



# deco magazine

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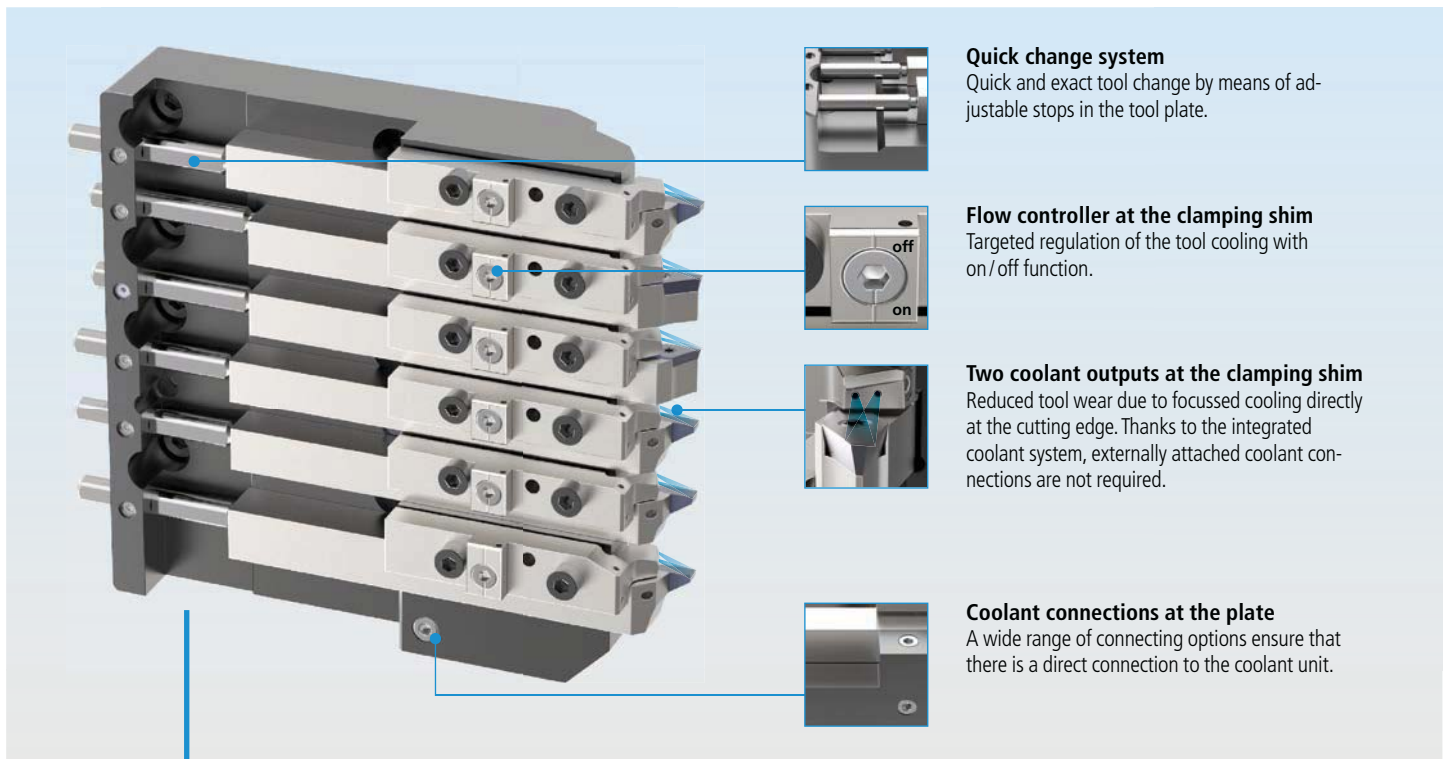
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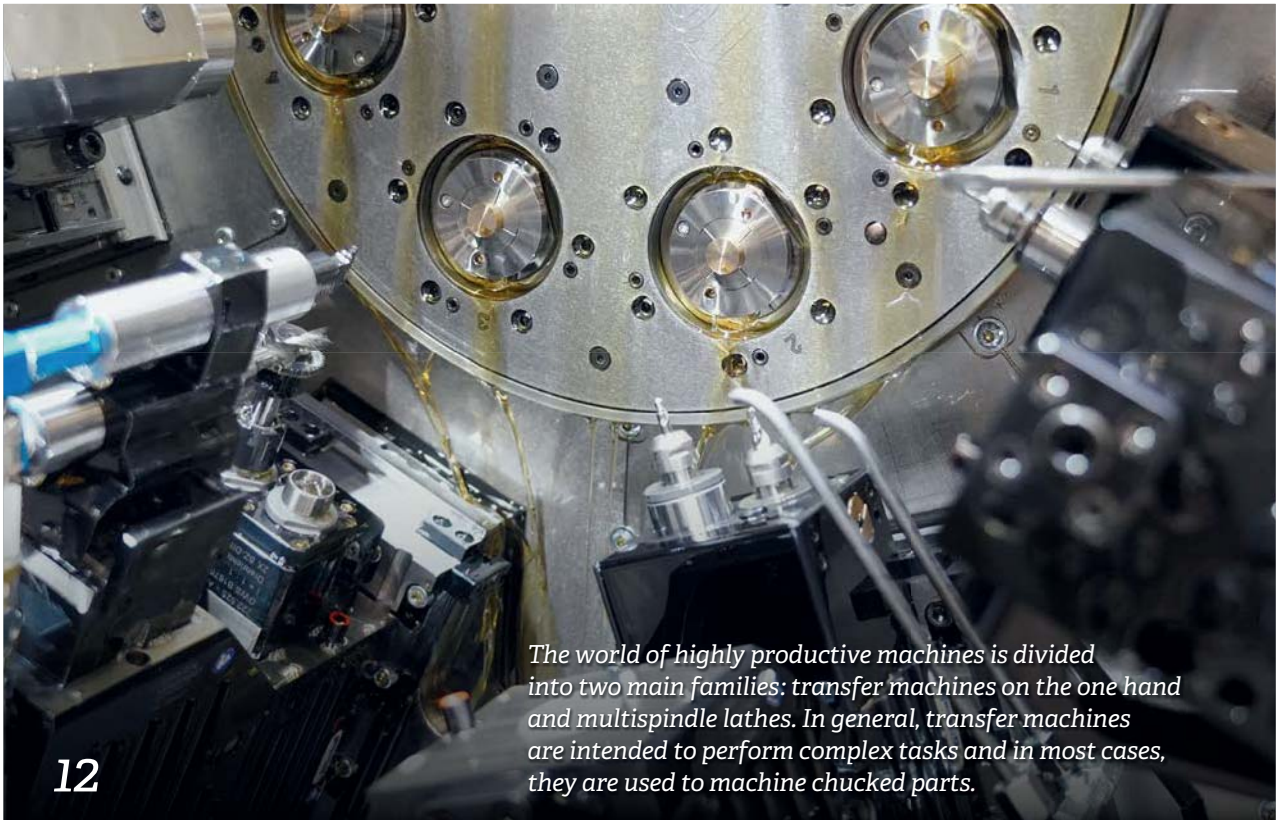
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*The world of highly productive machines is divided into two main families: transfer machines on the one hand and multitasking lathes. In general, transfer machines are intended to perform complex tasks and in most cases, they are used to machine chucked parts.*

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*“Communication is essential and here, once again, Tornos can stand out and make a difference.”*

**Andres Rego** Head of Tornos Customer Services



# A major turning point for Tornos Customer Services

**Andres Rego** Head of Tornos Customer Services

*With the creation of its new 'House of Services' that will materialize during 2021, Tornos is about to undergo a decisive shift. This is a necessary shift and it has been realized within the framework of a long-term strategy. It implements a permanent dialogue with the customers to improve Tornos' after-sales service and establish it as the leading benchmark in the world of bar turning. This challenge is faced with enthusiasm to make sure the Tornos Service will make the difference and fully satisfy the customers.*

*In general, Tornos' four main target markets – automotive, medical & dental, micro-mechanics and electronics – are currently undergoing significant transformations. For some of these segments such as the automotive segment, one might even talk of a revolution. In the last few years, the emergence of electromobility and the numerous technologies associated with it, have forced a lot of manufacturers to review their plans.*

*Broadly speaking, these market changes will make Tornos' customers review how they work. They are required to question their methods and production technology and break new ground. The decline of certain markets and the Covid-19 pandemic necessitate even more flexibility and even more responsiveness. The Tornos customers have to review their priorities - in this context, they need a partner that can help them tackle these new challenges, many businesses are requesting interventions to make their machine inventory fit for the future and to provide them with adequate solutions. Manufacturers are forced into this critical situation and they are often forced to adopt just-in-time procedures – this means that they expect the same from Tornos - if not, an even higher level of responsiveness and flexibility.*

## **Tornos Customer Services respond to market transformations**

*As manufacturers are compelled to increasingly focus on their core competencies, the Tornos customers expect the machine tool experts to be a reliable, long-term partner that supports them in optimizing their operations based on better utilization of technology within the framework of their activities. That's where Tornos has the potential to stand out, make the difference or become the differentiating factor – in line with the company strategy.*

*On the one hand, Tornos Customer Services offer solutions to protect customer investments and maintain their means of production in the best operating state to make them reach optimal performance levels throughout their entire service life. On the other hand, Tornos Customer Services offer customers solutions that enable customers to grow their business.*

## **A long-term service vision**

*The Tornos Customer Services division aims to become the global benchmark for service in the bar turning industry to support customers professionally and efficiently in meeting their current and future requirements. Even if, at first sight, this may seem presumptuous, it reflects Tornos' strong desire to enable its customers to benefit from the best level of service available in the industry. To prove that this commitment is not taken lightly, the customers will be requested to rate every intervention, grading the progress and performance of the new service unit.*

*Moreover, Tornos expects the demand for Tornos services will rise and that the services will change from 'simple' maintenance, repair and provision of spare*

“Tornos can rely upon more than 100 years of expertise and experience to offer its customers the best solution at the right moment.”

*parts to advanced result-focused service that will increase productivity and help the customers develop new activities and grow profitably.*

#### **Undeniable added value**

As a matter of course, maintenance services will continue to be provided and this will include all services that are suitable to make sure that the customer's machine is repaired as soon as possible. Fast and efficient troubleshooting will be included as well. With its maintenance solutions, Tornos also enables the customers to maintain or even enhance the production level of their machines. Maintenance does not solely consist of machine troubleshooting and repair but maintaining the machines to optimise the operating condition and take appropriate preventive measures to guarantee maximum productivity and service life.

However, Tornos Service goes well beyond the maintenance described above. It offers its customers' service solutions that enable the customer to grow their business. This is reflected in an improvement of the means of production, including hardware modifications, that enables an increase in productivity and availability and even allows the customers to attract business in new markets, reduce their environmental footprint and improve safety. The Tornos Academy also plays a major role within this concept of potential significant enhancements. It makes sure the knowledge of the operators keeps up with technological advancements. The adopted coaching techniques guarantee process improvement and cycle time optimization.

#### **Kicking-off a necessary shift**

The changes already initiated will be visible for existing customers from the second half of the year. The shift will be rolled out country by country. Each geographical zone will be successfully transformed into the new model by the end of 2021. In particular, Tornos Customer Services will provide the customers with a 95% spare parts availability for machines that are less than 10 years old and also offer the best-guaranteed price for original spare parts. If the customer has concluded a maintenance contract with Tornos, a technician will be sent out to the customer within 24 hours and only the first service intervention will be chargeable for the entire troubleshooting and repair.

From a practical point of view, a ticketing and file-tracking service will be implemented. This service will enable Tornos to respond most efficiently and effectively possible, regardless of customer request.

#### **Some necessary changes**

Tornos will establish new routines for its customers. Up to now, a customer would often directly call a technician he knows from previous service cases. In future, a central telephone number will be established to make sure all calls and, with them, all requests will be centralized. In this manner, each request will be analyzed and assessed depending on its urgency. Safety, for instance, is of vital importance and thus has absolute priority: wherever safety is impaired, immediate intervention is required. Once a service case has been concluded, a satisfaction questionnaire will be sent to the respective customer for them to assess the intervention. These questionnaires are a valuable means for measuring the level of satisfaction among the loyal customers and they will be used as a benchmark for the improvement of the Tornos services. If Tornos Customer Services want to retain their position as the global benchmark in the bar turning industry, they, first and foremost, have to focus on the customer requirements by analyzing their feedback. Communication is essential and here, once again, Tornos can stand out and make a difference.

