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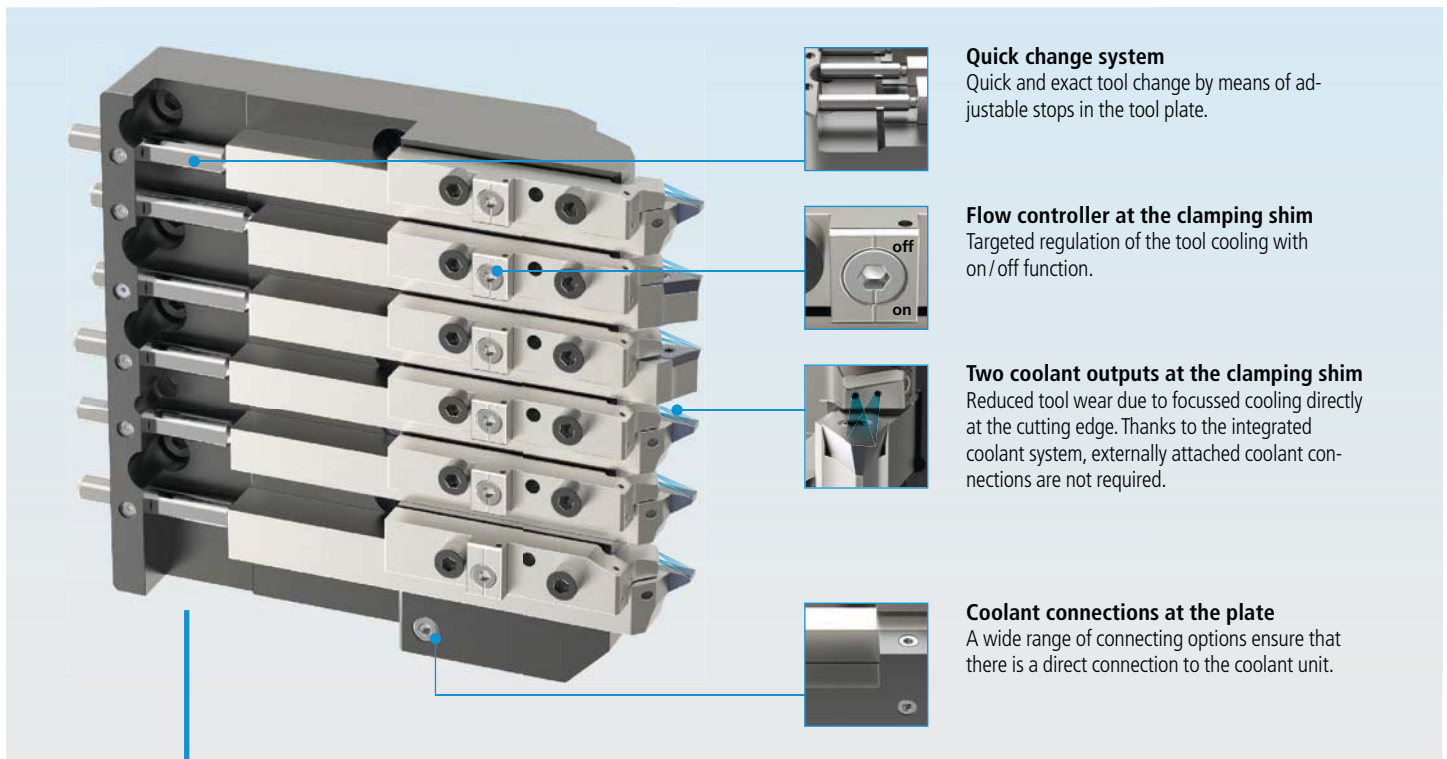
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FOR MAXIMUM EFFICIENCY**



Quick change system

Quick and exact tool change by means of adjustable stops in the tool plate.

Flow controller at the clamping shim

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Two coolant outputs at the clamping shim

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Coolant connections at the plate

A wide range of connecting options ensure that there is a direct connection to the coolant unit.



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Increase the performance of your machine and replace its tool plate today. The investment will be worth it.

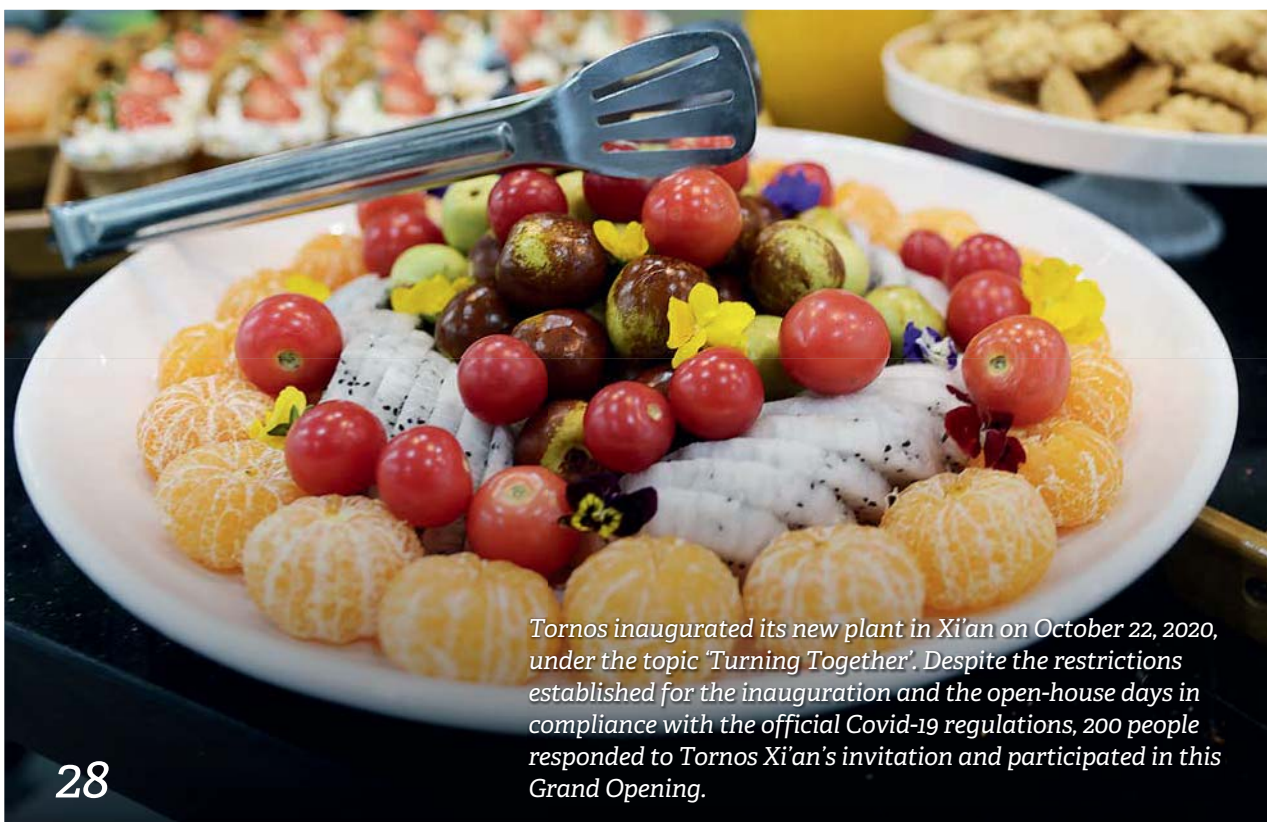


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Tornos inaugurated its new plant in Xi'an on October 22, 2020, under the topic 'Turning Together'. Despite the restrictions established for the inauguration and the open-house days in compliance with the official Covid-19 regulations, 200 people responded to Tornos Xi'an's invitation and participated in this Grand Opening.

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*"Together, we can
do even better by doing
things differently."*

Jens Thing Chief Sales Officer,
Member General Management, Tornos

Opening a dialogue to work better together

Jens Thing Chief Sales Officer,
Member General Management, Tornos

Impressed from the outset by Tornos' extremely collaborative and customer-centered working environment—including the company's foundations, its infrastructures and our employees' legendary know-how—I was proud to take up my position as Chief Sales Officer on November 1, 2020.

Today, I am not offering you a preestablished program based on my specifications, my vision, and my mission. Instead, I am opening a dialogue with you: I invite each Tornos customer—and prospective customer—to contact me directly. Together, we can define how Tornos can better support to face the important challenges you are facing today. I am convinced that by bringing your insights together with Tornos' in-house brain trust and our established commitment to your success, we are positioned to continue to provide you with real solutions. And our solutions, in turn, will open up new opportunities for you to win new market share.

I am truly looking forward to not only meeting you, but getting to know your company, your staff, your operations, your needs, and your goals. I am confident that Tornos has all the tools—expertise, machines, software, and services—to provide you with the solutions you need, when you need them.

In this edition of decomagazine, you will discover how our engineers have further improved the performance of the SwissNano, making it even more agile than ever before. As the specialist solution for applications requiring extreme dimensional stability, our SwissNano has new options that will convince you, as it does the many customers who already use and trust this micro- and nano-precision specialist.

In this decomagazine, you also will discover some compelling success stories. Among them is the story of legendary family company Henri Selmer Paris, the king of the saxophone. Founded 135 years ago, this manufacturer of professional-grade musical instruments this year set the course for its future with the acquisition of a Tornos MultiSwiss 6x16. The relationship between Tornos and Henri Selmer Paris perfectly illustrates how Tornos, working in close collaboration with customers, is able to devise the perfect solution. In this case, a Tornos project manager and Selmer product manager put their heads together to identify the optimal solution for Henri Selmer Paris' specific musical instrument production needs. This customer case proves, once again, our brand promise, "We keep you turning" and underscores the value of the permanent dialogue that enables Tornos to resolve your most challenging demands.

Together, we can do even better by doing things differently. Are you ready to begin setting the course for your company's future? I'm eager to listen, learn, and collaborate with you and—ultimately—help drive your success.

In the meantime, I wish you a happy holiday season. May the coming year bring us all good health, a new wind, new paths to success, and sustainability for our shared future.

Reach out to me at thing.j@tornos.com
or +41 (0)32 494 42 40

NEW

Benefit from a high-pressure-ready machine, and defeat the most difficult challenges with the smallest machine on the market.

