catalogue. This is extremely important, as the catalogue is key at the Hoffmann Group. The orange ‘tool bible’ has been published annually since 1978. It is available in 18 languages and now comes in four volumes with a print run of 900,000 copies. In 2000, an online version with over 90,000 items to choose from was also launched with the eShop. “The process for including a product in



the catalogue typically goes like this: we define what the tool should be able to do, draw up a specification, integrate technical ideas. Then there’s some kind of tendering process and we narrow down the number of suppliers to a shortlist. These then manufacture prototype tools. This is followed by testing, a comparison with competitor products and benchmarking. The tools are then continuously developed

## IT’S ALL ABOUT THE ENVIRONMENT

The machining demonstrations often result in cross-selling opportunities for workshop equipment. The design of the machine environment has a decisive effect on production efficiency.

Focus on chips and tool data:  
In order to be able to test as many different tools and technologies as possible, a M35-G MILLTURN was put into operation at Hoffmann in 2019.



by the supplier. These tools are then only found at Hoffmann in this manner. After testing, the new tools gradually enter the catalogue. We mainly sell standard tools. But we do offer a few special tools too," summarises Rossaint in regard to their workflows.

### Targeted development in the TechnologyCenter

The TechnologyCenter in Munich, opened in September 2019, has been equipped with extensive measurement and testing equipment as well as numerous demonstration and training facilities. In addition to the measuring room which features a coordinate measuring machine, all conceivable analytical equipment, from a hardness tester to a scanning electron microscope, is available for scientifically examining the properties of the tool's structure. Ultimately, the question is why might a tool be good or bad? The structure allows conclusions to be drawn about the performance and durability of a tool. "We're not interested in blind trial and error, instead we want to take a targeted approach to development and optimisation," explains Rossaint. Alongside laboratory equipment, the Munich TechnologyCenter also features operating equipment from the catalogue, which clearly demonstrates the optimum way to set up the machine environment.

If customers want to see specific tools live in action, they can sign up for this through field sales. "We then arrange an appointment with the customer and field sales and define what the demonstration will cover," explains Thomas Grünberger, an expert in machining and additive manufacturing. In addition to material-removing methods, there is also a lot of focus on additive manufacturing here. Customers can visit the TechnologyCenter individually with members of the field sales team. However, more come to take part in training sessions and the regular 'get together'. The latter is less about drinking beer and much more about meeting up with experts and specialist talks on tools. Several Hoffmann Group employees also frequently participate in training sessions and familiarise themselves with the catalogue products at the centre. The training rooms where the theory is imparted are located close to the TechnologyCenter where visitors can see everything live in

»We're not interested in blind trial and error, instead we want to take a targeted approach to development and optimisation,«, explains Rossaint.

action on the machine. The training sessions always include a practical component. And this is where the new WFL Millturn takes centre stage. In addition to the turning-boring-milling unit with B and Y-axis, the counter spindle machine is also equipped with a tool turret on the lower system. This means the machine can perform simultaneous turning on both spindles or perform 4-axis turning on one spindle. Five-axis machining is also possible with the turning-boring-milling unit and the C-axis. Thanks to a steady rest on the tool turret and a tailstock function for the counter spindle and tool turret, longer shaft components can also be machined. Transfer to the counter spindle means that parts can be fully machined in just one clamping operation. Thanks to a Hainbuch Centrotex quick clamping system, various clamping devices such as chucks or clamping mandrels can be changed over in just 20 or 30 minutes and the machine can be flexibly adapted for the task at hand.

### Easy programming on the machine

Programming is carried out with a CAM programming system. Easier programming jobs are completed directly on the control unit using Millturn PRO, a proprietary WFL programming editor. "We also like to use this for specific tasks," says Thomas Grünberger. "We want to make really great show parts with it. With the tool turret and turning-boring-milling unit also in use at the same time,

of course. And we also have the driven tools on the tool turret. We want to push the machine to its limits." If tolerances are very tight, a Renishaw in-process measuring probe is also used. A whole range of WFL measuring cycles are available for this.