To change the perception and image of Tornos among certain customers, Tornos must address several changes and keep its promises. Everything is changing: the industry and with it, the support to be offered to the customer. Tornos can rely upon more than 100 years of expertise and experience to offer its customers the best solution at the right

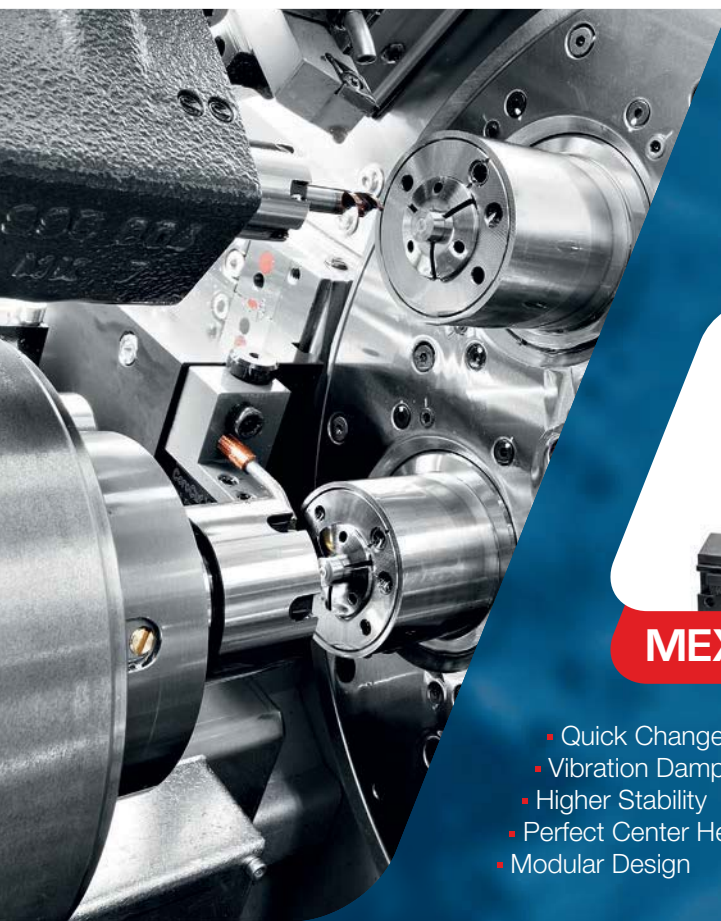
moment. Incidentally, Tornos Customer Services are currently testing new systems that will further improve the responsiveness. Here, a remote service function based on augmented reality is tested. This proves to be even more important because of the Covid-19 pandemic and the social distancing measures associated with it.

### **Tornos – playing a key role in the circular economy**

The overhaul of used and old machines occupies a separate sub-section of the Tornos Service Department. Spindle replacement is one of the primary tasks of machine overhaul – with no less than 1,500 spindles being replaced per year. The machine overhaul service offers ranges from a 'simple' overhaul to complete refurbishment of the machine, including the electrical system. Furthermore, Tornos

re-purchases old machines refurbish and then resells them. Even if this array of services has been a success, Tornos is now hoping that this demand will further rise, in particular thanks to the brand-new DECO 10 Plus.

This machine series first saw the light of day in the late 1990s and proved to be very successful. And many of these machines are still being used in workshops worldwide. This year, on the occasion of DECO 10's 25<sup>th</sup> anniversary, Tornos holds a great surprise in store for those customers who particularly cherish their DECO – a way to realize innovation by remaining true to certain values and certain products. This initiative is put at the very core of Tornos' approach that aims at even better serving and supporting its loyal customers.



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- Modular Design



Before

After

Tornos celebrate 25 years of  
this legendary machine.



# DECO 10 Plus: Your new DECO 10!

In 1996, Tornos launched its DECO 10. This compact and ultra-productive machine completely changed the machine users view of numerically controlled machines.

With its 4 independent tool systems and the fabulous TB-DECO software that can optimize operations simply and visually, the machine comes close to the production times of cam-type machines.

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*The machine proved to be an instant hit and even today, 25 years later, the DECO 10 is still a benchmark in terms of productivity, ease of use and serviceability. And that's why Tornos has been offering partial or complete overhaul service for these machines for several years now. Today, we can go even further with the new DECO 10 Plus.*

### More than a rebuilt machine

*DECO 10 Plus is not an overhaul but an entirely new machine, even though it is based on the frame of a DECO 10. Just like the complete machine overhaul, the basic machine is entirely disassembled and stripped down, the enclosure and the cast iron frame are cleaned, the guiding elements and the ball screws are replaced, the machine and its components are re-painted and the machine is then reassembled. Subsequently, customized adjustment of the geometry is carried out and the machine is put back into service, accompanied by a functional test and a geometry inspection. In contrast to a machine overhaul for which the numerical control unit remains*

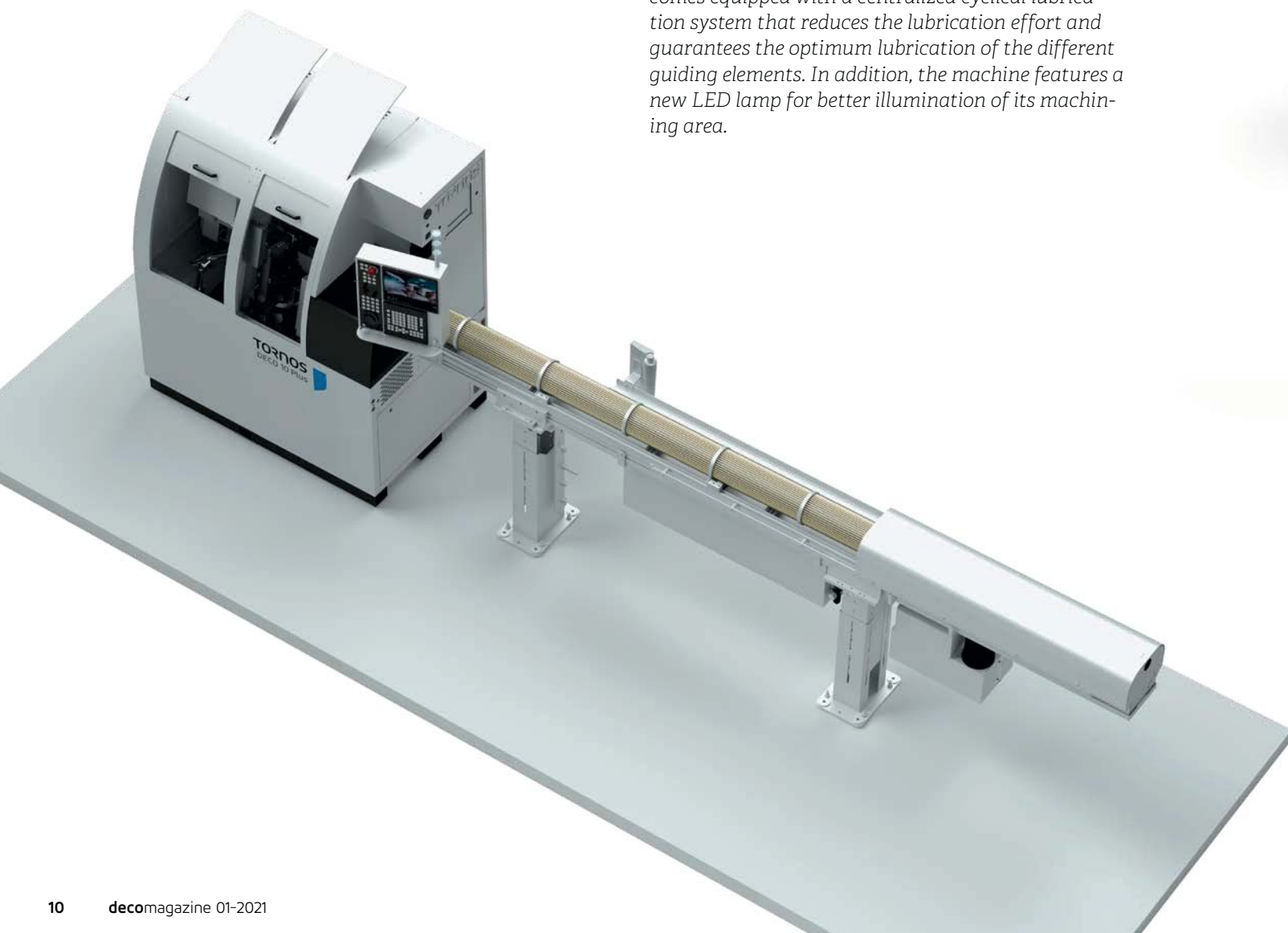
the same, the CNC unit and the electrical system of the machine have been completely renewed for the DECO 10 Plus machine. So, the machine should no longer be regarded as a completely overhauled machine but is considered to be a new machine that benefits from an entire technological upgrade. In this way, even a machine having more than 100,000 hours on its hour meter can be returned to its initial state while upgrading it and substantially enhancing its performance.

### A new technology package

The DECO 10 Plus machine is equipped with a Fanuc 31i-B5 CNC unit of the latest generation that particularly boasts a colour display and a USB port. The control unit is installed on an articulated arm

and is based on PTO instead of PNC technology. The programs, however, can easily be re-used for the new machine using simple conversion. Programming is accomplished through TB-DECO and the new numerical control unit that covers all machine features including the C-axis for main machining (C1) and back machining (C4). The new CNC unit enables the user to benefit from the available state-of-the-art technologies and allows lifting the DECO 10 to the Industry 4.0 level. With its higher processing speed, this technological upgrade facilitates the integration of the machine in a networked workshop. For its CNC unit, FANUC offers a 25-year warranty on the availability of spare parts.

Moreover, the machine can be equipped with several options of the latest generation. For example, this could be the ACB or ACB Plus chip breaker system or the TISIS programming solution. The machine comes equipped with a centralized cyclical lubrication system that reduces the lubrication effort and guarantees the optimum lubrication of the different guiding elements. In addition, the machine features a new LED lamp for better illumination of its machining area.





### DECO 10 Plus or EvoDECO 10?

Today, the user can also opt for an EvoDECO 10 machine that is provided with the same CNC unit and it also boasts an entire technology package. So, what are the differences between the two machines?