6 linear axes

2 C axes

4 mm maximum bar diameter

Maximum number of tools: 15

Maximum number of rotating tools: 5

NEW

Achieve higher productivity with the brand new SwissNano 4

- Profit from up to 40% more productivity thanks to our Turbo mode*.

NEW

Increase your parts portfolio with 3 tools and up to 2 rotating tools in back operation!

NEW

Improve and secure autonomy with Tornos' Active Chip Breaker Plus (ACB Plus) software.

- Improve the security and autonomy of your processes.

Chips with ACB Plus

Chips without ACB Plus

Thanks to its latest update, the SwissNano 4 makes it possible to respond more effectively to market needs.

** Valid on certain machining operations such as synchronization and approach of spindle and counter spindle and synchronization of the cut-off and feed.*

Welcome advancements to the SwissNano 4

Since its market launch in 2013, the compact Tornos SwissNano 4 has attracted the watchmaking industry – among many other industrial fields. Its high precision makes it the machine of choice for all small workpieces that require extreme dimensional accuracy. That is why the machine has also sold well in the automotive, dental, medical and electronics sectors.

Over the last 7 years, the machine has made remarkable progress, especially with regard to its optional equipment. Currently, a major redesign is taking place with the SwissNano 4.

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The same machine base

The front access that offers total freedom of action has certainly been preserved. All users emphasize the extremely agreeable set-up of the machine. This meticulousness in terms of design and functionality has paid off. The kinematic structure has been conceived to achieve exemplary thermal balance and management.

The basic structure of the machine remains the same – and this is the key to the SwissNano's machining precision and quality. The axes and the cast iron frame are arranged symmetrically concerning the guide bush. Thermal management is realized using 'small thermal loops' that prevent the propagation of heat. The machine frame is fixed at three cushioned points. The overall kinematic system as well as the overall design remain unchanged. But what are the new features of this machine?

A new numerical control unit

The machine is no longer equipped with the Fanuc oi-TD control unit, but with the Fanuc oi-TF that is faster and also boasts better ergonomic features; this control unit enables all machine axes to be controlled simultaneously. It also allows the simultaneous use of both C-axes of the machine. Thanks to the ingenuity of the Tornos engineers, the same programs can be used for the SwissNano machines of different generations. Based on the enhanced processing power, TISIS enables the full exploitation of the control intelligence, so the cycle time per workpiece can be reduced by up to 15%. As an option, the software package also includes the new Tornos ACB Plus system. The ACB Plus system perfectly complements the chip breaking solutions offered by Tornos. To date, this has comprised the high-performance ACB (Active Chip Breaker) software as well as an array of high-pressure pump options. With ACB Plus, you can now go even further since this new technology enables you to machine with micro interruptions of the cutting process for optimum chip breaking.

The ACB Plus system enables even finer chip breaking. The physical features such as the amplifier and the motors have also been optimized to achieve the best results. Concerning surface finish and chip breaking fineness, new dimensions are now possible. Optimized process management brings about a considerable increase in productivity.

More driven tools

Now, the enhanced SwissNano can be equipped with two driven tools for back machining operations which opens new possibilities when it comes to the machining of complex workpieces. The machine can also be equipped with two front driven-tool spindles for back machining tasks. An attachment, that can reach speeds of up to 10,000rpm, can also be mounted at the customer's request. This enables the installation of an attachment that offers a stationary front position and a driven cross position. Therefore, a slotting tool can be installed to undertake slotting operations, perfect for parts like connectors.



SwissNano		4	7
Maximum diameter	mm	4	7
Number of linear axes		6	6
Number of C axes		2	2
Number of independent tool systems		2	2
Total number of tool positions		15	18
Positions for driven tools		5	5

even more challenging tasks. Thanks to the high rigidity of this machine, you can now confidently go about machining any type of material with minimum tool wear.

Customers have certainly recognized that nothing can stop the small SwissNano, that now can respond even more efficiently to market requirements. Furthermore, the machine is now provided with an enhanced enclosure that makes maintenance simplistic while ensuring optimized space-saving.

Do not hesitate to discover SwissNano 4 via your nearest Tornos representation.

A machine ready for high pressure

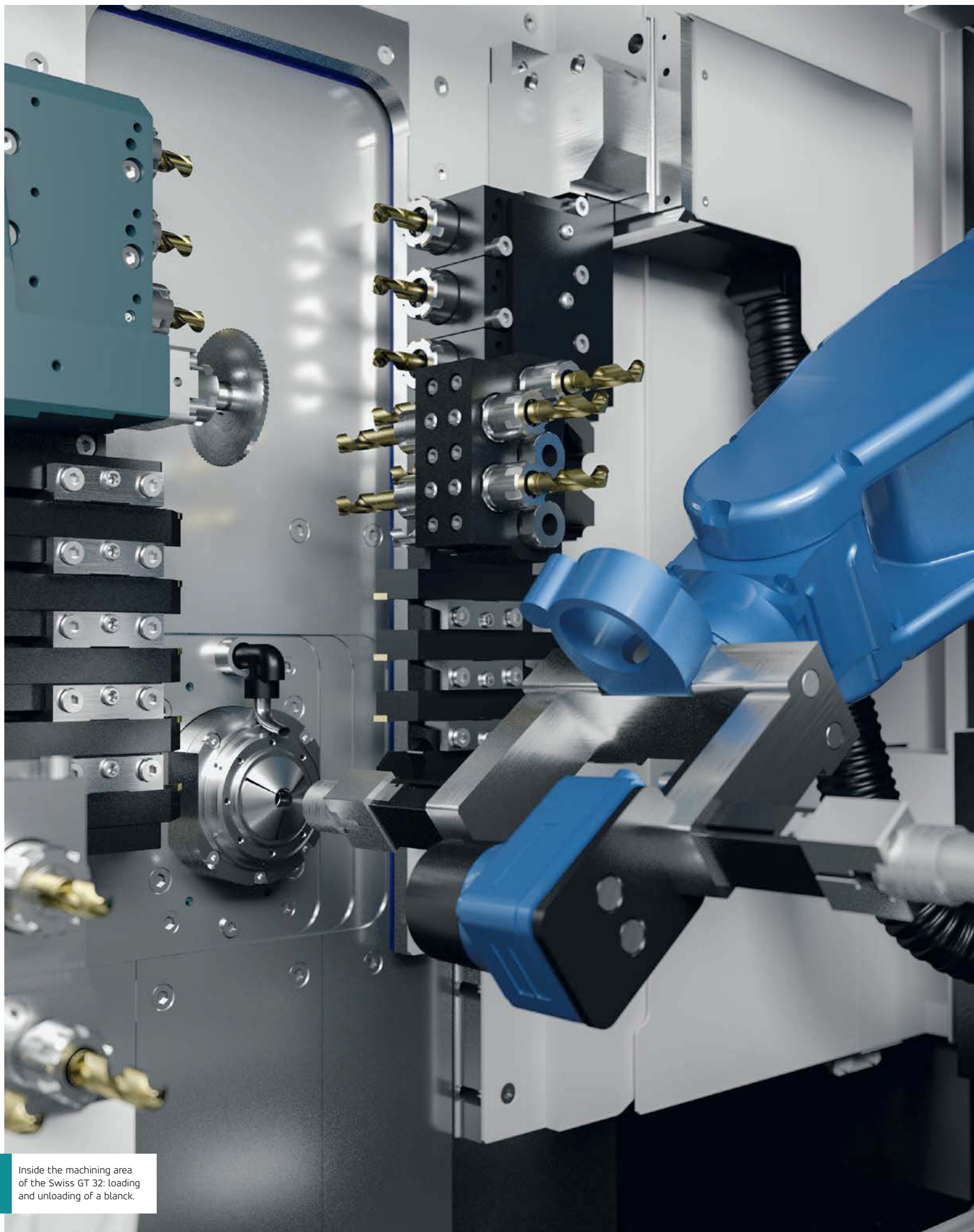
Experience has shown that the SwissNano is in a higher class. Over time, this small yet sturdy machine has already defeated and outperformed various high-end competitors. With its enhanced machining area that enables the use of a high-pressure pump (up to 60 bar), the new SwissNano is now ready to tackle

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Inside the machining area
of the Swiss GT 32: loading
and unloading of a blank.

Automation for 'future-proof' Swiss type turning

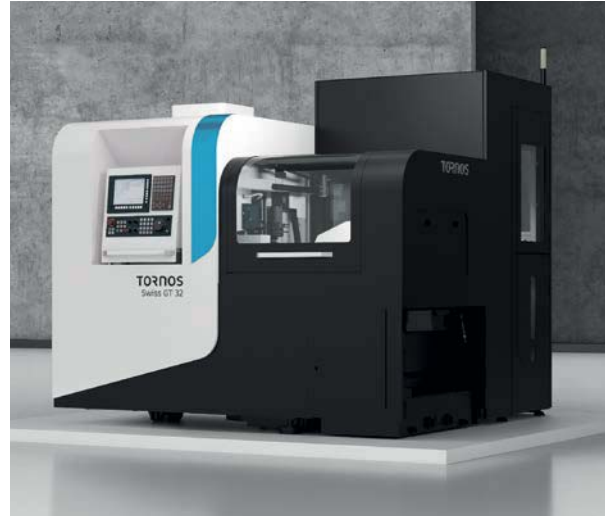
A legacy of Swiss-type turning technology innovation meets the future of manufacturing with Tornos' creative automation solutions. With the reality of Industry 4.0 approaching, Tornos has engineered a selection of automation solutions to 'ramp up' manufacturers' productivity, reduce their cost per part, and speed-up time to market.

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Tornos' globally acclaimed Swiss-type turning expertise is not limited to its impressive portfolio of single-spindle lathes that span the SwissDECO, EvoDECO, SwissNano, Swiss GT, Swiss DT, and CT ranges. This innovation legacy goes right to the heart of manufacturers' needs, with automation solutions specifically engineered to increase productivity, keep cost per part in check and get highly precise turned parts to market more quickly.

Industry 4.0 or the fourth industrial revolution, is gathering pace around the world, and automation—along with data exchange that is enabled by cyber-physical systems, the Internet of Things (IoT), cloud computing and cognitive computing—plays a key role. Whether the user is new to industrial automation or already familiar with the game-changing benefits these technologies can offer, Tornos has the solution to meet the customers' needs.