### Tests with large inserts also possible

The Hoffmann Group needed to be able to test as many different tools and technologies as possible. It was also important that newly developed tools could be represented in the machine. Another requirement was that the company's own software developments – particularly for tool management – could be integrated into the machine and that they could build upon existing software solutions for future developments. Willingness to work together with the machine manufacturer is essential here. "It's a huge advantage to also be able to test large inserts without immediately bringing the machine to its knees. The highly flexible clamping options mean that we can also use larger diameters with ease, to extend the test ever further, obtain even more data and carry it out for a suitable length of time with a high level of machining performance. Ultimately, it gives us the means to test tools more efficiently. With the WFL, we can now perfectly test HSK-63 turning tools and thereby optimise our product portfolio. The B-axis is also a huge plus during turning, as we have great flexibility for adjusting the entering



### SET-UP PROCESS

Excellent access to the tool magazine makes tool setting-up so much easier. The smart tool management system from WFL guides users clearly and intuitively through the set-up process.



### VARIETY

Thomas Grünberger clearly explains the tools and clamping device on display. There is an almost unlimited variety.

angle. When our field sales staff come back with various customer requests, we can reproduce practically any situation, from VDI40 on the tool turret to any tool in the turning-boring-milling unit at any possible angle. The milling spindle was designed for 16,000 rpm, so we are also well equipped for future requirements." Since the start of the year, almost 400 customers have visited the machine. The field sales staff also take frequent advantage of the practical testing opportunities with customers. The WFL is a real attraction. A whole bunch of visitors are standing round the machine right now.

### Looking ahead: grinding

Grinding with the machine has not been looked at yet. The machine is prepared for

this, but it is not currently a primary focus. However, the relevant experience can now be gathered at any time. "Our role is to advise the customer throughout the entire machining process. If the trend for integrating grinding in the turning-milling process picks up momentum, then we are able to fully reproduce this process on the machine at any time. With this machine, we are also able to test our entire portfolio of tools from the catalogue," explains Rossaint.

### Industry 4.0 included

Rossaint also has big plans when it comes to connectivity. "It's about integration into our CM software – Connected Manufacturing." This is used to record and evaluate spindle data in real time. This is

also of interest in regard to the tool life. The machine is equipped with an OPC UA interface for transferring the data, which means it is ready for any additional IOT solutions that may arise in future. "The machine offers a lot of functions that we haven't worked with yet."



All eyes on

# Complete machining of rotors with variable pitch

by WFL Millturn Technologies

At WFL, a significant aspect in the production of rotors is the efficient complete machining of the workpieces. Rotors are machined from the saw-cut section, forged or cast part in a single operation in the MILLTURN. The workpiece is then clamped in a vice for end machining. Alongside screw rotors, Roots-type rotors and twisted rotors, the complete machining of rotors with a changeable pitch is also possible at WFL.

During turning and milling operations, the rotor is clamped between the tip and the chuck with retractable jaws, allowing the highest levels of runout accuracy and quality to be achieved.

The rotor is programmed based on geometry information from the customer. Another variant is parametric NC programming where the descriptive parameter values, e.g. pitch, shape, number and depth of holes, axis distance and play to the flanks, are entered. Based on these input values, the machine control system then directly calculates the individual positions and machining sequences.