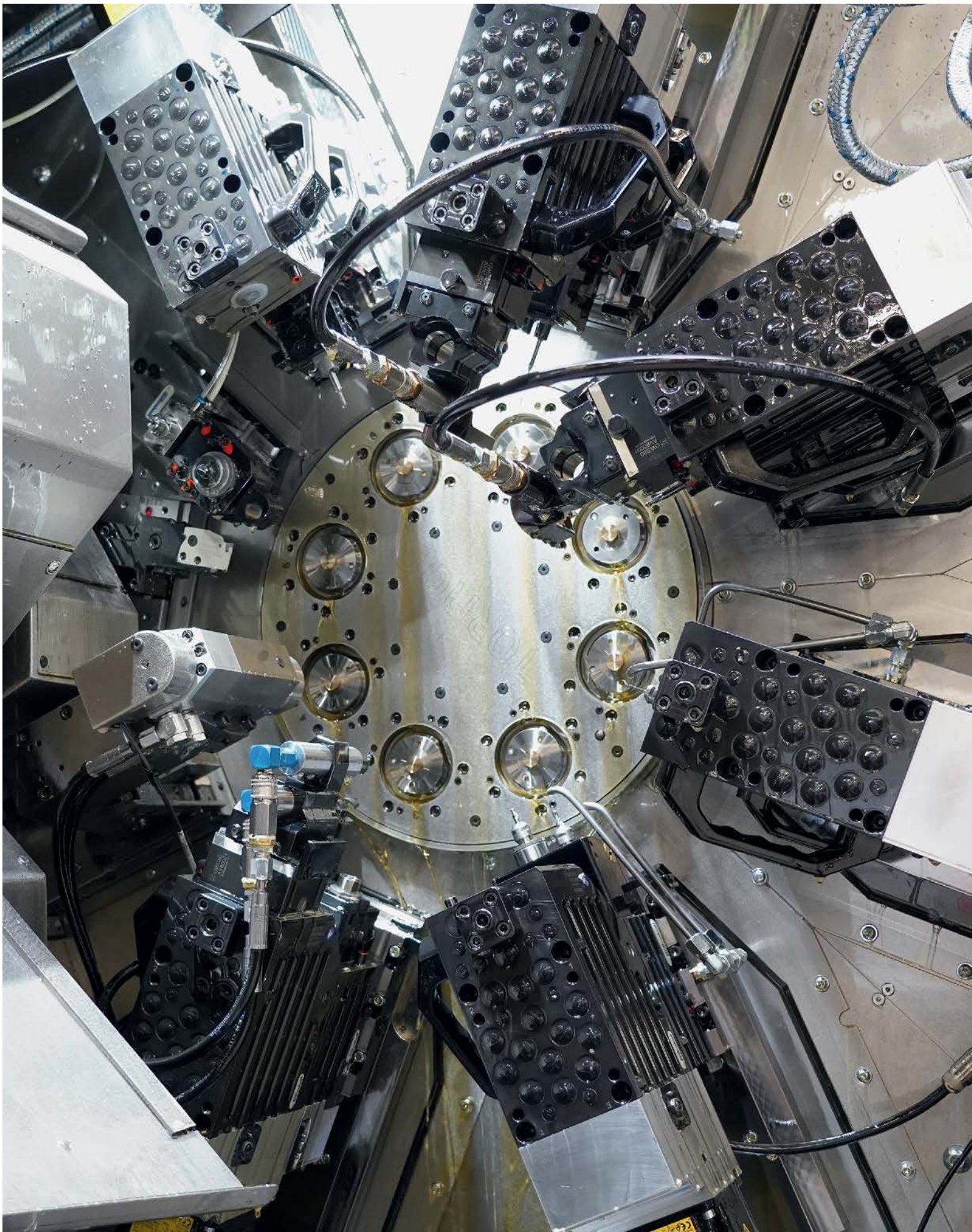
The EvoDECO 10 machine has ultra-dynamic liquid-cooled powered spindles with high output. These spindles offer ultra-short acceleration and deceleration times with several tenths of a second being enough to reach 14,000rpm. The machine base has been reinforced and optimized based on finite element analysis (FEA) to improve the thermal characteristics and the rigidity of the unit. Moreover, the EvoDECO 10 benefits from a 10<sup>th</sup> axis, this is a Y-axis for back machining (Y4). In particular, this additional axis enables numerical tool setting for back machining operations or even gear cutting operations during back machining. Finally, the EvoDECO 10 has a built-in PC for program editing directly on the machine.

Both the DECO 10 Plus and the EvoDECO 10 machines can be equipped with the full range of devices offered for the DECO series. Both machines can be operated with ease by any operator being familiar with the TB-DECO software and the machines of the DECO or EvoDECO series. Consequently, the EvoDECO machine has many advantages while the DECO 10 Plus is more compact and constitutes a less expensive investment.

If you want to learn more about the DECO 10 Plus, do not hesitate to contact us!

[tornos.com](http://tornos.com)







# Multispindle lathe and milling: Two incompatible concepts?

The world of highly productive machines is divided into two main families: transfer machines on the one hand and multispindle lathes. In general, transfer machines are intended to perform complex tasks and in most cases, they are used to machine chucked parts.

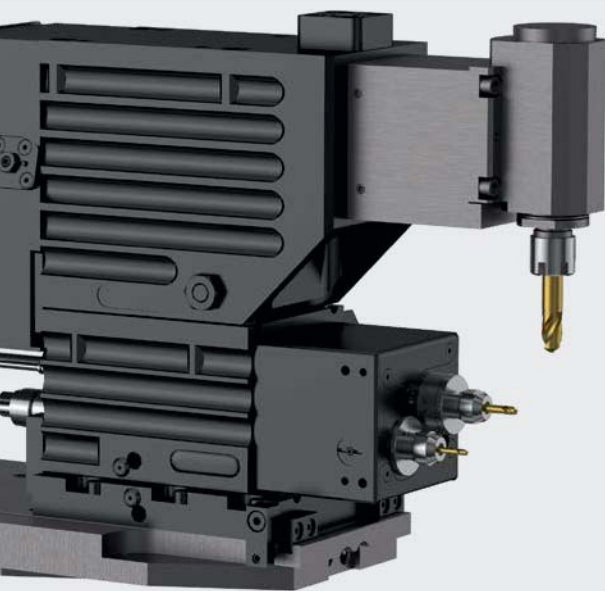
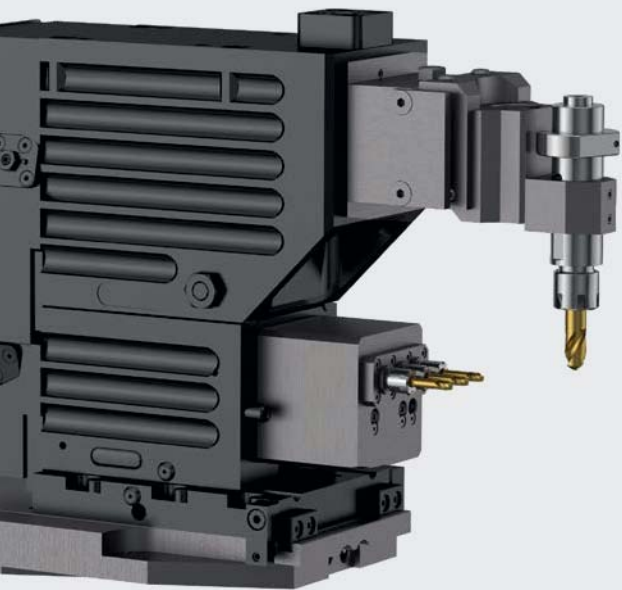
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*Traditionally, multispindle machines offer the advantage of being able to machine less finely wrought parts from bar stock. But is this still true these days? What if we joined the milling capacities of a transfer machine with a multispindle machine? This editorial is inviting you to discover the possibilities.*

### **MultiSwiss: flexibility is a major advantage!**

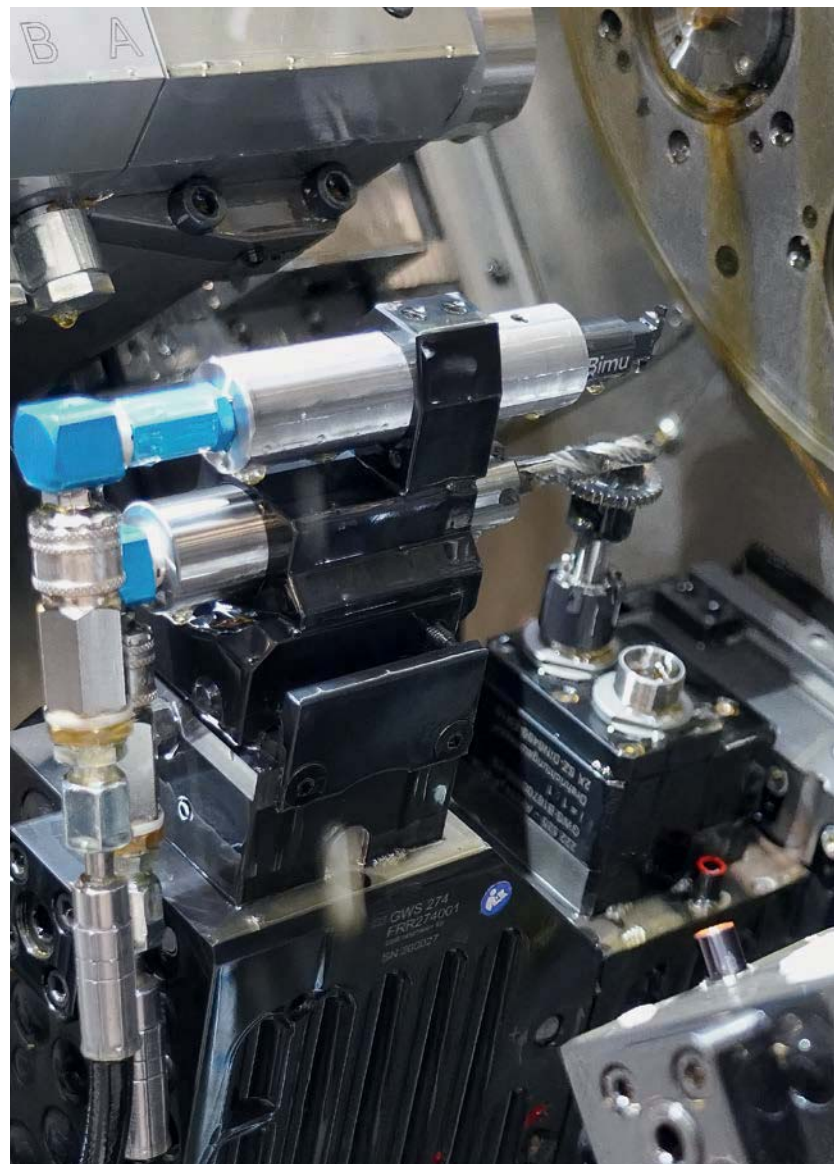
*MultiSwiss machines feature a modular machining area that enables them to be equipped with various options, including driven tool units used to realize milling tasks. The machining area is spacious, ventilated and ergonomic. The operator can enter the machine to set-up work. Based on this concept, MultiSwiss products have gained a high reputation for their flexibility. Be it in Europe, America or Asia, every machine user comes to the same conclusion:*



*The MultiSwiss machine is highly flexible and can be equipped with a large number of tool holders. It is possible to mount front and radial rotating tools, the bases are equipped with a quick-change system, so it is possible to completely reconfigure the machine in less than 4 hours!*

*the machine can be set up as quickly as a Swiss-type lathe. In contrast, its productivity can be 5, 6 or even 8 times higher. MultiSwiss machines enable higher production rates while substantially enhancing the workpiece quality. Thanks to its hydrostatic bearing system, the spindle is extremely stable, irrespective of the actual load. This stability has a positive effect on the tool life and the tougher the material, the better the machine can exhibit its impressive efficiency.*

*The chip conveyor, as well as the peripherals, are supplied with the machine to allow for uninterrupted production for hours. The machine can be equipped with an impressive number of optional units that*





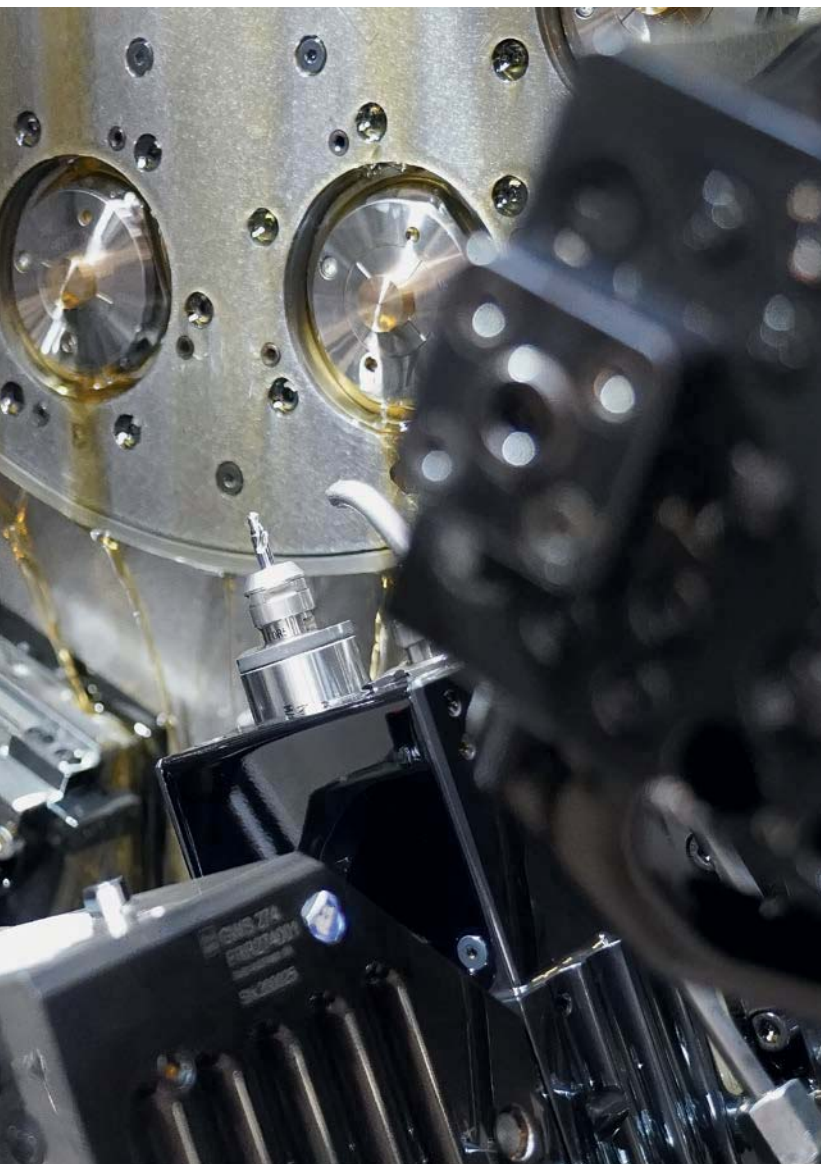
enable it to meet any requirement. The solutions offered can range from the carousel for part discharge to various automation and robot-loading cells through to the stacker that can load several tons of material into the bar feeder.