Workpiece handling

Every Tornos machine can be equipped with a standard automation system adapted to each manufacturer's specific needs. The result is a modular, high-performance production system that positions the user for high performance and productivity, uncompromising precision, and faster time to market.

With Tornos as their partner, manufacturers can count on one turnkey solution backed by a single supplier with renowned expertise across a wide range of industrial segments that include Medical & Dental, Automotive, Micromechanics and Electronics. In parallel, Tornos delivers vast knowledge of manufacturing technologies, as proven by its long history; not only in Swiss type turning but also as an innovator in multi-spindle and micro-milling technologies.

Tornos' standard automation solutions can be optimally adapted to meet manufacturers' individual needs—tried and tested as a production unit. Whether the customer requires the handling of parts or pallets, Tornos' solutions adapt easily to the part production demand, thanks to standardized functional modules and an integrated user interface. Users don't have to worry about sacrificing productivity per square meter, because Tornos' automation solutions are designed with an optimized footprint.

Close collaboration

Just as each Tornos machine can be customized based on the customer's requirements and the part to be machined, the same is true of Tornos automation cells. Functions like part cleaning, marking or measurement with or without 'in-process correction' can be easily added.

Added value is created by Tornos and the customer planning each automation project in close collaboration, from simulation to delivery and installation. Whether the customer has a single Tornos machine, a fleet of machines from one range, or a mix of various Tornos machine models, development experts support the entire process to ensure that every need is covered. This can include integration of peripheral equipment linked to the process, optimized solutions tailored to specific parts to be machined and correction in a closed loop.

Standard automation module

Tornos standard robot-assisted modules encompass two main functions: unloading of parts and palletization, and loading (chucker mode) of billets with or without palletizing.

This easy-to-use module is extremely well integrated and once in place, it represents the foundation of a modern, efficient, scalable automated working environment. Because Tornos' standard automation

Parting & Grooving Miniature Master

module is so compact, it optimizes workshop space and can be seamlessly adapted to work successfully with virtually all Tornos machines.

Furthermore, thanks to the user-friendliness of this standard automation module, programming new parts is a snap—and the palletization system easily adapts to new part geometries, saving the user both time and headaches.

Of course, this is all to be expected of a Swiss-type lathe technology pioneer. It also underscores Tornos' technology leadership. For example, for a decade, Tornos has been making its customers' lives easier by offering machines that can be used with or without a guide bush. That means Tornos' Swiss-type lathes can easily be converted into guide-bushless lathes. This is an important consideration that puts these machines in another league in terms of precision and productivity.

Tornos' standard automation cell is placed behind the machine. Parts can be loaded in the machine with the help of a six-axis robot and unloaded through the counter spindle with the use of the standard conveyor belt. Of course, a robot can be used to unload workpieces as well. On the loading side, blanks can be loaded into the machine—a new possibility that could not be achieved with a bar loader. From an unloading perspective, this setup is attractive for palletization.

At the same time, the automation cell can be equipped with a sampling door. The cell and the machine can be programmed to activate sampling after a certain production number and even this function can even be adapted to each customer's needs. Furthermore, depending on the size of the parts to be machined, users can select the number of pallets in the system.

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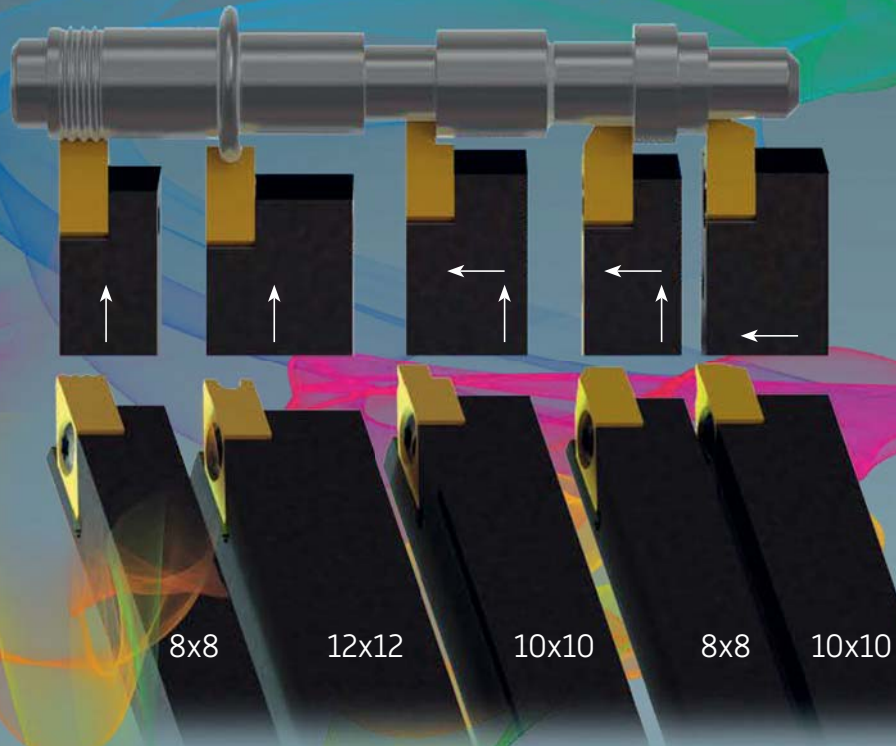
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INTELLIGENTLY

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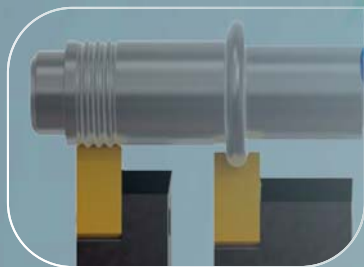


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The MultiSwiss enables a five-fold increase in productivity for a wide range of parts for the medical and dental industries

MULTISWISS: fivefold MedTech productivity boost

Breaking into, or even keeping pace with growth in global medical device manufacturing is rapidly becoming a specialty of the Tornos' MultiSwiss range of multispindle lathes. These affordable machines have proven to increase productivity fivefold across a wide range of parts from spine, maxillofacial and dental surgery to thread whirling and screws for dental drills and robotic surgery systems.

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As manufacturers' partner at the forefront of MedTech innovation, Tornos brought the first multispindle lathes to the Medical & Dental sector 30 years ago. Now, Tornos has expertise in a vast range of related applications and materials. Superbly productive and flexible, the MultiSwiss positions manufacturers to affordably take their operations to the next level by producing challenging parts with flawless precision while increasing their productivity fivefold.

These are important considerations when breaking into, or trying to keep pace with growing global demand for medical devices. With a value near US \$424 billion in 2018, the global medical devices market has demonstrated a compound annual growth rate (CAGR) of 4.2 percent since 2014, and it is poised to reach 5.33 percent CAGR by 2020.

With opportunities aplenty, there are also challenges for manufacturers: Parts are often highly complex, made of difficult-to-machine materials like titanium

and stainless steel; and they require uncompromising precision and integrity. Patients' health depends on these parts, whether they are screws for dental, spine or maxillofacial procedures or components for drills or robot-assisted surgical systems.

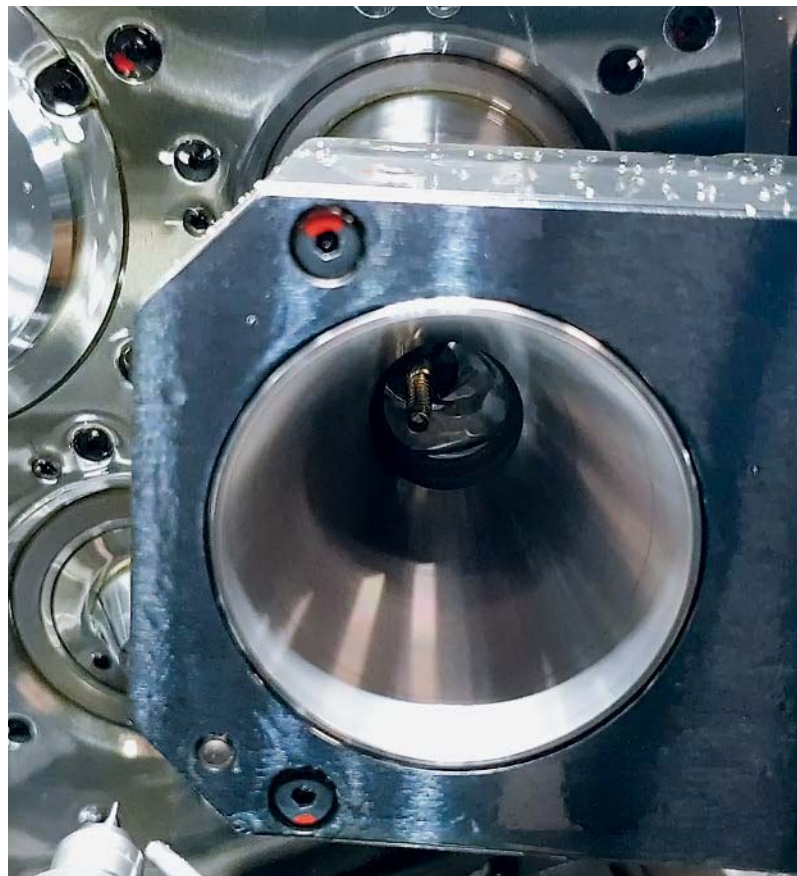
The Tornos' MultiSwiss range is available in 16, 26 and 32 mm diameters as well as the new MultiSwiss Chucker version. This is the answer for manufacturers intent on meeting, and even exceeding the Medical & Dental market's expectations. Featuring mobile spindles with Z axes, barrel indexing using torque motor technology, and a container that optimally houses all the peripherals needed for machine operation, the MultiSwiss boasts an optimized footprint. This maximizes users' productivity per square meter.

These characteristics set the MultiSwiss range of solutions apart from conventional multi-spindle lathes, positioning the MultiSwiss as a link between multi-spindle and single-spindle machines. As the master of thread whirling, Tornos offers a thread-whirling device for this range of solutions,

so manufacturers can effortlessly manufacture even small and intricately threaded parts.