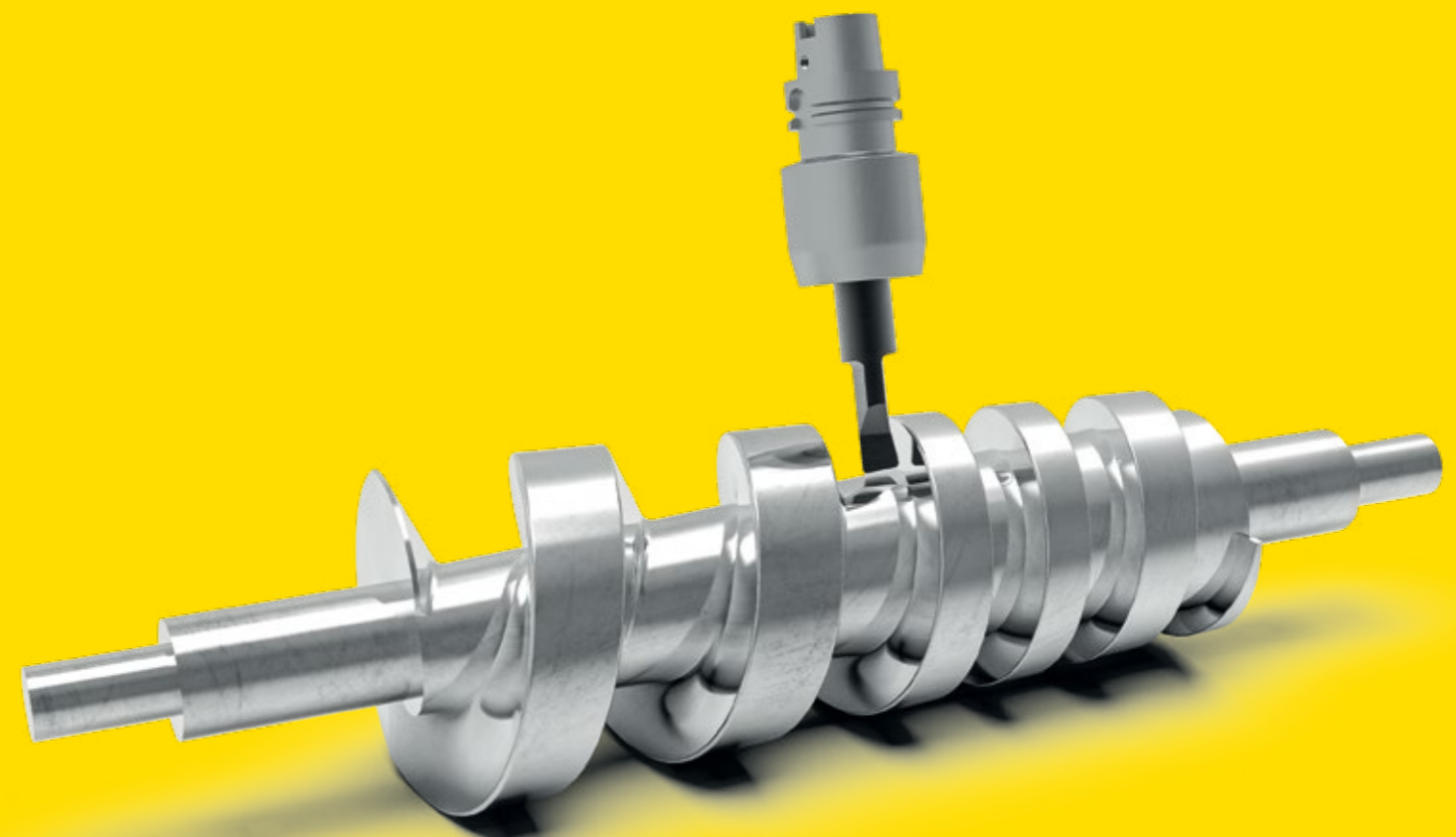
In terms of tool selection, which is undertaken by WFL, custom products are used which are adapted to the contour and pitch.

The unfinished part is pre-milled in the first stage by means of roughing, followed by finishing with turning tools. Internal cal-

culations of the individual turning cuts by the control unit allows, in contrast to the finish milling of rotors, corrections to the flank shape and pitch to be made directly on the machines, without having to use a CAM system. The complete machining of rotors offers considerable savings when it comes to the machining time in particular, where efficiency gains of 30% to 70% are possible.

The in-process measurement method developed by WFL enables maximum manufacturing precision to be achieved with the tightest dimensional and positional tolerances. After the workpiece is clamped, the control unit automatically records the longitudinal and circumferential orientation of the workpiece with one of the measuring probes changed from the tool magazine. After that, machining continues relative to the actual position. Any fault effects are compensated for.