#### **A kinematic system that pays off**

Due to the extraordinary kinematic system of the MultiSwiss 8x26 with its 6 Y-axes, in particular, it is now possible to take the next step. Since the slides are installed in the respective X and Y axes, milling operations become possible by joining the Z-axis of the spindle. So, the only thing left to

do was to design appropriate tools to enable milling operations on a multispindle lathe. This has been achieved with the new multiple-head milling system that has been designed especially for MultiSwiss machines.

With this system, up to 3 milling tools can be installed per slide. So, the machine can be equipped with 15 driven transverse drills or milling cutters and 5 drills or milling cutters for front machining operations. A large number of milling operations can thus be performed on a MultiSwiss lathe instead of a transfer machine that would normally be required for such tasks. The advantages of bar



### **An ideal workpiece for a MultiSwiss lathe with milling capacity**

Tornos offers an unrivalled solution in terms of productivity, flexibility and ease of operation for finishing a large range of 'bored' workpieces. For example, this machine is the ideal candidate for finishing locking cylinders with impeccable quality – without any secondary operations.

Cycle time: 12 to 20 seconds, depending on the workpiece.



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*stock machining, which simplifies the logistics of material feed, are maintained as a matter of course.*

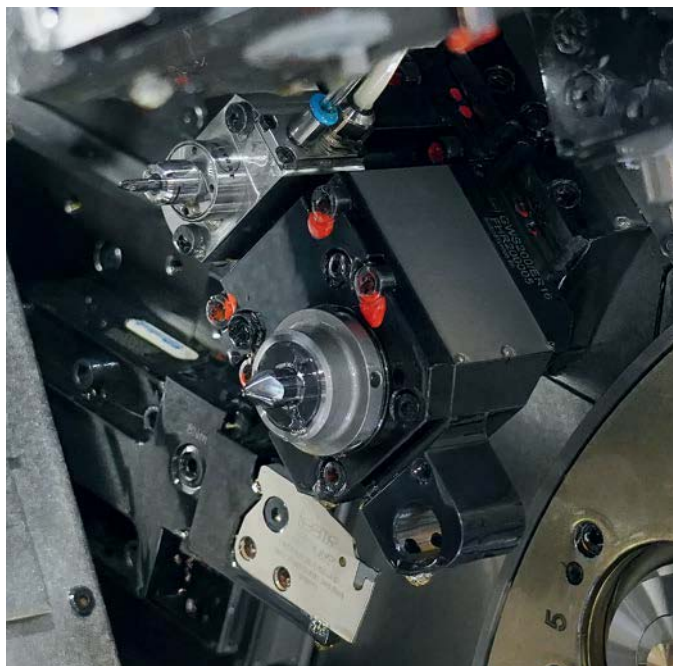
#### **High machining accuracy and high-quality parts**

*In addition to its high productivity and process quality, the machine features extreme precision. Through the numerically controlled high-precision technology, the positioning accuracy of each axis is in the region of 0.015 mm.*

#### **Do you want to learn more?**

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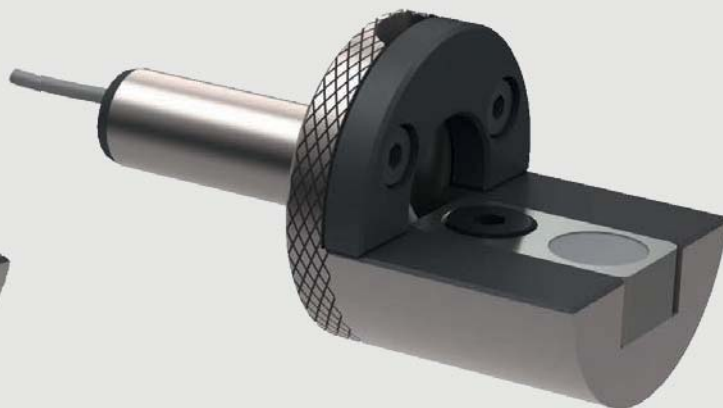
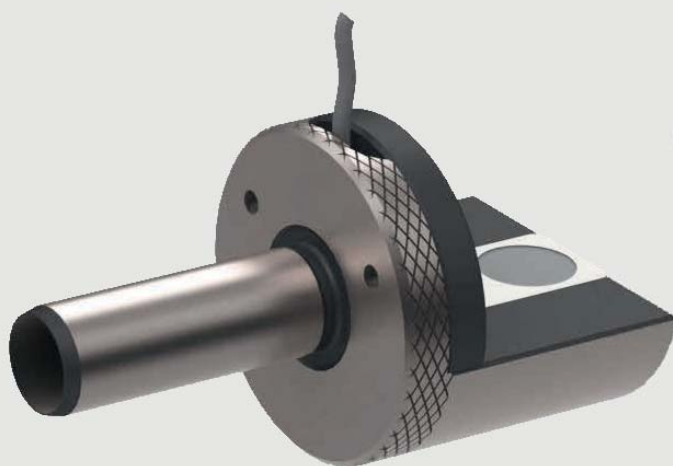
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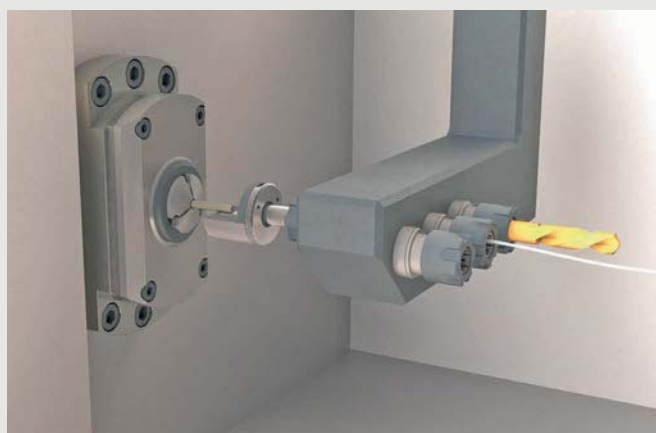
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# Tornos – The key to security

The world is changing at breathtaking speed. The growing importance of the Internet of Things (IoT) as well as the increasing concerns about security and the protection of everyone's private lives has expedited the penetration of smart home security systems all over the world. In addition, the increase in smartphone users worldwide has further prompted the use of smart locks in recent years. This comes as no surprise, as they feature benefits such as comfort and ease of use.

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*In the light of the rising demand for secure and intelligent access solutions, Tornos felt duty-bound to offer solutions that fully meet the current industry requirements. All security systems basically demand one essential thing: the lock.*

### New technologies available

*For several years now, Tornos has been interested in this dynamic and continuously evolving market. Even when this market first started and was an evolving technology that had various challenges, Tornos was there. Things have changed considerably since 2000, especially due to system digitization.*

*For example, various companies have introduced geolocation-based locks in which appropriate devices detect the arrival of the user and unlock the door as soon as the user enters the GPS area. In some*

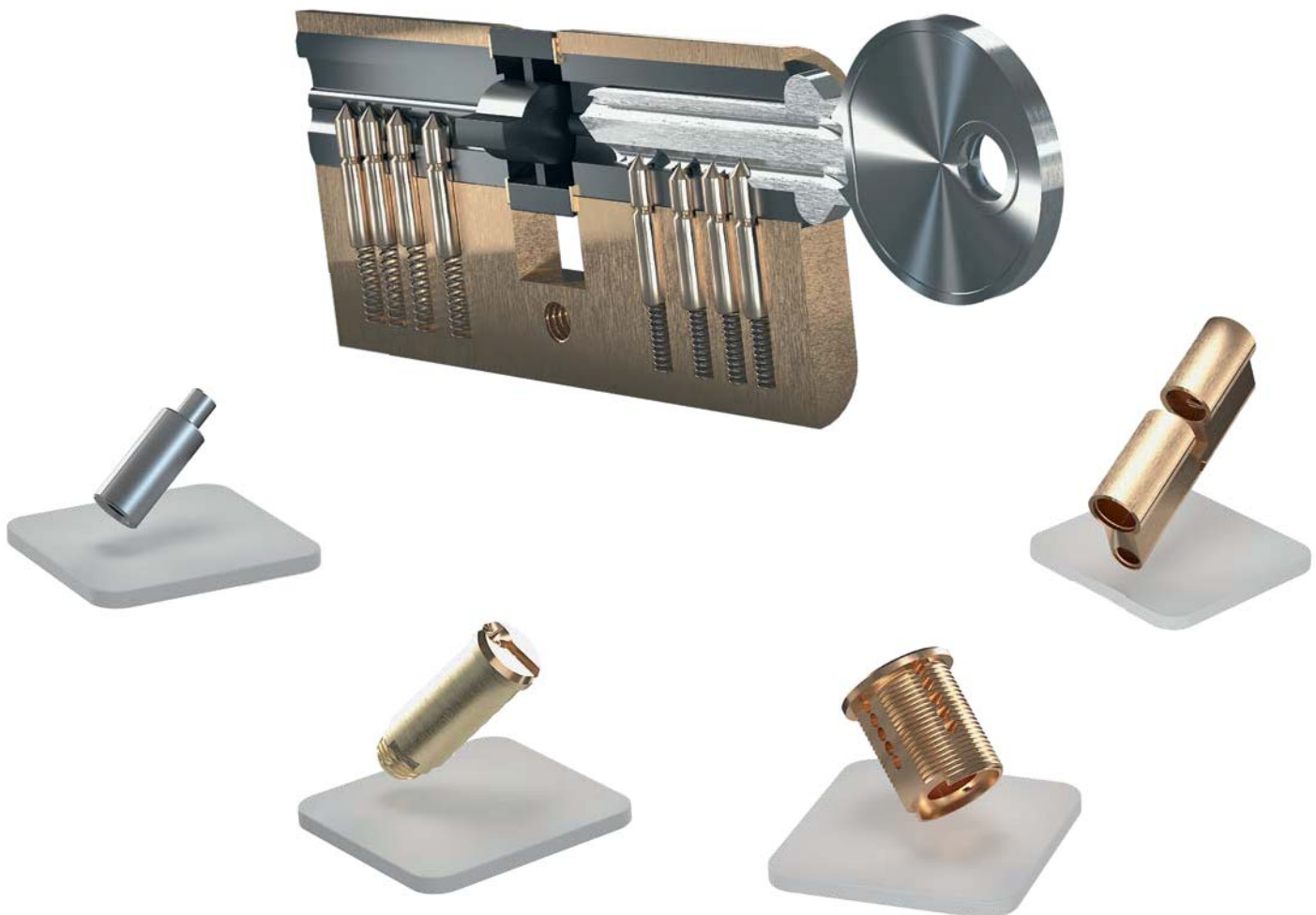
instances, other enterprises in this sector focus on the implementation of state-of-the-art technologies such as the 'touch-to-unlock' technology that is used for automatic unlocking by means of capacitive touch sensors installed in their products. Key companies collaborate with suppliers of smart ecosystems, such as Samsung, Google and Amazon. These businesses combine these new technologies with the smart solutions that become available, such as Alexa, Google Assistant, Siri, Samsung SmartThings and Apple Homekit.

As far as cloud-managed locks are concerned, we are experiencing the introduction of innovative

mechanisms operated by means of smartphones, tablets, smart keychains and other mobile devices. The development and use of sophisticated technologies such as Near-Field Communication (NFC) and Bluetooth Low Energy (BLE) is continuously advancing to enable the easy access to locking functions.