Highest accuracy and precision are engineered into the MultiSwiss range of solutions. The hydrostatic bearings ensure supreme vibration damping, and temperature fluctuations. These are the enemy of high precision and they are defeated by the machine's peerless thermo-stability.

Moreover, as the Medical & Dental segment is growing and evolving with the world of evidence-based medicine and development of new materials and parts, manufacturers must be prepared to evolve, too. The MultiSwiss has these segments covered: Every machine in this modular range is designed to grow with the user's needs. Palletization, part cleaning and measurement as well as robot automation are all available to help drive manufacturers' success in this growing sector. Part management is optimized to the users' needs, making it easy to sample parts, measure them and correct them when out-of-tolerance length or diameter occurs.



A revolutionary concept

It's no surprise that the MultiSwiss has become such a go-to solution for the industry, with more than 450 MultiSwiss centers in use today worldwide. With its six or eight mobile spindles using torque motor technology to index the barrel, the MultiSwiss is remarkably fast. In fact, it can deliver cycle times close to those of cam-operated multi-spindle turning machines.

Unrivalled ergonomics

At the same time, the MultiSwiss features superb ergonomics to make the user's life easier. Its frontal access means changing setups is easy, as do its fully integrated peripherals. Rather than having to bend over the machine to change the tool holders, the operator can actually go inside the machine. This frontal access is user-friendly,

ergonomic, secure, innovative and totally unique on the market. No other machine offers this level of freedom. Swarf removal is exemplary, too. The machine

has vertical slides, so swarf falls directly into the conveyor and is easily transported away.

Cooling is integrated within the slides, which reduces the use of pipes that can not only be difficult to adjust, but also easily trap swarf. This concept makes the MultiSwiss as simple to set up as a single spindle turning machine, the only difference ultimately lies in the number of collets to change.

Extreme flexibility

The MultiSwiss is also extremely flexible, with independent speed and positioning for each station, a plug-and-run system for devices, pre-adjustable tool holders with integrated cooling and optional Y-axis and chucker that can increase flexibility.

High precision

On the precision side, the MultiSwiss boasts comprehensive thermo-stability, so manufacturers' customers get exactly what they ordered, every time.



The machine's 'all-in-one' concept includes the bar feeder, oil tray and filtration. The ultrafast barrel indexing that is enabled by the torque motor, means no wasted time and no locking time. As a result, MultiSwiss users can count on reliable production of a wide range of Medical & Dental parts with strict tolerances, improved part finish and extended tool service life thanks to hydrostatic bearings.

Making perfectly precise parts is one thing, but manufacturers must also be able to make those parts affordable. The MultiSwiss delivers reduced tooling costs and requires few interventions due to its excellent swarf removal and management. The extremely compact design optimizes users' productivity per square meter, making the most of manufacturers' valuable floor space.

Programming intelligence

In today's competitive and global medical device manufacturing market, there's not a moment to waste in meeting customers' demands. Tornos' available TISIS communication and TB-DECO programming software put medical device manufacturers on the fast track to truly effortless programming and real-time process monitoring.

But that's not all: TB-DECO enables users to assess each machine's options, reduces the risk of collisions and the resulting downtimes. It also improves production efficiency. TB-DECO is a programming assistance system that generates tables to control the paths of each axis and spindle, firmly based on the operation of a cam-type machine. To enable this, it is equipped with a powerful computer with an integrated interpolator and a machine simulator. The software enables the operator to visually position the operations on a timeline, and to generate a more efficient code for the CNC. It works in the same way as the editing software used by amateur filmmakers. It makes it very easy to position operations in the desired location. Since tools already exist in their database with geometric details, the desired movements just need to be indicated using the ISO code.

“Making perfectly precise parts is one thing, but manufacturers must also be able to make those parts affordable.”

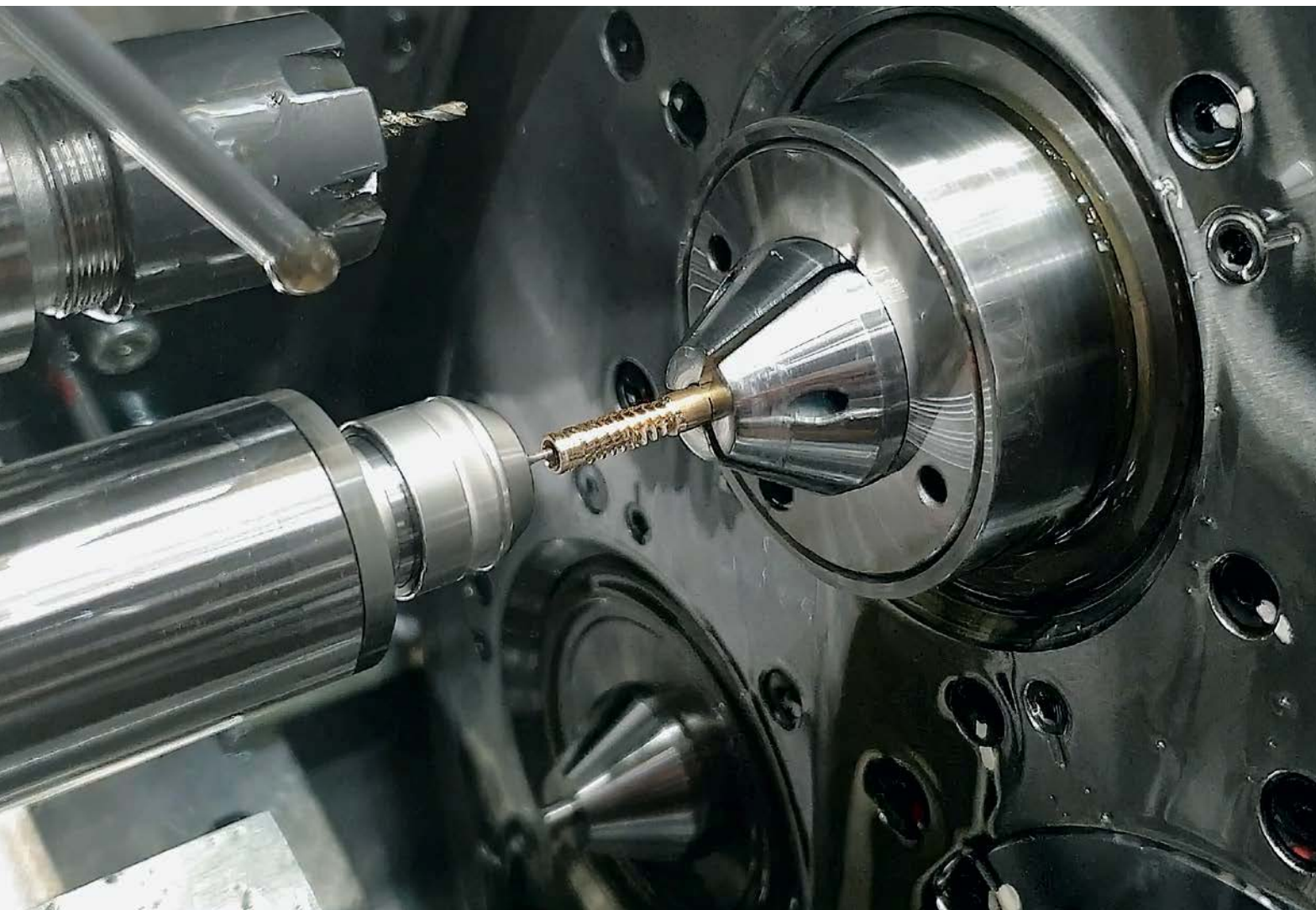
TISIS: The Industry 4.0 portal

At the same time, TISIS takes the complexity out of process monitoring, enabling manufacturers to take their first steps into the Industry 4.0 universe. Even from a remote location, users can keep an eye on the details of the machining process from a smartphone or tablet.

Tornos Service

Backed by both geographical proximity to customers and an in-depth understanding of their processes, applications and market challenges, Tornos Service delivers an unparalleled continuum of support: start-up assistance, expert training and coaching, free hotline, on-site operations support and preventive maintenance, original spare parts seamlessly delivered worldwide. Customers can also access a complete overhaul service to extend the service life of Tornos machines. There is also a range of operations and X-change modules to expand customers' application capabilities and profitability.

Buying a Tornos MultiSwiss is much more than a business transaction. It is an investment in the future. Tornos Service thrives worldwide by guaranteeing the superior production capabilities of products carrying the Tornos name.



Tornos Academy

The Tornos Academy brings manufacturers' business goals to life by matching the skills of their employees with the expectations of their customers. In Medical & Dental parts manufacturing, that means having the right equipment, like the Tornos MultiSwiss. The Tornos Academy helps customers and their machine operators exploit the full potential of Tornos solutions.

A partner at the forefront

In combination with a full array of peripherals and automation solutions, software, services and training, the MultiSwiss proves Tornos' commitment to being Medical & Dental parts manufacturers' partner at the forefront of innovation.

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HENRI SELMER PARIS:

Musical expertise that combines
 tradition and
 innovation

As a famous designer and manufacturer of wind instruments and mouthpieces since 1885, the Henri Selmer Paris company relies on continued innovation based on the legendary precision and know-how offered by Tornos. The recently purchased MultiSwiss 6x16 is the only machine capable of standing up its old cam-type lathes when it comes to producing the essential mechanical parts for musical instruments such as saxophones.



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selmer.fr

Proud of its origins, the Henri Selmer Paris company has been perpetuating the tradition of excellence for musicians from the outset. The company Selmer has been devoted to innovation for more than 135 years, constantly seeking to improve the sound and the technical features of their musical instruments. That's why the best clarinetists and saxophonists approach the Selmer specialists to obtain exactly the sound they desire. These specialists, for their part, opted for Tornos to produce the key components for their instruments, well aware of the fact that, in this way, small-batch production will achieve superior, impeccable quality and exactly meet the requirements of renowned musicians.

Spectacular start

It all started back in 1885 when Henri Selmer, renowned clarinetist with the Garde Républicaine and the Opéra Comique founded the Selmer company. Driven by creativity and commitment, the musician began with the manufacture of reeds and



mouthpieces for clarinets. In organology, a reed is a thin strip of material that vibrates to produce a sound on certain woodwind instruments. There are both free and hitting reeds. The hitting reed can be a single reed or a double reed.