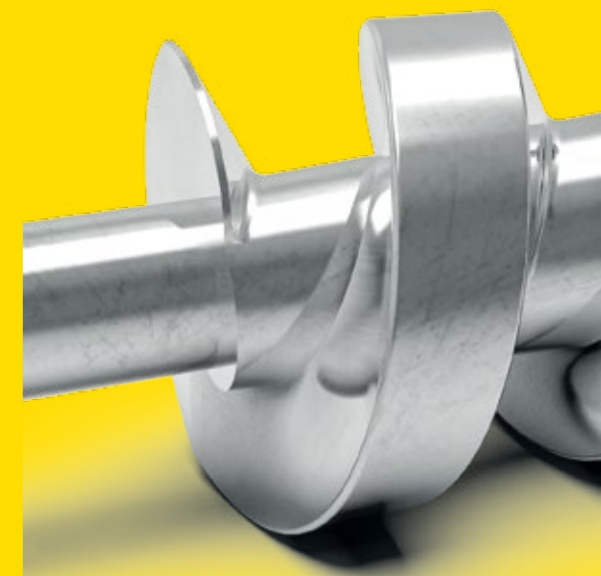
Once the machining sequence has finished, the workpiece is automatically measured and the final workpiece precision is logged. Based on the data gathered, extensive analyses are performed directly on the machine, and where necessary, measuring protocols are printed out or the measurement results are exported for further processing.



**2** Internal calculations of the finishing paths by the control unit allows corrections to the flank shape and pitch to be made directly on the machines.

## Advantages

- Fewer machining operations
- Elimination of the cylindrical grinding machine
- Minimal tooling times
- Higher runout quality
- Less space required
- Reduced personnel costs
- Clamp once – machine complete (including all turning, drilling, deep-hole drilling and serration machining)
- Fully automatic correction through integrated measurement
- Optimum shape and position tolerances due to the elimination of multiple clamping steps
- Process monitoring with WFL iControl
- Process safety



**3** Perfect surface quality thanks to the complete machining of turned rotors.



**1** Roughing between the holes using milling cutters.

# Giving machines a second life

**I**n the era of fast-paced development and progress, quality and innovative solutions stand the test of time. WFL's second-hand machines are proof of this – even after several years of use, they demonstrate a very high level of competitiveness. Like with the new machines, WFL offers unique options with regard to quality and customer care.

Depending on the customer's needs, WFL offers a complete concept with consultation, technology support, commissioning & training for used machinery. A separate organisational unit has even been set up specifically for second-hand machines. A Premium Pre-Owned MILLTURN can prove to be an attractive alternative, especially when additional capacities are needed at short notice or the budget will not stretch to cover a new machine.

## Everything from a single source

Decades of dedicated use of a MILLTURN lead to machine and equipment wear and therefore to loss of relative performance. Regular upgrades and services significantly restrict this effect. If wearing parts are replaced, the machine continues to deliver top quality and retains its longevity.

With the WFL complete offer, highly qualified technicians ensure that the best possible results are always achieved with the MILLTURN and that all technical and software aspects of the machine are brought right up to date. A big advantage of a machine overhaul is the cost factor, which is about 40-70% less than purchasing a new

machine. WFL is also very flexible when it comes to commercial offers: the machine can also be leased.

## Tested quality

A retrofit project at WFL is precisely defined. When a machine is sold to WFL, the WFL project team will contact the customer and clarify the initial situation. The machine inspection is carried out by a highly qualified WFL technician, who puts the machine through its paces so that the amount of work required can be estimated. After the quote has been prepared, negotiations completed and the contract drafted, a date for dismantling the machine is set. If the customer has in the meantime continued to work

with the machine, the machine is checked again immediately before disassembly. Further steps such as internal transport, packaging and transport to WFL are carried out by the company's own personnel.

The machine overhaul also includes assembly, repair, paint preparation, various upgrades, commissioning, geometry check, machine check, endurance test, laser measurement and processing of a VDI workpiece for machine acceptance. The MILLTURNS are only offered for sale once they have been approved by the WFL technicians. Once all checks have been passed, the machine receives a „CERTIFIED PRE-OWNED“ certificate. This means that the machines can be sold with a warranty.