### Sectors in the focus of attention

The residential sector is one of the key target sectors of these networked solutions. This is because their advantages such as high ease of use and long service life are highly appreciated. More and more smart homes across the globe have made a significant





contribution to the increasing requirements. Nowadays, advanced security systems, especially remote door locking systems, window and door opening sensors as well as motion detectors are affordable for homeowners.

Besides tourism development, the hotel industry is stimulated by factors such as the enhancement of security measures in hotel rooms that call for the use of new smart lock technologies. Hoteliers all over the world are increasingly equipping the rooms of their hotels with advanced locks based on wireless protocol. With these locks, hoteliers can better respond to the security demands of their international guests.

### **Tornos: a master of locking technology since the turn of the century**

As a company that had been producing machines able to support the manufacture of lock components, Tornos decided to further explore this market about twenty years ago. The components produced in the 2000s on DECO machines turned out to be the ideal solution at that time. They were mainly made of brass and were produced from round bars or structural material. The DECO 2000 lathes had a bar capacity of 13, 20 and 26 mm and were very much appreciated for their vast equipment options (large number of fixtures and driven tools of different types). The DECO machines were particularly suitable for high-security lock cylinders (cylinders and shells). The components to be machined do not require many turning operations but mainly cross drilling, milling and grooving processes.

Even today, such workpieces, that can have a large variety of shapes depending on their use, are still primarily made of brass and produced from round bars or structural material. The tolerances required are also like those formerly requested.

### **Expertise that is not 'transferable'**

The new challenges the confronting the market have compelled the Tornos engineers to demonstrate even more ingenuity and agility. The complex components now requested, can be produced on a Swiss GT machine. With its large variety of tooling configurations, this is the ideal solution for specific locking systems that cannot be machined with less versatile solutions.

With a view to optimizing the processes and increasing the flexibility and productivity, the Tornos multispindle lathes from the MultiSwiss family are about to evolve into an optimum solution that combine productivity and record set-up times. This is credit to the ergonomic features and ease of use. With its MultiSwiss 8x26 featuring a quick-action tool changer, Tornos can produce dozens of high-security lock cylinder models and manage hundreds of variants with the very same production means.

For Tornos, the lock industry is a market of sustainable growth since the demand for mechanical locks is expected to grow at an average annual growth rate of almost 4.5% until 2022. The component families requested in the 2000s still exist today and even the trends of Industry 4.0 did not lead to a fundamental change in their mechanical design. This makes Tornos your perfect partner when it comes to providing you with flexible and highly productive solutions.

**tornos.com**



Monnin SA in Sonceboz, Switzerland has the largest SwissNano park in the world.



# Monnin and Tornos –

## *Watch movement with precision engineered into each component*

Based in Sonceboz, at the heart of the Swiss Jura Mountains where the industry is traditionally oriented towards high precision, the Monnin SA company has been manufacturing a vast range of small turned parts for the watchmaking and microtechnology industries since 1946.



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*In the course of its 75 years of activity, Monnin has evolved and it continues to evolve with the erection of new premises at its headquarters on the occasion of its 75<sup>th</sup> anniversary.*

*This evolution is supported by the purchase of Tornos machines that are indispensable, especially for the large-volume production of screws. For the manufacture of more complex parts – a sector which Monnin has established as its new niche, the company also trusts in Tornos. It is here that Tornos machines allow for the production of all individual components of watch movements.*

*Confronted with an environment of constant technical evolution, Monnin has opted for the human factor and thus can benefit from its highly specialized staff that is familiar with the most demanding tasks in their fields of activity. Monnin has placed the human being at the center of every process. This deeply humanist approach, however, does not prevent the company from setting itself ambitious goals and from making every effort to attain them.*



*“At Monnin, we can produce every individual component of a watch movement. The components manufactured by us in large-volume production are mainly high-end screws. Moreover, we offer other finished products such as pinions or winding mechanism shafts. More complex parts tailor-made for our customers represent another major portion of our activities. This can refer to components such as ball bearings, shock absorbers or barrels,” explains Loïc Affolter, Production Projects Manager at Monnin.*

*To realize such products, Monnin has placed its trust in Tornos for many years, as David Vedelago, Monnin’s R&D Manager puts it. “I already started my apprenticeship at Monnin working with cam-type machines from Tornos. From the very beginning, I have been fascinated by the precision and the vast range of possibilities offered by these machines. Incidentally, once having opted for Tornos, Monnin has always remained faithful to them. Back then, the two workshops were brimming with Tornos*

**“Monnin has placed the human being at the center of every process.”**

*machines; some of them were installed even in the cellar! The situation changed, however, with the arrival of CNC technology. With the DECO 10 and its terrific versatility, the possibilities seemed unlimited!”*

*A visit to the Monnin workshops will provide evidence: it has 26 DECO 10 machines that are still in use and they guarantee fast and meticulous high-end production that perfectly meets the*





demands of Monnin's three shareholders and proxy holders Rolex, Richemont and Patek Philippe who acquired the company from Jean-Charles Monnin in 2001. To even better respond to the demands of a market in constant evolution, Monnin has acquired 46 SwissNano 4 machines in the last few years. And the company is not going to stop on its way to success and it has already ordered two additional SwissNano machines. This will be Monnin's first machines of this series' new generation. In addition, the company is awaiting the delivery of its first SwissNano 7 machine shortly for testing purposes.

Monnin SA, therefore, has the world's largest inventory of SwissNano machines. This machine type has been chosen due to its small footprint. At the time, the company had to think about replacing its cam-type machines, they found the ideal replacement with the SwissNano machines as they had exactly the same footprint size as the cam-type machines. This machine is a real high-precision gem; with its unique kinematic system and its legendary accessibility, the machine is flexible and versatile and can be operated both with and without a guide bush. With its kinematic system that is specially designed for small workpieces requiring a high level of precision, the SwissNano can manufacture 2/3 of the parts required for watch movements. This ranges from simple parts to complex components whilst achieving an excellent surface finish. The machining process

may include gear cutting cycles. The suitability of the machine, however, is not restricted to watchmaking but includes any type of workpiece that requires the highest quality with extreme precision. The kinematic structure has been conceived to achieve exemplary thermal balance and management and thus makes sure that the operating temperature is reached in the fastest possible time.

"Our goal is to offer not only simple workpieces but complete watch movement solutions," Loïc Affolter continues. "For this purpose, we are trying to rationalize the workpiece types to the maximum extent. Monnin offers a large range of products produced in large volumes. Nevertheless, we are always proactive. This principle is notably furthered by our managing director who has a long-term vision and makes forecasts for periods of four to five years, based on the demands of our shareholders. In this way, we are heading more and more for the manufacture of parts of higher complexity on our DECO and EvoDECO machines. With machining processes such as gear cutting and milling, we realize completely finished small turned parts such as barrel drums or crowns can be achieved."

"In fact, we have already been managing the production of screws and screw pads for a long time. For us, the challenge is to be capable of producing components of higher complexity in bulk. Over the past few



years, Monnin has grown significantly at the production planning level. Day by day, several employees are dealing with the homologation and revalidation of the ranges of operation.”

Monnin can indeed rely on a formidable inventory of machines to reach the targeted results, but above all, the company counts on its staff and invests a lot in the human resources employed. “Monnin has placed the human being at the center of every process,” Loïc Affolter confesses. “The investment in the future is also important to us and therefore, we employ apprentices, provide training and place as much importance on soft skills as we do on know-how. Our employees appreciate our commitment. This is reflected in the fact that very few of them leave the company to go somewhere else. The planned expansion of our premises in 2022 will allow us to purchase even more machines. It will also offer our employees more space, with dedicated relaxation and

dining areas. Another fact that should not be underestimated for the region is that we are planning to recruit further employees to expand our staff.”

Here, the corporate values are by no means empty promises but represent standards for diligent workmanship. “Condemned to succeed”, as Loïc Affolter jokes. This company banks on communication, mutual assistance and empathy to attain its goals. This seems to work extremely well. After all, Monnin is well-known and has gained a high reputation in the industry as a leading subcontractor for watch movement components. The company has gained this standing by having proved the strength and competence required to tackle various challenges. Indeed, Valéry and Gérard Monnin would be very proud of the development of the small family business founded by them back in 1946.

[monnin.ch](http://monnin.ch)



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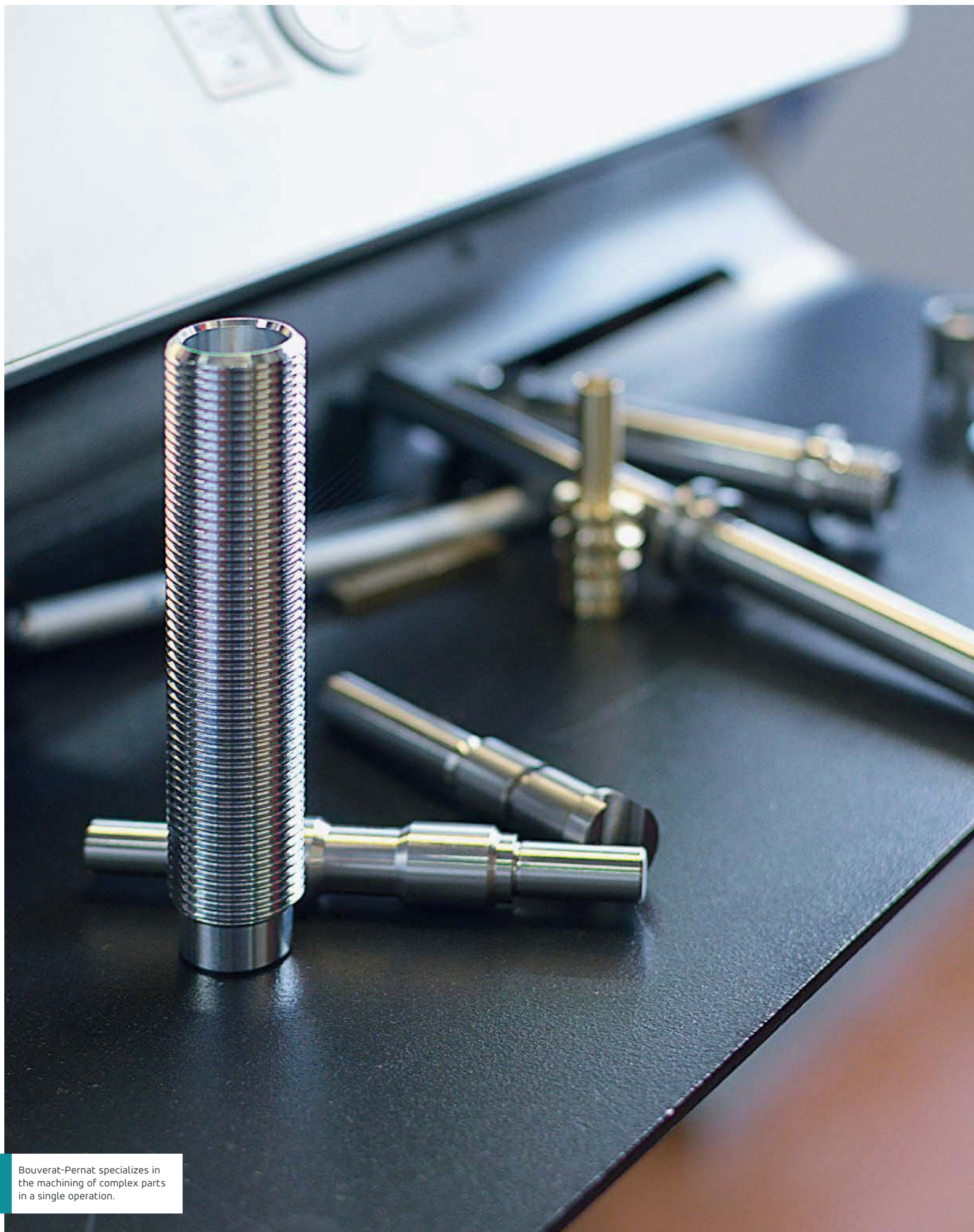
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Bouverat-Pernat specializes in the machining of complex parts in a single operation.

BOUVERAT-PERNAT:

# An innovation-driven company

With 65 employees, the HBP Group is an innovation-driven SME. When the company needed a new Swiss-type lathe for its plant in Marnaz, it quite naturally contacted Tornos and finally opted for the SwissDECO 36 TB. *decomagazine* spoke to Bouverat-Pernat's Managing Director Louis Pernat to learn more about this acquisition.