Three years later, Henri Selmer began producing clarinets in a small workshop at Place Dancourt near Montmartre in Paris. Recognized by his peers for his musical excellence, Henri Selmer was even awarded the gold medal at the St. Louis World's Fair in 1904 in the U.S. In 1909, considering the growing success, the company had to expand and it established its workshops in Mantes-la-Ville, a commune in the Yvelines area, about 50 kilometers from Paris. Here, the production site is still located today.

Mantes-la-Ville is a historical and strategic place for making woodwind instruments. In fact, the imported raw materials that had been delivered to the port of Le Havre, could be easily transported by boat on the river Seine to Mantes-la-Ville. On the other hand,

the railway track just down the road connected the factory with Paris, especially with the 'rue de Rome', the 'shopping street' for musicians.

Musical legends confide in Henri Selmer Paris from the very start

In 1929, Selmer took over the workshop of Adolphe Sax and began to produce brass instruments (trumpets and trombones) – including the famous trumpet of Louis Armstrong. In the 1930s, Henri Selmer even embarked on the manufacture of guitars, in association with the string-instrument maker Mario Maccaferri. And even if this was a short-lived episode, it was a very prestigious one, immortalized by Django Reinhardt. Incidentally, the Selmer company has always had close relations with professional musicians who are their finest ambassadors. Among them are illustrious musicians like Benny Goodman, John Coltrane, Manu Dibango, Joshua Redman, Chris Potter, Claude Delangle, Vincent David... Most of them contributed their expertise as testers or sound advisers.

In the workshops of Henri Selmer Paris, the entire production unites state-of-the-art technology and craftsmanship and therefore necessitates a highly specialized workforce that has been trained in-house. The company relies 100% on in-house production to guarantee perfect quality control. So, no less than 500 people are working for the company, in an area of about 20,000 m². The production comprises three product ranges: saxophones, clarinets and mouthpieces. Their manufacture requires almost 100 crafts, from metalworking and woodworking to mere instrument making crafts such as instrument repairman and restorer, engraver, fitter, but also specialized instrument component makers and testers. For this article, Philippe Menguy, industrial projects manager, acts as a guide for Tornos. "Our instruments can be found and are distributed all over the world and we achieve 90% of our sales through export, especially to Japan and China, but also to the United States and Korea. Japan is an important market for Selmer as playing an instrument is an integral part of Japanese school education."

Saxophones by Henri Selmer Paris – the benchmark!

Saxophone beginners may not be able to buy a Selmer saxophone, the 'Rolls Royce' among the saxophones, right from the beginning. Many of them, however,

tend to focus on an essential yet less expensive accessory for the start, the mouthpiece. Besides the reed, the mouthpiece is one of the essential components for sound generation. Originally, the mouthpiece was made of wood (box tree or service tree wood and more rarely, rosewood or ebony). Since the 1930s, ebonite, a material based on natural rubber, has been used due to its stability and resistance to changes in relative humidity and it has replaced wood. Nowadays, about 100,000 mouthpieces leave the Henri Selmer Paris workshops every year.



The mouthpiece is an essential component, however, the balls and rods are equally important for the design of a saxophone. These wind instruments are highly complex and, depending on the model, they require 30 to 60 work hours, not least for the assembly of about 850 individual parts. Even if it is mainly made of brass, an alloy of copper and zinc, the saxophone also comprises components made of mother-of-pearl, felt, cork and leather. The highly complex mechanism, however, no longer holds any secret for Philippe Menguy, who has been industrial projects manager at Henri Selmer Paris for two years now, says: "Our saxophones are a great industrial success. Every year, 10,000 saxophones are manufactured in our workshops. To be able to meet the growing demand and the ever-increasing requirements, we were looking for an adequate technical solution and, quite naturally, the Tornos MultiSwiss suggested itself. We already had six old cam-type lathes but we needed a machine with a higher capacity and a small footprint. With this machine, Selmer can focus on innovation. Our MultiSwiss can stand up to the old cam-type lathes and enables us to continue our operations sustainably."

As a company awarded with the label 'Entreprise du Patrimoine vivant' (Living Heritage Company), Henri Selmer Paris also received the 'Prix de l'Excellence française' used to distinguish companies that excel in terms of know-how, craftsmanship and industrial excellence. Here, 'made in France' means well-known and recognized all over the world. Legendary French instruments now benefit from Swiss industrial expertise. This partnership is a most fortunate union between invincible high-precision technology on the part of Tornos and unequalled musical excellence on the part of Henri Selmer Paris.

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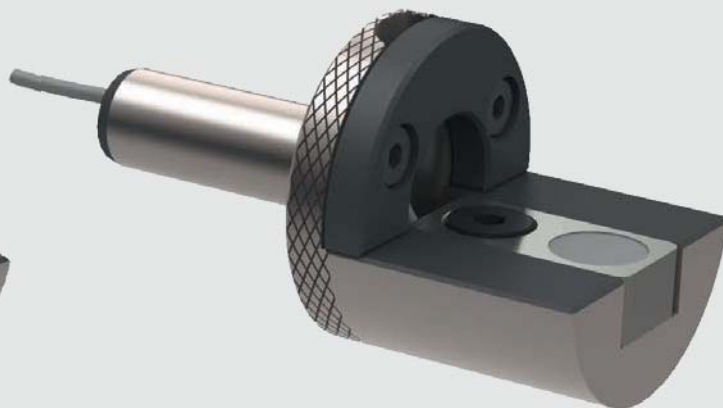
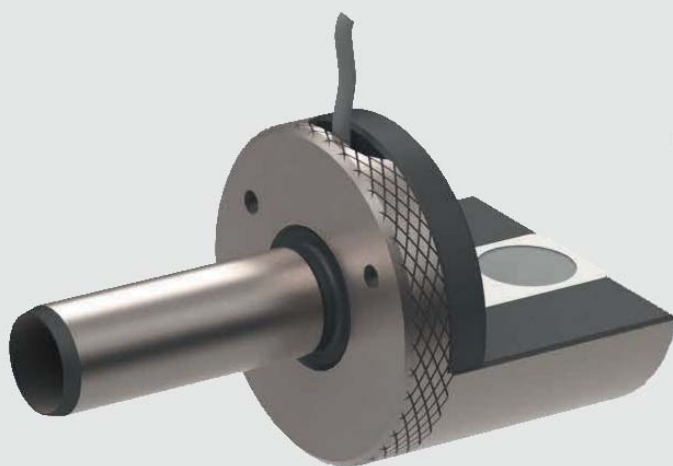
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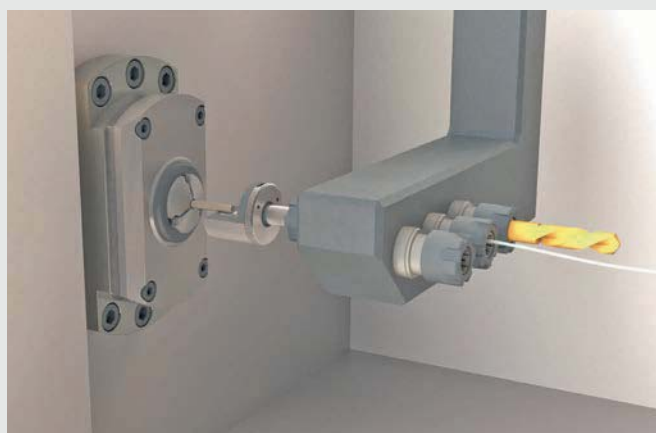
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200 guests attended the inauguration day of the new Tornos Xi'an facility.

Tornos Opens New Plant in Xi'an

Tornos inaugurated its new plant in Xi'an on October 22, 2020, under the topic 'Turning Together'. This event — originally planned for early 2020 — had to be postponed due to the Coronavirus (Covid-19) pandemic. Despite the restrictions established for the inauguration and the open-house days in compliance with the official Covid-19 regulations, 200 people responded to Tornos Xi'an's invitation and participated in this Grand Opening.

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After the official ceremony and opening speeches, the guests were invited to a guided tour of the plant, followed by a meal. The entire day was dedicated to the inauguration of this new plant. After the official activities, the guests were divided into two groups that attended two separate seminars. The first seminar, organized in collaboration with Tornos Shanghai, was mainly aimed at Tornos customers while the second seminar was mainly intended for suppliers. In particular, quality and supply chain were discussed. The official Grand Opening was followed by various festivities, including a family day allowing employees to showcase their place of work to their family members.

This new plant took shape very quickly and under optimal conditions. It meets the highest standards and has a total surface area of 3,000 sq/m. With the inauguration of this factory, Tornos Xi'an also celebrated its seventh anniversary.

Everything had started in Xi'an in 2013. After six months of diligent searching for the appropriate site in Asia, the former capital of China was a natural

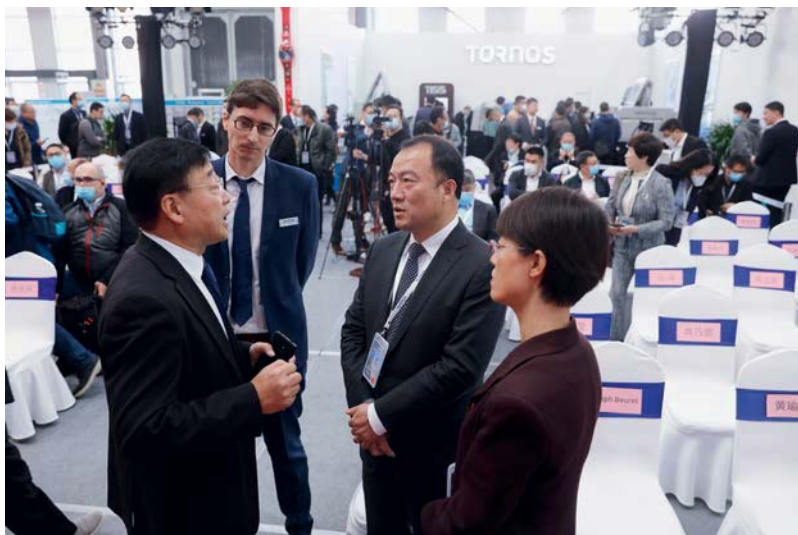
choice. This city of 12 million inhabitants has proven to be the birthplace for many new companies. Most notably, it has an impressive number of technical schools that are capable of providing a qualified workforce. The city is also the breeding ground for China's aerospace industry.