Support throughout the machine's entire life cycle.



Turning old into new: The purchase of a used MILLTURN complete machining centre offers cost-efficiency and fast availability.

Contact:  
WFL Manufacturing & Retro-fit Solutions  
Tel.: +43 732 6913-5407  
stefan.elsigan@wfl.at

## Sustainability first

The fact that old machines are reconditioned and thus kept in a production-ready condition for longer makes a retrofit from WFL astonishingly „green“. According to the German Steel Institute VDEh, approx. 1.34 metric tonnes of CO<sub>2</sub> are emitted per metric tonne of crude steel. The value for a Premium Pre-Owned machine is just a fraction of this figure: a retrofit can reduce CO<sub>2</sub> emissions by at least 80-90%. For a M65 MILLTURN / 3000 mm weighing approx. 34,000 kg (mainly consisting of steel or steel-like components), approx. 45,560 kg of CO<sub>2</sub> be emitted. In the case of a retrofit, CO<sub>2</sub> emissions fall to approximately 6,800-13,600 kg, forcefully highlighting the economic viability of such a project.

The use of modern components and features, such as new lighting (Ergonomic Light Concept), an expanded tool magazine or the automation of certain functions also contribute to greater sustainability and efficiency. Even manufacturers are showing a great deal of interest here. In appropriate cases the electrical components of the machine can also be replaced, an area which WFL will be strongly promoting in the future. As part of a pilot project, for example, the entire control system of a machine built in 1998 is being replaced; an approach which should increase the longevity of the machines. This involves replacing the motors as well as mechanical adaptations such as sliding door positioning by means of a toothed rack or improved positioning of the tool changer (toothed rack instead of toothed belt). The new control system

»For machines that are being retrofitted, for example, we replace the main components such as the turning-boring-milling unit, linear guide ways, main drive or the tool changer to improve the overall condition of the machine. My colleagues and I have a great deal of experience here and are delighted to see the machine being delivered in top condition for many more productive years of operation.«

Jürgen Bauer, WFL Retro-fit Solutions

has a larger 24-inch display compared to the previous 15-inch version and a 1 GB NC memory (replacing the earlier 12 MB NC memory). The main advantages of upgrading the control system are the availability of the MillturnPRO programming editor and the iControl intelligent process monitoring system. Fastviewer can also be run more conveniently on the new control system.

## Focusing on second-hand machines

The greater focus on second-hand machines in the last two years clearly shows that there is a great deal of interest on the market. WFL always keeps a number of high-quality used machines in stock,

with the majority being sold to global corporations in Germany, Sweden or the USA. These machines have already been running perfectly for several years since their retrofit.

So why should a customer buy a used machine? Cost efficiency and fast availability are clear arguments in favour of a second-hand solution. If WFL has a suitable machine in stock, it can usually be delivered within three months.



All eyes on

# The expert for tailor-made automation solutions

by WFL Millturn Technologies

**W**ith their tailor-made automation solutions for complete machining centers, WFL and FRAI stand for the highest level of competence. It is not just the automation system itself that is a decisive factor, but the fact that the entire automation package comes from a single source. Moreover, only components of highest quality are used. In combination with the new robot cell, the Kuka robot KR FORTEC, with its slimmer design, high precision and durability, increases productivity and thus underpins the quality standards of WFL and FRAI.

The cell is equipped with a Kuka heavy-duty robot from the FORTEC series and a camera system, which is sealed off from extraneous light. Both are travelling on a linear axis. There is also a pallet staging area, an automatic gripper change system and a re-gripping station for chuck and shaft parts.

The raw parts are brought manually into the robot's work area by means of loaded pallets. The position of the raw parts on the pallets is recognized by a camera and converted into the gripping position of the robot by means of a special software. The robot itself is equipped with an automatic gripper change system and can therefore automatically change the grippers between chuck and shaft parts. Furthermore, the storage capacity is significantly higher since no space is required for the gripper fingers. When processing shaft parts, the presence and position of the raw part in the gripper are checked by means of a light barrier, after picking up a raw part from the pallet. In the case of chuck parts, however, the presence of the workpiece is checked by monitoring the gripper position.