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## The HBP group

*The HBP group that has been owned by the Bouverat-Pernat family since 1975, consists of 3 entities. As the principal enterprise generating the majority of the company's revenue, Bouverat-Pernat is a specialist in highly complex machining processes and their industrialization. Besides Bouverat-Pernat, the HBP Group comprises of companies Secam and Nanoceram. Secam specializes in innovative plastics and light alloy fastening systems while Nanoceram focuses on high-performance ceramics. The three entities are pooled at the same site in Marnaz that comprises a total area of more than 4000 m<sup>2</sup>. Certified according to ISO:9001, EN:9100 and IATF:16949, the company is capable of serving highly discerning customers in industry sectors such as the automobile and aerospace industry.*

*The group achieves 80% of its sales from export and its business model is extremely diversified, working in a large number of markets. This diversification enables the HBP Group to withstand crises and demonstrate exemplary resilience, even in the thick of the current complex crisis of public healthcare.*



### Three companies for distinct and complementary expertise

The three group companies have distinct expertise and synergy that sees each company complement the other. For example, Secam develops inserts for honeycomb structures whilst Bouverat-Pernat is a specialist in bar turning. This company undertakes the production of inserts while cold forming of the screws is realized by a sub-contractor of the group.

For its part, the company Nanoceram is an expert in the production of ceramic powder. One of its numerous innovations is the Punchi (innovative ceramic bar machining process) project that is intended to realize the machining of untreated ceramic bars on Swiss-type lathes - a world debut.

The three companies form a unity. They are interconnected and act on the basis of the same philosophy of accompanying their customers from collaborative design through to industrialization. By offering real solutions for their customers, each business is capa-

## Precimask – a transparent and durable mask

As for the other group companies, innovation is also part of the DNA at Bouverat-Pernat.

In these troubled times, the company has collaborated with the Pracartis group based in Peillonex (France) to develop a transparent mask with washable reusable filters. The unique, durable and patented ceramic-particle filtration system has a filtration level equivalent to a surgical mask (higher than 95% for 3 µm aerosols) and boasts high breathability. Thanks to this mask, filter changes are no longer required as the filter cartridges can be cleaned.

For further information, please refer to [www.precimask.fr](http://www.precimask.fr)

“SwissDECO is an innovative machine that effectively differentiates itself from the competition.”

ble of managing global multi-technology projects for a wide range of industries such as fluidics, automobile, aerospace and even the luxury goods industry.

### Bouverat-Pernat, your partner in machining matters

Bouverat-Pernat considers itself a partner in machining with innovation deeply embedded in its DNA. Bouverat-Pernat, however, wants to be more than a mere partner in machining matters, but a partner involved in the workpiece design, offering close collaboration with customers. This means Bouverat-Pernat wants to understand the functional requirements of projects and adopt a ‘design to cost’ approach to meet the market requirements as best as possible.

Embracing innovation, Bouverat-Pernat develops various machining processes to optimize production. Just recently, the company has developed a high-pressure deburring system.

For Bouverat-Pernat, innovation does not stop at machining. The company has created Stock’N Pick - a ‘peace of mind’ on-site stock holding service without the need to manage it. This system enables the company to always remain as close as possible to its customers. Based on a monthly subscription, the company sets up a consignment stock at the customer’s premises. The stock remains the property of Bouverat-Pernat, so Bouverat-Pernat undertakes stock management at the customers’ facility.

### A workshop at the cutting-edge of technology

Bouverat-Pernat has recently decided to expand its state-of-the-art machine inventory consisting of 16 multi-axis CNC lathes and seven multispindle lathes that includes the new Tornos SwissDECO 36.

*Why? Because the SwissDECO is a machine that, just like Bouverat-Pernat - it makes the impossible possible. With its large axis travels, it was the only machine in the market being capable of realizing the workpieces needed by the company. The machine can be operated with or without a guide bush and the company machines the majority of its parts on the SwissDECO using a collet. Machine operation with the guide bush is mainly used for workpieces with deep holes. For Bouverat-Pernat, the main advantage of the SwissDECO is its rigidity.*

*The SwissDECO 36 T machine model has a 12-position turret designed for the most demanding machining operations with all turret positions having the facility to be equipped with driven tools. The kinematic design allows a large number of operations to be carried out simultaneously and this offers unique*

*possibilities. The Z-axis of the turret permits the machining of long workpieces that require deep-hole drilling up to a length of more than 300 mm with ease. Thanks to the integrated panel PC, the machine is both stable and easy to use.*

*The basic version of SwissDECO features a container comprising the various peripherals required for operation and this concept requires less floor space. Additionally, it facilitates the use and autonomy of the machine. This configuration is intended to minimize maintenance. SwissDECO is an innovative machine that effectively differentiates itself from the competition.*

**[bouverat-pernat.fr](http://bouverat-pernat.fr)**





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# Look at our online tips and tricks to optimize your production!

Here at Tornos, we are receiving more and more requests from our readers and customers to provide further tips and tricks in our decomagazine. So, in this issue, we want to present 'Twister' turning, an extremely useful and innovative technology for all machines equipped with TISIS Optimove. Additionally, you can find all our tips and tricks that have been translated into your language on our website.

## TORNOS

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### A database accessible for all

*Do you want to optimize your cycle times? Do you have to perform several feeding cycles for the production of your workpiece? Do you want to pick up your workpieces at the guide bushes? Do you want more information on B macros? Do you want to produce part families?*

*If you want to learn more about such topics, refer to the 'Tips and Tricks' section on our website!*



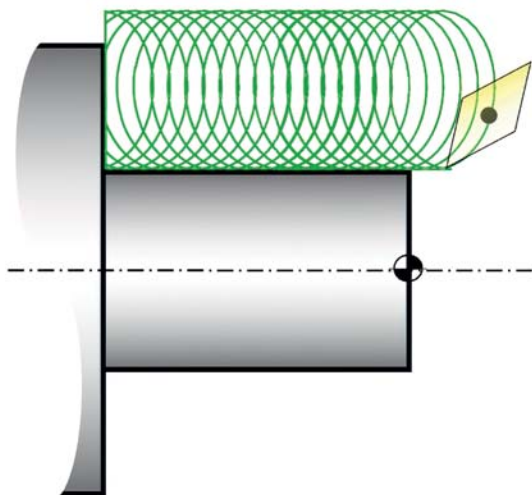
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## “Twister” turning

Turn differently! TISIS Optimove now benefits from a new and innovative turning process.

## “Twister” turning process

The process consists of turning by a succession of ellipses and this has numerous advantages. It permits fine chip flow management and the reduction of cycle times. The advantages of the ‘Twister’ turning process are not limited to these two processes. In particular, the process generates low cutting forces and this simplifies the turning of long parts with a very small diameter. The process is extremely easy to use and it offers several working methods.



## Programming

The function can be programmed using the G964 macro and its programming wizard. The function has various possibilities of parameterization to respond to:

- different types of material
- different types of tools
- the desired workpiece qualities
- the optimized compromise between cycle time and surface finish.

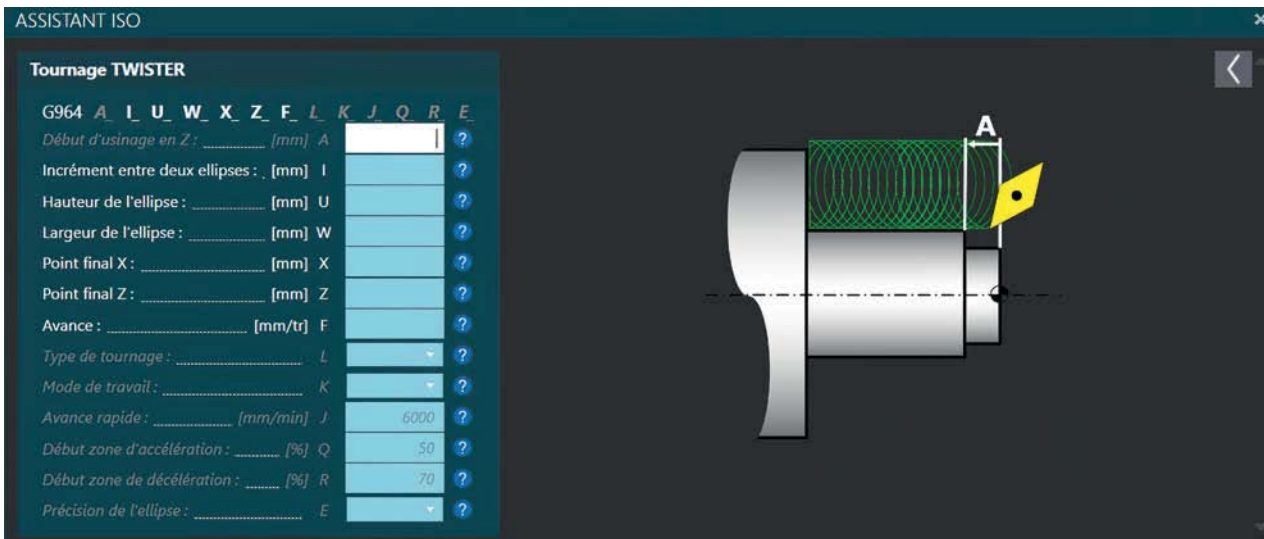
‘Twister’ turning opens up a lot of possibilities that are presented in our online video.

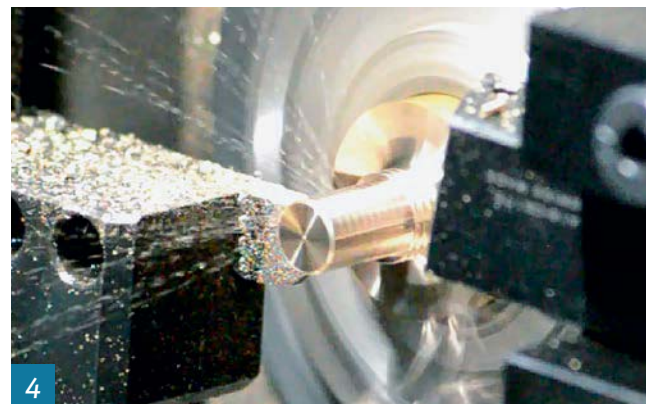
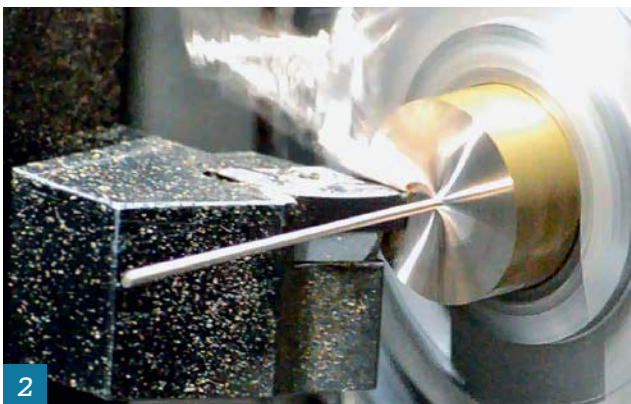
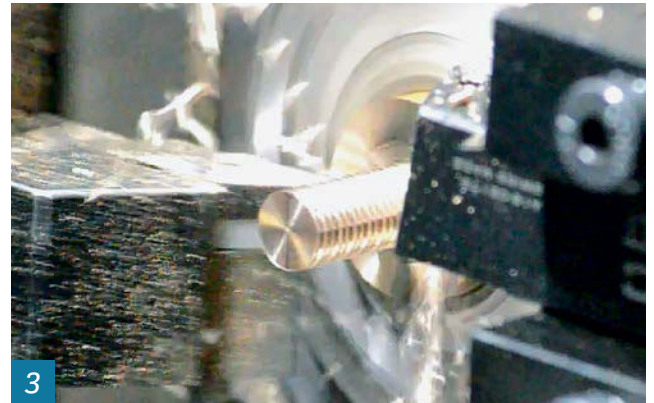


bit.ly/3k5nUZt

As you will discover in the video, there are 4 main working methods:

1. ‘Twister’ turning with a single tool in finishing mode
2. ‘Twister’ turning with a single tool in finishing mode on a very long workpiece with a very small diameter





**3.** Double-roughing 'Twister' turning. Two tools located on two different tool systems can make elliptical movements while alternately crossing each other. In this way, a maximum amount of material can be removed in minimum time. A finishing turning process with a third tool can then be added.