Tornos had initially decided to produce a single machine there, the robust and efficient CT 20. This machine had served as the basis for setting up the teams, the logistics chain, quality management, and the first R&D cell. The first year had been crucial to

build the necessary interactions between the production sites. True to its commitment to operational excellence, Tornos today provides the same execution of quality in China as in Switzerland or Taiwan.

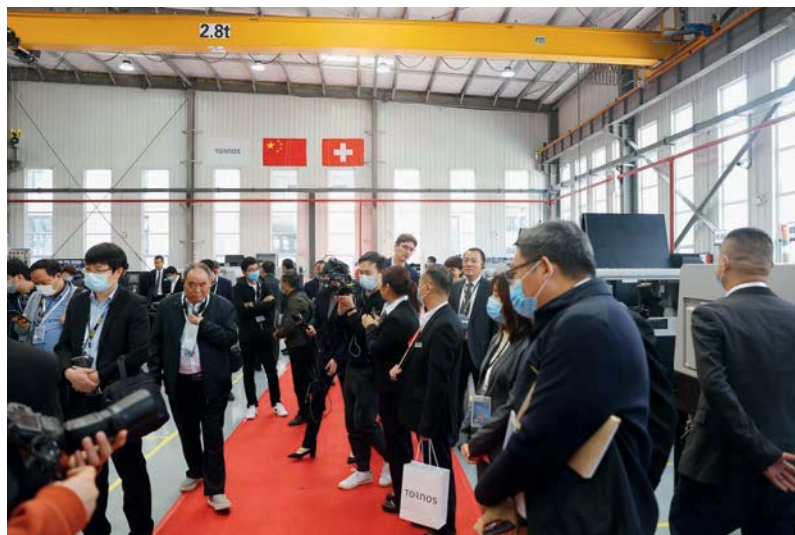
The implementation of a lean assembly approach to ensure quality and keep the deadlines is the foundation of the company's success. The lean method, already applied at the Moutier site in Switzerland and in Taiwan, is also proving its worth in Xi'an. The Chinese plant continues to procure key components, namely certain spindle and guide bush parts from





Moutier. Bit by bit, after the CT 20 had established its position, other machines have been developed on the site, namely the Swiss DT 13 and Swiss DT 26 for the European market and, more recently, the Swiss DT 13 e and Swiss DT 26S versions, both adapted for the Chinese market. The latter is presented in the showroom of the new Xi'an factory.

The three production sites are working together, increasing the number of interactions to particularly ensure the standardization of parts. This ensures a high degree of flexibility and diversity.



The results are more than positive: the CT 20 machine is extremely reliable while the Swiss DT machines, which are also highly reliable and efficient, have found markets in Europe as well as in Asia and the United States. These machines are known for their power and production capacity.

The Xi'an site is not only an assembly site but also an application test and set-up facility. It is a unit close to the market and with genuine know-how. By deciding to expand its production capacities in Asia to meet its customers' needs for entry-level and mid-range machines, Tornos has definitely made the right choice. Seven years after its establishment in Xi'an, China, Tornos now celebrates this new factory and is delighted with the success of the excellent-quality machines it produces.

[tornos.com](https://www.tornos.com)



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Microdec is committed to working with local staff to bring the region to life.

Microdec at the heart of high-class precision

Since it was founded in 2012, high-precision bar turning specialist Microdec SA has been standing out primarily in the watchmaking sector for everything related to watch movements and decoration. The certification obtained in 2019 from the Responsible Jewellery Council (RJC), attests to the company's responsible, ethical and environmental practices in using precious metals. These are qualities correspond well to a company that is headquartered at the heart of the Swiss Jura Mountains and now is extending its field of activity to service the medical industry by seeking for certification for this field in summer 2021. The company accepts the challenge with professionalism, rigour and determination to succeed.



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"When passion drives determination, everything is possible", declares Yannick Meyer at the outset. The CEO of Microdec in Courfaivre exhibits an infectious enthusiasm, an enthusiasm which helped him to win a large number of partners that have been confiding in him since he became CEO in December 2019. He took over the management of the company established in 2012 from the company founder Bertrand Crevoisier, who handed the reins to him with the objective of further enhancing service, quality and market reach.

With the main focus on bar-turning for the watchmaking industry, the company's primary function was to realize the entire bar turning operations for the company Fimm SA, headquartered in Porrentruy. Microdec SA gradually succeeded in acquiring

“The DECO and EvoDECO machines enable us to realize a broad scope of workpiece types and can brilliantly machine the most delicate watch parts.”

other competencies and it now supplies the entire watchmaking market as well as the jewellery and medical industries.

Established in a renovated building with two premises specifically conceived for the machining of precious metals, the SME is dead set on recruiting qualified local employees. “We always had the will to work with local staff to liven up the region,” Yannick Meyer explains. For the moment, the company has 5 full-time staff that operate the eight shop-floor machines. “Our premises are large enough to rearrange things a bit and create space for up to about 20 machines.” Even if this is still a long way off, the CEO considers lining this SME up on a more national scale. The tooling and programming expert is already expanding his canvassing towards the German-speaking part of Switzerland where he has already made several potentially promising business contacts.





By encouraging autonomy and offering several qualified bar turners a wealth of experience, Microdec enables them to work at all workplaces and to familiarize themselves with all stages of the manufacturing process. "At Microdec, we produce a lot of small batches. This certainly requires high flexibility but, most importantly, it enables us to be energetic and responsive depending on the market fluctuations and changes in the demand."

Against this backdrop, Microdec decided to have the company certified to even better meet its customers' expectations. The company obtained its first RJC certification in December 2019. This certification

provides evidence of the company's commitment to promoting responsible business practices as regards ethics and environment for the precious metals supply chain.

Decoration and watch movement

For its customers, Microdec develops complete water-tight systems (e.g. crowns, correctors or push-pieces) for watch cases. Based on a simple sketch or 3D model, the company designs, manufactures, finishes and assembles the components by hand. Moreover, Microdec implements processes from bar turning, gear cutting, heat treatment, burnishing to finishing operations to deliver finished (100%) components such as screws, gear trains, cannon-pinions, plates, feet, pinions, balance axes, arbours, pins, pegs, ratchets, wheels, collets and balance rims.

Even if the company is tending towards diversification today, Microdec has decided to apply for a certification for the medical sector.





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“Especially in this industry, ironclad rigour is required,” Yannick Meyer confesses. And this doesn’t scare him nor his employees who are looking forward to this new challenge. “In the medical sector, traceability is of utmost importance,” he emphasizes. Microdec stands out for its genuine desire to be transparent. “We offer our customers the opportunity to interact with us at any stage.”

Proximity and flexibility are prominent company features that are especially fostered by five Tornos machines that are being operated at full capacity on the shop floor. “We have used the period of national semi-confinement due to the coronavirus pandemic and the resulting measures aiming at a reduction in

working hours to better ourselves,” Yannick Meyer declares. “So, anyone here can now realize a barrel drum on the EvoDECO 16 machine – a machine whose operating principle and potential have become sort of second nature to us. Our staff is encouraged to master a project from A to Z which is one of the advantages of a small company structure.”

“The DECO and EvoDECO machines enable us to realize a broad scope of workpiece types and can brilliantly machine the most delicate watch parts. This evident fineness hides the excellent performance when it comes to the manufacture of medical parts made of the toughest materials. We believe that we have made the right choice with these machines.”



Microdec SA thus has set the stage for becoming one of the major SMEs of the Swiss Jura Mountains. Yannick Meyer concludes: “In the medium term, we definitely want to grow based on the solid foundation put in place and offer our expertise to customers throughout Switzerland and beyond its boundaries since project management in several languages is one of the assets of our company.” So, we understood that Microdec is deeply rooted in the Jura mountains but is well on the way to broadening its influence on the national and especially on the international scale thanks to its unwavering vigour and flexibility.



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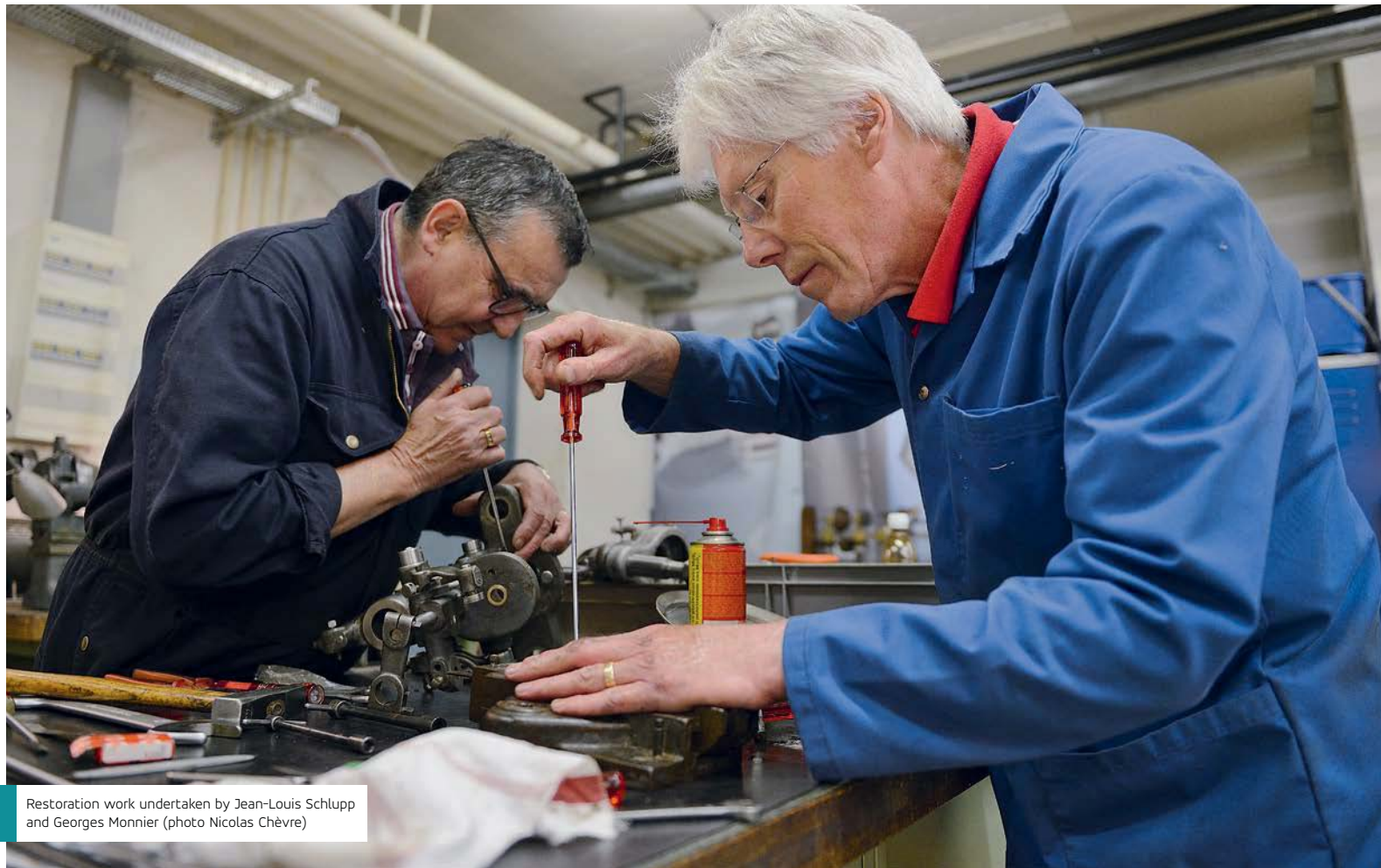
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The Heroes of the Tour: (From left to right) Georges Monnier, Jürg Kummer, Jean-Louis Schlupp, Michel Jobin, Martial Häberli and Walti Hürlimann (photo Bertrand Theubet)