The stroke monitoring of the gripping jaws and the presence monitoring of the interim storage area ensure that a workpiece has been picked up.

**Automation process for shaft parts (single gripper principle):**

After picking up the raw part from the pallet, its exact position in the gripper is determined by means of a laser light barrier. Its orientation is determined by probing (moving against a spring-loaded and position-monitored tip) the two differently deep centering holes of the raw part. Afterwards, the raw part is placed in the correct position in the interim storage area next to the machine door opening.

The robot then moves to the waiting position in front of the machine door with an empty gripper. After receiving the signal for part removal, the robot takes the finished part out of the machine and places it on the interim storage in front of the machine. Now it picks up the previously prepared raw part and loads the machine. The robot then removes the finished part from the interim storage and places it on the pallet for finished parts.

**Automation process for chuck parts (double gripper principle):**

The robot uses a gripper to pick up a raw part from the pallet and places it on the interim storage. The robot then performs an automatic gripper change. With the centric gripper for raw parts, the robot picks up the previously stored raw part from the interim storage and carries out the part change in the machine. After machining the component in the machine, the machine door opens and the robot can remove the finished part from the counter spindle. While the machine cleans the clamping device and transfers the semi-finished part from the main spindle to the counter spindle, the robot positions the gripper and puts the new raw part in the left clamping device of the machine. The finished part is placed on the finished part pallet. The robot subsequently transfers the next raw part from the raw part pallet to the interim storage and picks it up with the corresponding side of the gripper.



A gripper with adjustable jaws as well as a magnetic gripper for picking up raw parts of the palette are provided for chuck parts.

Workpiece carriers, which are provided by the customer, are used as palettes for finished parts. The palettes can sometimes be used for the next machining center.

The position of the raw parts on the pallets is recognized by a camera and converted into the gripping position of the robot using special software.

# myMILLTURN – the multifunctional customer portal



Achieve the perfect usage of your MILLTURN capacities with myCapaMax.

WFL offers new ways of collaboration and added value for its customers with myMILLTURN. Maximising machine utilisation, information exchange and networking, perfectly adapted tool solutions as well as training options are presented in the new portal. MILLTURN customers can now register in the myMILLTURN portal and benefit from these new services.

The digital era demands new ways of thinking and approaches in order to respond in the best possible way to the market. Hidden treasures in the form of untapped manufacturing potential lie dormant in almost every production line. Experience shows that enormous productivity gains can be achieved through more intelligent machining operations, clever measuring strategies and the more efficient use of tools. WFL shows that a great deal more can be gained from quality and productivity. In addition,

support from WFL technology experts, targeted training and information exchange in expert forums are all available on the new myMILLTURN platform.

### Value maximisation for MILLTURN users

myMILLTURN is the digital B2B platform for maximising machine utilisation, information exchange and net-working relating to MILLTURN topics, as well as finding perfectly adapted tool solutions and training options. WFL raises collaboration with its customers to a new level and offers exclusive, new features with the new customer portal „myMILLTURN“, such as:

- myCommunity – communication platform
- myCapaMax – platform for maximising your machine utilisation

- myToolFinder – online assistance for your perfect tool solution
- myAcademy – unique MILLTURN further education portal

### myCommunity – Communication exchange and networking

Industry experts and MILLTURN users have the opportunity within the Community to share ideas, get tips and talk about new functions. Special service offers for every requirement as well as current and helpful information material and current topics will be accessible.

### myCapaMax – Maximising machine utilisation

WFL accompanies customers over the entire life cycle of a MILLTURN, thereby helping production goals to be achieved and a competitive edge to be maintained. myCapaMax is a new approach from WFL which helps customers to increase utilisation, whereby WFL offers active support as a mediator and competence provider. The customer thereby achieves maximum productivity by employing the highest degree of utilisation. In brief, myCapaMax is the smart matching of available capacities and capacity requirements using WFL's expertise.