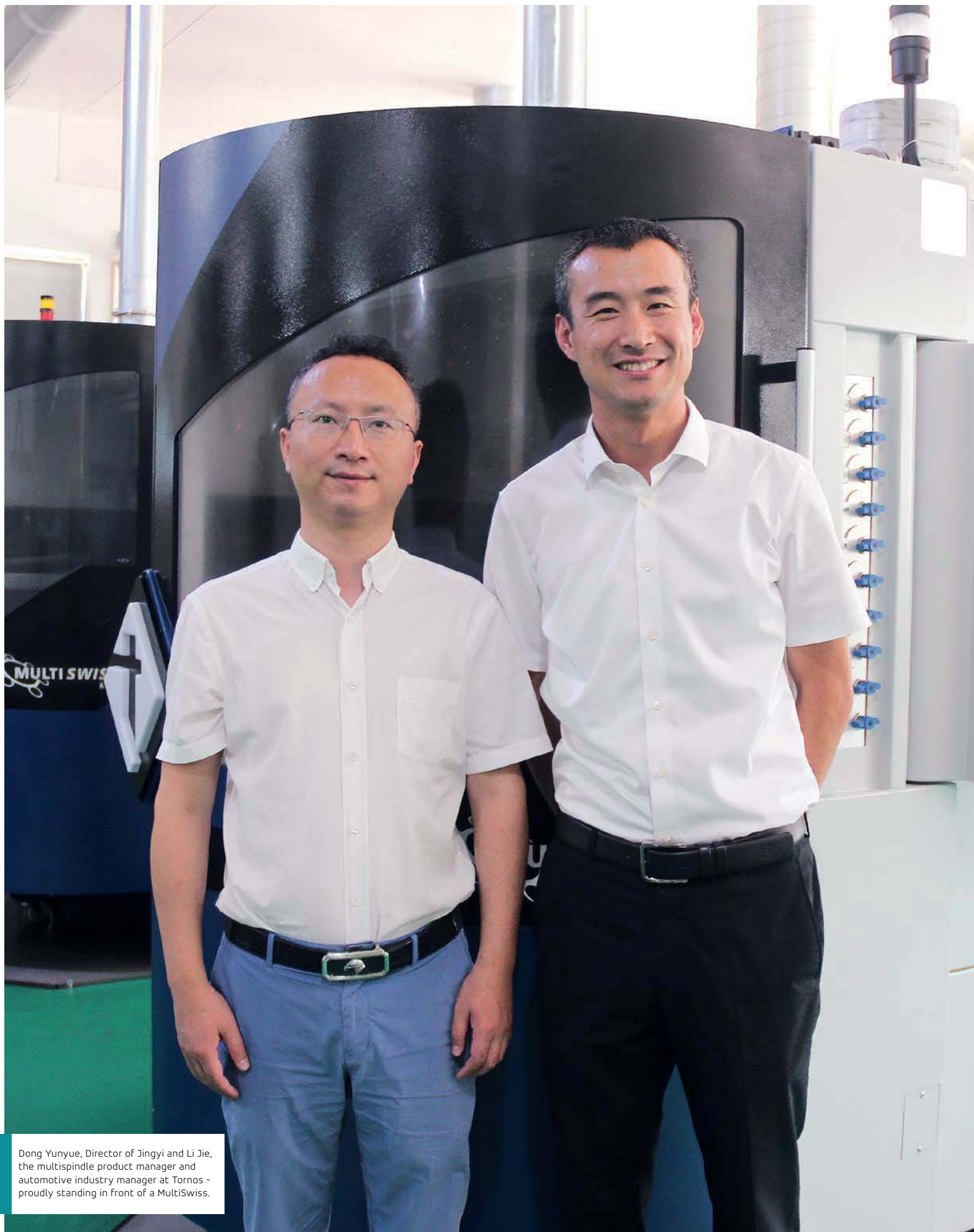
**4.** 'Twister' turning with simultaneous roughing and finishing. This process is conducted with two tools on different tool systems. The first tool performs a roughing cycle through elliptical 'Twister' movements while the second tool simply performs a subsequent OD machining cycle in the finishing mode.

The function is available for all machines equipped with Optimove and for all ISO machines through the 'TISIS post-processor' function that is valid from TISIS Version 3.4.

[tornos.com](http://tornos.com)







Dong Yunyue, Director of Jingyi and Li Jie, the multispindle product manager and automotive industry manager at Tornos - proudly standing in front of a MultiSwiss.

# How to carry out high-precision automotive turning with Tornos

The Ningbo Jingyi Group is a manufacturer of high-end precision parts for the automotive industry that utilizes CNC machine tools from Tornos to meet its lean production objectives. The Group replaced traditional milling with precision turning technology, and made significant achievements and some major breakthroughs with regards to reaching higher efficiency, production and component quality and consistency levels.



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jingyishaft.com

## Support the application and overcome the difficulties

Ningbo Jingyi Feida Shaft Industry Co., Ltd. was established in 2002. Its products cover automotive wiper systems, audio systems, safety systems, door lock systems, seat systems, window lift systems, air conditioning systems, power and transmission systems.

*In 2013, as the new plant was becoming operational to serve many world-famous automotive companies such as Valeo, Brose, Bosch, Continental, Mabuchi, Magna, Misuba, Asmo and many others, these companies became partners of Jingyi. From electronic shaft keys of home appliances to high-end precision parts for vehicles, there are more and more products being developed by Jingyi, and its quality requirements have increased ever since. The continuous*

optimization of the production line has prompted Jingyi to look for machine tools with improved accuracy and greater stability – and this is what led the company to Tornos.

“Tornos technicians are always by our side and on time when we have any difficulties.”

When talking about the reasons why a cooperation with Tornos has been started, Dong Yunyue, chairman of Ningbo Jingyi Feida Shaft Co., Ltd. said: “This is not a romantic love story at all. We were at a huge bottleneck when we aimed to work on how to machine worms for the automotive industry by means of traditional milling technology at that time. But with the Tornos machine, we suddenly had our eyes and minds opened. Those machines did not only offer high precision turning technology but also produced high-quality products, with high efficiency and low costs.

“Later, we fully replaced all the milling equipment we used for machining worms for the automotive industry with Tornos turning machines. We would not have solved this technology problem, if we did not know Tornos,” Dong Yunyue admitted frankly.

Now, Jingyi has purchased a total of 13 Tornos machines. Machine models include the MultiSwiss 6x14, the MultiSwiss 6x16, the MultiSwiss 8x26 multi-axis machine tools and Swiss-type sliding head machines from the Tornos’ Xi’an factory. The machine park at Jingyi now has almost all product models of the Tornos multi-axis single and multispindle machine ranges. In popular words nowadays, “We are die-hard fans of Tornos!” All the

machines from Tornos effectively meet the needs of the company’s lean production strategies.

“We use Tornos’ high-precision Swiss sliding head machines for small batches and compound products, and we use the multi-axis machines when we need to produce large batches of products,” Dong Yunyue said.

“In addition, the CNC operating system used by Tornos machines can be specified as a control unit from FANUC systems in China, which makes it very easy for us to learn.” This means there is almost no difficulty in operating the highly technologically advanced Tornos machines for Jingyi employees.

“The lower cost of production, lower labor requirement and less floor space are all very beneficial factors for all of our customers,” said Jie Li, the Tornos Manager of multi-axis products for the automotive industry. “We offer many options in the design of our machines to realize significant support for machine applications, and this makes our machines a valuable investment for our users.”

### Accumulation and development of technology for market development

With more than 4 years of cooperation with Tornos, the big impression about Tornos, which Dong Yunyue has got, is its powerful accumulation and development of technology. “Tornos has 100 years of experience in the field of turning. The powerful technical resource advantage which Tornos has, is beyond our reach in the short term. We also look forward to using these resource networks behind the Tornos brand to quickly develop larger single machine capacity.”

In addition to worms, Jingyi also develops products such as high-pressure oil pumps, gearboxes, electronic valve control modules for Morse systems in hybrid vehicles. For Dong Yunyue, what he considers the most important thing when choosing a supplier is the rigidity, stability and accuracy of the machine tool.

“First of all, the technical parameters of the machine must meet the Jingyi production requirements unconditionally,” Dong Yunyue said firmly.

In this regard, Li Jie fully agreed. An example is the MultiSwiss series, bought by Jingyi, which provides 3 machining diameters of 16 mm, 32 mm (6-axis



model) and 26 mm (8-axis model). The indexing used by the spindle drum is done by a torque motor and the indexing time is less than 0.4 seconds, which breaks the records at Jingyi.

In addition, each spindle is equipped with a liquid hydrostatic bearing, which effectively improves the damping performance in machining and extends tool life by more than 30%. Furthermore, TISIS communication software and TB-DECO programming software provided by Tornos enable real-time process monitoring. This allows the customer to evaluate the options of each machine and reduce the risk of tool collision and downtime whilst simultaneously improving production efficiency. The workpiece files of each stage can be saved within the program and can be easily found in the database using the search function.

*"The compensation of the lower level of our technical capabilities by the comprehensive technologies provided by Tornos as machine supplier is a huge advantage and very important for us to get the project running at the beginning of our cooperation. Judged from the cooperation we have seen so far, the Tornos' team is awesome," Dong Yunyue said.*

With the growing demand for customization, non-standard products bring new requirements for machining. Unlike general standardised parts, which only require a single setting to complete the machining, non-standard products need to be tested repeatedly prior to production of a final product. Tornos technicians are always by our side and on time when we have any difficulties. Combined with Jingyi's own situation, they helped Jingyi solve one problem after another based on their rich experience accumulated in the field of turning.





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### Working together to minimise risk

With the difficult situation of the automotive industry in the past six months, Dong Yunyue also admitted that huge risks were there. The performance of many OEMs has fallen by 10%-15%, which also affects the component manufacturers. But it should be seen that this is also a process of removing the bad and preserving the good period. "I believe that any industry has its own rules. After this tough period, the future will be broader. At this time, each enterprise must improve itself to cope with the market difficulties. For Jingyi, we want to work with all excellent suppliers, including Tornos, to respond to the market changes and look for more optimized and more economical solutions."

Li Jie concluded by saying, "We have always been in a very enjoyable cooperation with Tornos and we are also confident that our cooperation will continue for a long time. This confidence is not only based on the high performance and high production efficiency of Tornos' machine tools, but also it is due to the special friendship between the Tornos team and Jingyi when we overcame the difficulties. I believe that Jingyi will develop well in the future, and Tornos will make steady progress in the field of auto parts turning!"

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# CIP-CTDT's workshop – From a connected workshop to a smart factory with TISIS and Jellix

A great many SMEs in the metal machining industry have to deal with a market environment that is in constant evolution. Today, we often hear about Industry 4.0, but what is actually behind this concept?

## TORNOS

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*Globalization and the transparency of costs resulting from Industry 4.0 are forcing more and more companies, even the highly-specialized ones, to reduce their prices in order to enhance their competitiveness. In the medium term, the low sale prices make it necessary to rationalize the internal processes and thus realize savings in production costs.*

*Well aware of this challenge, the CIP-CTDT, a training center in the Swiss Jura Mountains is offering specific professional training for the bar turning and gear cutting industries. This has supported several players of these industries including Tornos, aiding the company to establish a pilot workshop centered around the SwissNano 4 machine. The aim is to instruct regional companies based on a specific case of digitization and optimization.*

*This optimization may take different forms. The TISIS programming software from Tornos, not only enables high ease of programming of the SwissNano*



machine installed at the CIP but also remote monitoring of its production process. Day by day, the machine efficiency can be remotely monitored. The machine availability can be precisely scheduled and its utilization can be optimized.

TISIS, however, doesn't stop here. Thanks to the OPC UA connection or the new UMATI standard, it is extremely convenient and simple to trace back the production data for ERP. Consequently, the production process and its performance can be analyzed easily. In this way, stock management is simplified and the machine inventory and the tool management systems can be ideally matched.

#### Computerization of tool management based on Jellix by Brüttsch-Ruegger

Jellix enables automation of the tool storage system and it shoulders the tasks of stock management by collecting the stock removal and return data and transmitting it to the appropriate cost center of the company. This guarantees on-time procurement





of the workshop tools. Various new search options enable staff to carry out a targeted search. This can be based on reference number, supplier and tool specifications in the same manner as they are doing with different tool categories.