Restoration work undertaken by Jean-Louis Schlupp and Georges Monnier (photo Nicolas Chèvre)

'Les Héros du Tour'

*an emblematic film
for our industry*

Film director Bertrand Theubet has created a film about six retirees from the automatic lathe business who meet every Tuesday to restore old automatic lathes. Far from being a mere reportage or documentary film, this film is an often-poignant testimony of the history of these six men and, of the history of the bar turning industry. This film is full of moving confessions and often funny anecdotes and touches anyone who has been fortunate enough to see it. We talked to the film director.

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Bertrand Theubet, what made you create a film about these six retirees?

I met them rather by chance. In 2017, I was in Moutier on some other occasion and the Mayor whom I met was scheduled to attend an aperitif reception at the Forum de l'Arc jurassien. He invited me to accompany him and there, I realized that there was an exhibition held by the Musée du tour automatique et d'histoire (MTAH – Museum of automatic lathes and their history) in Moutier. That's where I saw our six 'heroes', each of them in front of one of the six restored machines on exhibition and ready to answer the questions of the interested public. I was fascinated by their know-how and by the passion that clearly drives them. I soon felt the urge to make a film about them. So, I established various contacts, last but not least with Stéphane Froidevaux and Francis Koller from MTAH who advised and accompanied me during my project.

How was filming?

We decided to start filming at the SIAMS (trade fair for micro-technology production tools) in Moutier in April 2018. I must confess that I was quite naïve to think that our six veterans would feel a bit lost at the sight of the new technologies and numerical control units. In fact, they even weren't disconcerted! Their love of mechanics always gained the upper hand. We then spent three weeks with our 'heroes'. My film crew consisted of a cameraman that was from time to time joined by our film editor who also took the camera, and a sound engineer. I had decided not to

inform our six 'actors' beforehand about what they had to expect. I actually had a storyline in mind and partially knew where I wanted to take them to. Over time, we established a bond of trust and they began to open up. It was really touching to collect their testimonies. I particularly remember these special moments and the astonishment they showed at times. They became aware of the fact that they hadn't often talked about what they had gone through and about their everyday life.

What do you think of the industry now that you have finished the 'Les Héros du Tour' adventure?

Despite the experiences our six 'heroes' had gone through during their individual careers, I didn't notice any resentment. Admittedly, there had been some disappointments, but on the whole, they turned out to be enthusiasts who show a rare loyalty towards the company that had allowed them to make progress. Even if they may regret some things, they never had seen themselves as victims. This film

The transmission with Jürg Kummer and the CAAJ apprentices (photo Bertrand Theubet)



The transmission of knowledge: Martial Häberli with the CAAJ apprentices (photo Bertrand Theubet)



'Les Héros du Tour' with director Bertrand Theubet

Restoration work being >
undertaken by Walti Hürimann
(Photo Nicolas Chèvre)

Michel Jobin in André Bechler's office at the Moutier Museum of Automatic Touring and History (photo Bertrand Theubet)



allowed them to talk about their experience. All of a sudden, we became aware of the importance of giving testimony.

The machine restoration work, which they began and are now pursuing to 'save' lathes, fills them with pride – a pride they deserve given the large number of lathes restored and refurbished by them. Our 'heroes' are spokesmen for this history and convey to us a most personal, yet universal view of what the industry was in former times and of what it is today. Just like them, I am incredibly fascinated by these amazing machines.

Do you think this film will spark off other filming projects?

Above all, especially through discussions with Stéphane Froidevaux, the curator of the MTAH, we realized that the history of Moutier merits closer attention. Thanks to his assistance, we were able to find several historical films in the archives and restore them – so many testimonies of a bygone era that has put its lasting mark on the entire Swiss Jura Mountains region. The 'lathe heroes' have contributed significantly to arousing the interest in the archives. Every document they find during their trips to Saint-Imier or directly to Tornos enriches the documentation of the lathe restored by them and often enables them to find a solution for the problems at hand.

This film has brought about amazing collaborations and the original plan was to display about twenty machines in the shops of Moutier during the exhibition that usually takes place in autumn. Due to the particular circumstances of the Covid-19 pandemic, the event has been postponed to a later date, however, the synergies exist and will unfold once the health situation stabilizes. I am both amazed and thrilled by the fact that 'Les Héros du Tour' has fired such enthusiasm and I am pleased that I could shed light on a facet of the industrial history through this film that is something in between testimony and reportage.

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Based on low-frequency technology, the unique ACB Plus system enables the longitudinal axes to vibrate in synchronization with the machine spindle. This results in a short interruption of the cutting process so chips can be expelled in a controlled manner. Chip formation management is therefore achieved to eradicate any previous chip control issues.

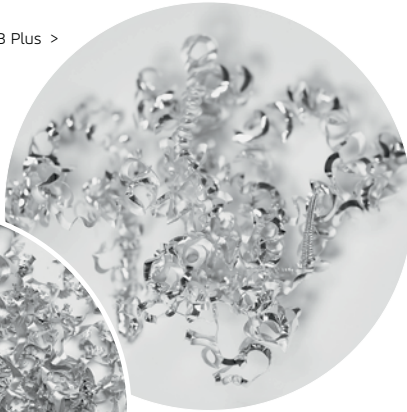
This technology opens up new machining possibilities. It can be used for a broad range of workpiece shapes and materials and is ideal for the machining of difficult-to-machine materials such as Inconel, stainless steel, copper and plastics. By reducing problems such as snarl chips that are linked to such materials, the ACB Plus technology can make the process safe and enhance machine availability.

Having the entire machining process under control

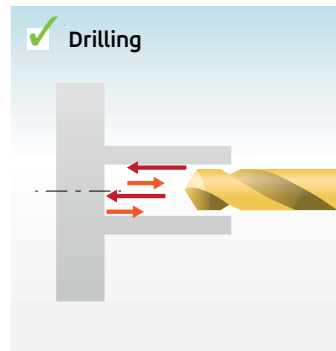
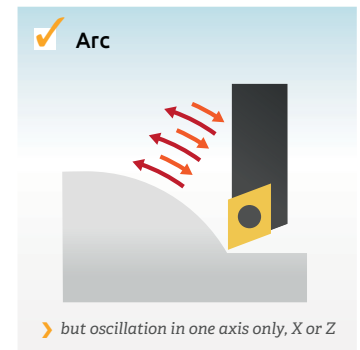
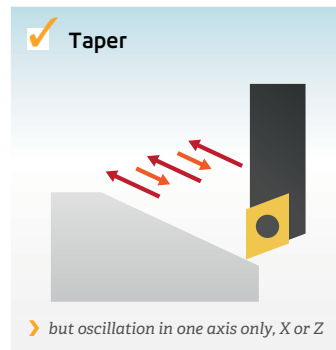
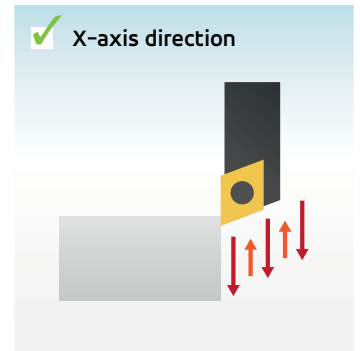
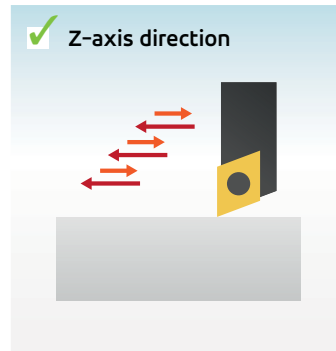
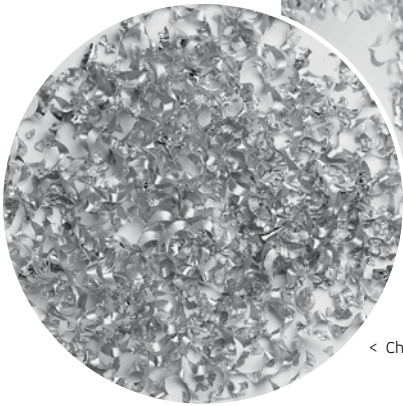
The Tornos ACB Plus technology is capable of managing various machining types in addition to conventional linear machining tasks; this includes the machining of tapers, arcs and bores.