### myToolFinder – The perfect tool solutions for your MILLTURN

In ToolFinder, you can find the perfectly coordinated tools for a MILLTURN for your needs or discuss your requirements with an expert in just a few steps. The platform offers an optimum overview of special tool solutions. This allows you to expand your technical lead and increase performance. Thanks to the WFL tool experts and their professional support, the customer receives a tool solution that is perfectly adapted to their needs for applications such as deep hole drilling or internal machining. This offer is only available at WFL since it is precisely adapted to the MILLTURN functions.

### myAcademy – Become a MILLTURN expert with our online further education

Knowledge sharing and training play an equally important part in the portal. To guarantee optimum usage of the MILLTURN, WFL offers the best further education and training courses in the portal. Alongside a broad, more diversified training offer, there is also the option to learn about the latest technologies in webinars and online seminars.

myMILLTURN therefore provides true added value thanks to the COMPLETE package.



Communication exchange and networking with myCommunity.



Perfectly coordinated tool solutions can be very easily generated in myToolFinder.



myAcademy: Increase your knowledge and become a MILLTURN expert.

myMILLTURN  
the multifunctional customer portal

Maximising machine utilisation, information exchange and networking, perfectly adapted tooling solutions as well as training options are the focus of the new portal.

myMILLTURN creates real added value thanks to its comprehensive range.

Register here:  
<https://www.wfl.at/extended-solutions/mymillturn>

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WFL  
MILLTURN TECHNOLOGIES

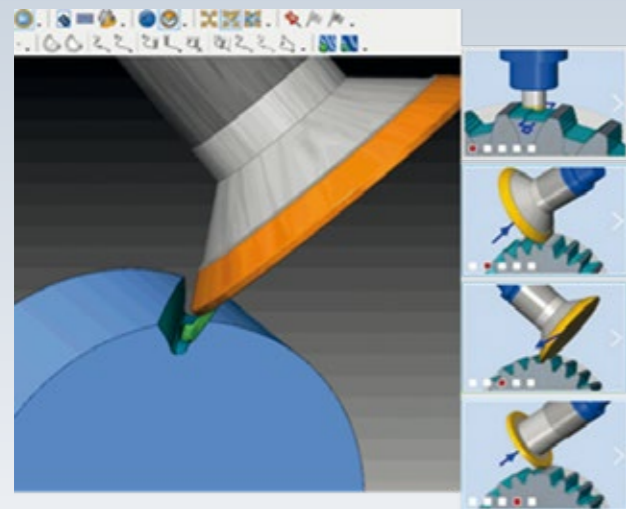
# The FLANX innovation:

WFL GearCAM – the CAD/CAM solution for flexible gear milling

The trend towards the production of flexible gears on 5-axis machining centres has been continuing for many years. WFL has recognized the trend and has already been able to inspire its customers worldwide with numerous installations. In cooperation with the Swiss company Euklid, the leading provider of advanced CAD/CAM solutions for 5-axis machining, WFL is now going one step further. Euklid has been offering a CAD/CAM solution for flexible gear milling on universal machining centres for many years. In close cooperation with Euklid a tailor-made GearCAM solution has now been developed especially for MILLTURN customers. This enables the production of gears to be optimized and the lead time, measured against current industry standards and the highest quality requirements, to be reduced to a fraction. A digital twin of the MILLTURN allows a complete simulation of the process. This enables easy troubleshooting and virtual optimization of the machining process. The new WFL GearCAM makes it possible to measure gears in the machine by means of a measuring cycle and ensure validation of the geometry before removing the component. WFL GearCAM is available specifically for spur and helical gears, herringbone gears and bevel gears.