The Jellix platform links all machines and all programs used for production and can thus display the data in real-time. With Jellix, island solutions offered by various machine or control unit manufacturers can be avoided, which is most advantageous since such island solutions cannot communicate with systems by other manufacturers without certain restrictions. This platform, however, is not restricted regarding the number of different manufacturers and thus can freely take charge of the actual production process. This is a credit to its specific features and especially thanks to the freedom offered by the TISIS software by Tornos.

The Jellix platform creates data based on the collected data and it presents this most transparently to the entire staff. Due to this transparency, which is

implemented in real-time, weaknesses in the process are immediately detected and corrected without having to elaborately collect specific data. Depending on the users, the effectiveness of these measures becomes visible within just a few days. Fault and problem management is now realized at high reliability in an open environment and the respective causes can be analyzed directly by the staff. The effects of the countermeasures taken as well become directly visible and provide further motivation.

This kind of digitization enables every company to significantly optimize its workflow and costs, irrespective of its size.

If you require further information, please do not hesitate to contact us!

**tornos.com**









# Assembly technology specialist LPS Bossard turns to Tornos

Headquartered in Zug, Switzerland, Bossard is amongst the market leaders in fastening technology in Europe, the Americas and Asia-Pacific. Bossard is a global network of companies with 2,500 employees in 80 locations and it has carefully selected international partners in all regions around the world. The company's drive for excellence and innovation has led to steady growth and market success for more than 189 years.



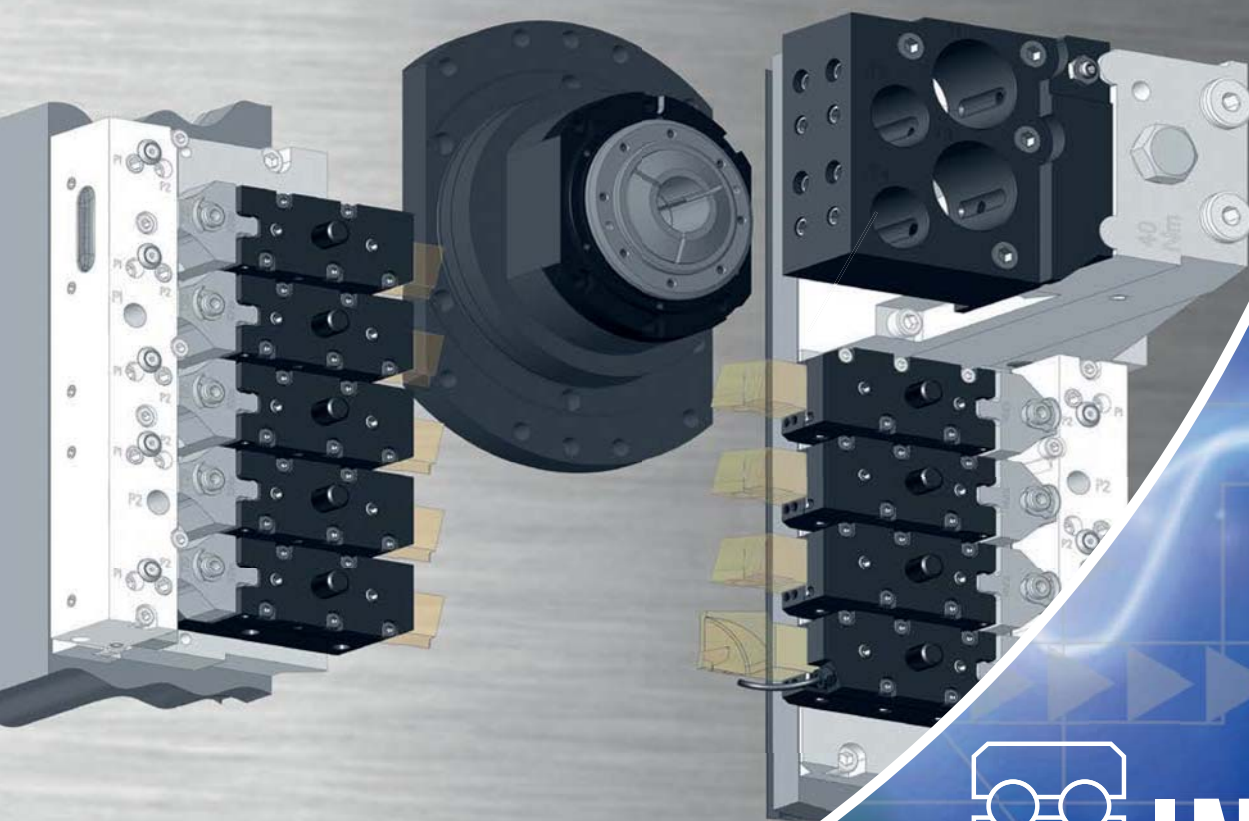
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*LPS Bossard, a JV of Bossard in India, is highly regarded by various industries, for its engineering know-how and technologically advanced product offerings. The company is collocated along with UPS Lakshmi, a state of art manufacturing campus that is highly trusted by the world's top brands for its engineered product offerings. UPS Lakshmi has been exporting its products for over 25 years and the campus is accredited to ISO:9001, ISO:45001, OHSAS, AS 9100, NADCAP, PED, CE and 17025 amongst top accreditations.*

## **One step ahead - Tornos machining fleet**

*To service the growing demands for precision machined parts, Mr. Rajesh Jain- MD of LPS Bossard/ UPS Lakshmi, decided to invest with Tornos. It all started with two Swiss DT 26 machines and now*





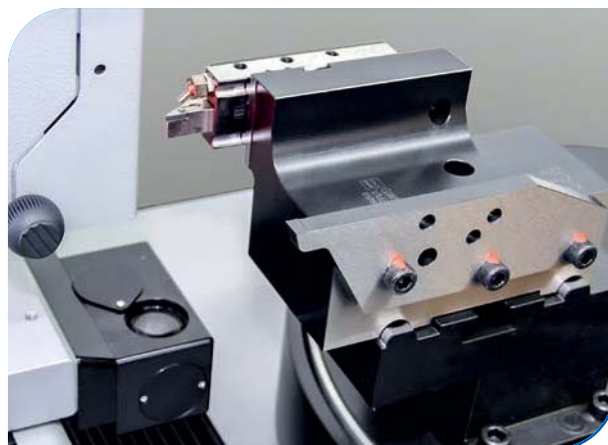
# INSIDE

GWS inside means constant productivity at its highest!

## GWS-TOOLING SYSTEM **NOW ALSO AVAILABLE FOR** SWISS-TYPE LATHES TORNOS SWISS GT26 AND GT32

### With column guide for faster tool changes

- Precise positioning and highest repeatability
- Presettable off the machine tool
- Quick changeable
- Standard shank tools applicable independently of cutting insert supplier
- Integrated and targeted coolant supply up to 100 bar (1.450 psi)
- Modular GWS-drill block for machining at main and counter spindle
- Safe and easy handling (minimized risk of injury)



*the company has over 20 Tornos machines on the campus which runs at a high capacity. The plan is to scale up the footprint to a multi-story precision facility machining parts with over 100 such machines to support customers and to get these parts locally manufactured under the 'Make In India' initiative.*

*The Swiss DT 26 machine has proven kinematics with five linear axes. Given the machine's diameter and power, good chip evacuation was favoured by placing the comb above the guide bush or spindle. With spindles of more than 10.5 kW in main and counter operations and a diameter capacity of 25.4 mm, the Swiss DT 26 is a very high-performance machine. The Swiss DT 26 is simple and efficient and allows LPS Bossard and UPS Lakshmi to act quickly on any request from any market and provide excellent surface finishes and dimensional qualities. In addition, the Tornos TISIS software makes it easy to program the machine for any machining challenge.*

*"From years of cooperation with our customers, we know what achieves proven and sustainable impact. With LPS Bossard, you can move forward at the pace of innovation with peace of mind", Mr. Jain points out.*

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**"With LPS Bossard,  
you can move  
forward at the pace  
of innovation  
with peace of mind."**





# TORNOS



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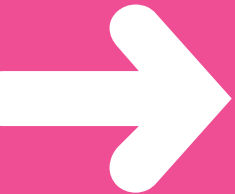
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## COMPETITION

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#### TO PARTICIPATE:

- 1 Subscribe to the @Tornos Group page on Instagram or Facebook
- 2 Post your photo on Instagram or Facebook, mentioning @Tornos Group
- 3 Also share it as a story
- 4 Don't forget to mention @Tornos Group in your posts

With a little luck, you'll win a Tornos vest. Good luck!

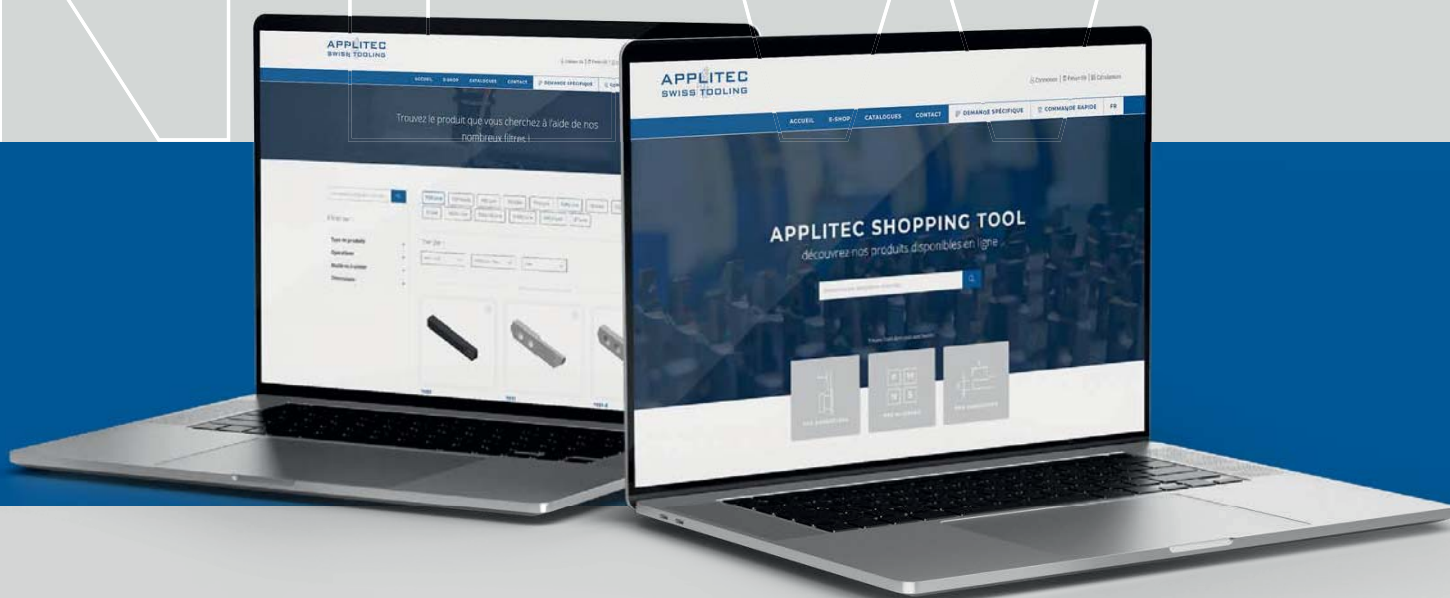


# APPLITEC

## SWISS TOOLING



# NEW



**BIENTÔT : DÉCOUVREZ NOTRE NOUVEL E-SHOP !**

[WWW.APPLITEC-TOOLS.COM](http://WWW.APPLITEC-TOOLS.COM)

# TORNOS

## HAPPY BIRTHDAY!

This is our DECO 25<sup>th</sup> anniversary surprise for you: **the DECO 10 Plus**



### WHAT EXACTLY IS OUR PROPOSAL?

*We take your DECO 10 to our factory, completely refurbish it, test it, and then ship it back to you. But it's more than a certified refurbishment. We actually upgrade your DECO with the latest-generation FANUC CNC. And that's a big plus!*

*Welcome to your DECO 10 Plus!*

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We keep you turning

Do you also want to add a plus to your DECO 10?  
Learn more about this offer.