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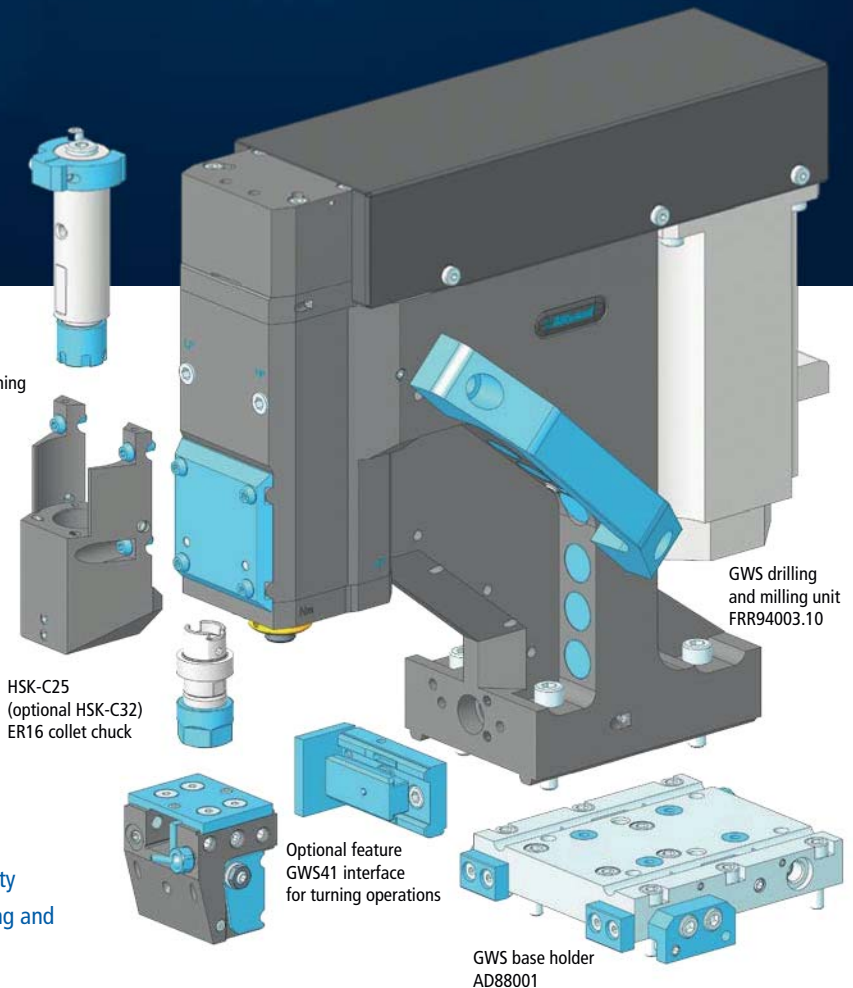


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GWS base holder
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Sedar Demir from Bricon is convinced by the efficiency of his six Tornos machines.

*Bricon Technology emerges as
a growing force in medical technology*

“We know
we can do it”

Bricon's self-confidence results from several decades of experience in high-precision CNC machining for mechanical engineering and industrial applications. Some years ago, the company entered the field of medical technology and it now excels in this field with enormous growth. The state-of-the-art Swiss-type lathes from Tornos contribute considerably to this growth.



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Bricon Technology based in Tuttlingen, the center of German medical technology, initially started its activities with the development, manufacture and distribution of numbering machines in 1984. But after one year, the company entered the field of CNC machining. From the very beginning, the focus has been on the production of sophisticated individual and serial parts for the fields of mechanical engineering, tool and mold making as well as aerospace. Innovative processes, maximum precision and absolute quality control are factors that soon made the company a favored partner in the aerospace industry.

The strict requirements of this industry were the gauges used by Bricon to establish its manufacturing expertise. With aerospace requirements in mind, individual parts and entire assemblies for the Alma giant telescope in the Chilean Atacama Desert are still manufactured today. "We have the confidence to tackle projects others do not approach as we know that we can realize them," tells Serdar Demir of Bricon.

Turning technology for medical technology

Targeting strategic growth, Bricon entered the CNC turning arena in 2005 with the purchase of two Tornos DECO 13 machines. Straight away, these machines stood the test so well, the share of small turned parts in the business rapidly increased. Just as for the aerospace sector, high-precision manufacturing is of vital importance for the medical technology sector as well. It therefore seemed obvious to enter this segment.

Bricon's high process expertise is a major selling point for this business. Bricon Technology GmbH offers its customers 'all encompassing' solutions. The company's core competencies include development, engineering, documentation, prototyping, testing, serial production, product refinement, quality assurance and packaging. The customers from the medical sector are provided with comprehensive advice and integrated solutions are configured in close collaboration with them. Despite the fierce domestic competition, the company recognized that the two DECO 13 machines reached their capacity limits. That's why Bricon, some time ago, purchased four Swiss GT 26 machines, two of them being Swiss GT 26B models with B-axis.



“For instance, the machine set-up can be changed in no time at all and the TISIS programming software is very easy to operate.”

Asked about why exactly he decided to purchase these machines, Serdar Demir says with a smile: “On the one hand, the machine concept was absolutely convincing. In contrast to competitive products, the Swiss GT 26B machines are provided with a B-axis that is supported at the top and at the bottom and this makes them much sturdier. This innovative B-axis design comprises 2 x 4 driven spindles with speeds of up to 9000 rpm. The last driven position is modular and can be equipped with a thread whirling attachment. Furthermore, a stationary tool block can be installed as well. On the other hand, our employees had a big say in this decision and they clearly favored the Tornos machines. The positive experience with the DECO machines as well as their user-friendly interface certainly played a major role. For instance, the machine set-up can be changed in no time at all and the TISIS programming software is very easy to operate.”



A sophisticated range of components

For thousands of implants and screws that are to be produced in a large number of variants, the set-up times are a crucial factor. In most cases, the average batch sizes are between 50 and 500 parts with tolerances of less than 4 µm. Here, the benefits of Swiss GT 26 and Swiss GT 26B take full effect. All four machines are equipped with a thread-whirling

unit, a high-pressure system and a high-frequency spindle that can reach speeds of up to 80,000 rpm. These machines are used to manufacture poly-axial and mono-axial pedicle screws that can be used for a wide range of indications if they are cannulated and laterally fenestrated. If these screws are used together with appropriate plates and implants, an excellent surface clamping effect between the screw head and the rod clip or eccentric disk of the lumbar or sacral plates is achieved. This therefore ensures an optimum and stable fixation. The screw design with large thread flanks and a self-cutting thread ensure the precise and simple positioning of the screws. The materials processed range from high-alloy steels to titanium, PEEK and other challenging materials.

Further growth on the agenda

Bricon does not merely develop and manufacture new products. The company also offers novel 'nuts-and-bolts' problem solutions. Here, the company places special emphasis on process reliability by using an innovative production process that is traceable and monitors and documents the required accuracy, right down to the micron during production. This

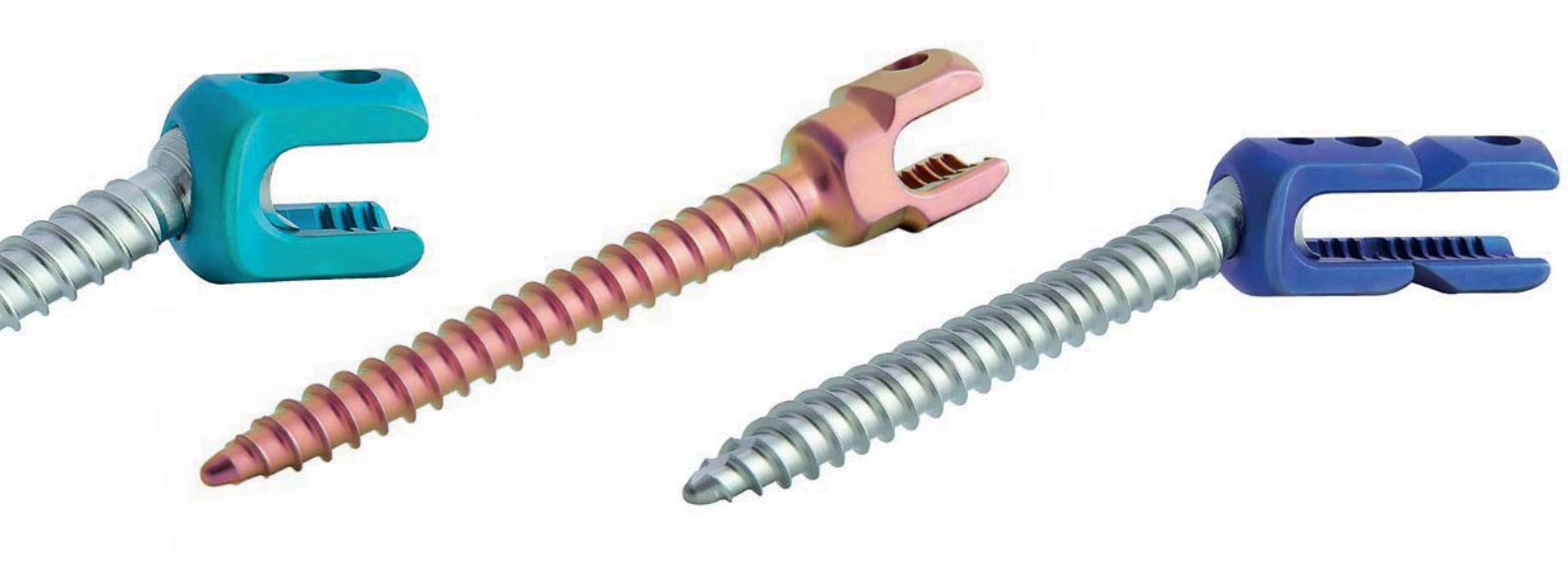
guarantees the translation of ideas into optimized serial products of a consistently high level of quality. This involves heavy investment at Bricon.

Amongst others, the company has nine high-quality Zeiss measuring machines and a comprehensive quality management system that has been certified in accordance with all national and international standards. Made by Bricon means Made in Germany and the brand is recognized as something that offers customers real added value through optimum clinical results and high cost effectiveness at the same time. Therefore, the course has been set for growth and the company would very much like to purchase further Tornos Swiss GT machines. Unfortunately, the company sees itself confronted with challenges in locating skilled staff.

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