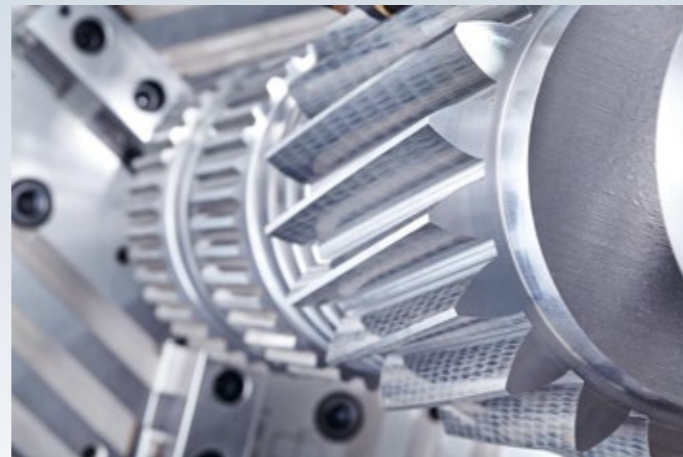
The user-friendliness of the software is outstanding, as various strategies for machining individual teeth are freely selectable. WFL GearCAM optimizes, depending on the production requirements, the milling paths in such a way that tolerances are maintained with a minimum number of paths. The cutting and performance data can be taken from an integrated tool database. WFL GearCAM contains many functions for different types of gearings (even in small batches) and can be configured individually. A further advantage is the that the software can be used for various machine models – the positive effect is highest flexibility.

WFL GearCAM can be purchased from new customers as well as existing customers (Retro-Fit) in September 2020.



## OPTIMISED

The shortened lead times and the improved possibility of producing external teeth are convincing.



Closer than you think!



## FRANCE BRANCH

### Interview with Alexandre Peter



**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!**

#### What types of machine are popular on the french market?

France has very few medium-sized businesses. Small or large scale businesses make up the majority of the customer base, for whom a MILLTURN is of particular interest. Due to the prevailing shortage of skilled workers, the spotlight is increasingly turning to complete machining centres. The ability to produce everything in just one clamping operation is the decisive advantage of the MILLTURN; an area where efficiency is key.

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.

There is a market for the small MILLTURN machines such as the M30 to M40 MILLTURN. A product innovation in the small machine segment which will appear on the market in the second half of 2020 is also worth mentioning here. Machines of this size are in particularly high demand in France.

#### What were the reasons for opening an office in france?

France is an industrial country that is well advanced in many sectors, especially when it comes to innovation and technology. Until now, WFL has only been active in a few specific sectors in France. Now it's time to expand our market cultivation efforts and to make inroads in other sectors. There are several ways to grow. In order for us to work well with our partners and future customers, one thing is key: proximity.

There is of course also interest in the larger MILLTURNS. WFL has an outstanding reputation in particular with machine types from the M80 MILLTURN. The MILLTURN, whether large or small, has a great deal more to offer. Through our subsidiary FRAI, we are able to meet the demand for different automation solutions.

#### What makes your team stand out?

Nearly all of us have grown up bilingually (German and French) and biculturally. This is a great benefit and especially helpful in the daily interactions with our plant and headquarters in Linz. Team spirit, passion and high spirits are a firm part of our culture. Our technical expertise in the field of complete machining forms the foundation of everything that we do.

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

I'm 54 years old and live in Toulouse, France. I started my career as a mechanical engineering apprentice in France and finished my schooling by studying mechanical engineering in Germany. This allowed me to learn German during my training and gain some bicultural experiences. For more than a quarter of a century I've been working in all kinds of companies from France, Germany, Japan, America, Switzerland and Austria. My customers come from Europe and America. I'm proud to look back at 20 years of experience in machine tool manufacturing.

## » QUESTIONS | COMMENTS | IDEAS?

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

## » FACTS COMPLETE

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



## Imprint

### **Publishers:**

WFL MILLTURN  
Technologies GmbH & Co.KG  
A-4030 Linz, Wahringerstraße 36,  
Austria  
[www.wfl.at](http://www.wfl.at)

### **Commissioned with publication:**

Sabine Steinkellner

### **Chief editor:**

Stefanie Wagner

**Editor:** Sabine Steinkellner,  
Gregor Luckeneder, Michaela Schinnerl

### **Concept & Design:**

Nordis – Agentur für Kommunikation

### **Graphics & Pictures:**

Michaela Schinnerl, Gregor Luckeneder,  
shutterstock

