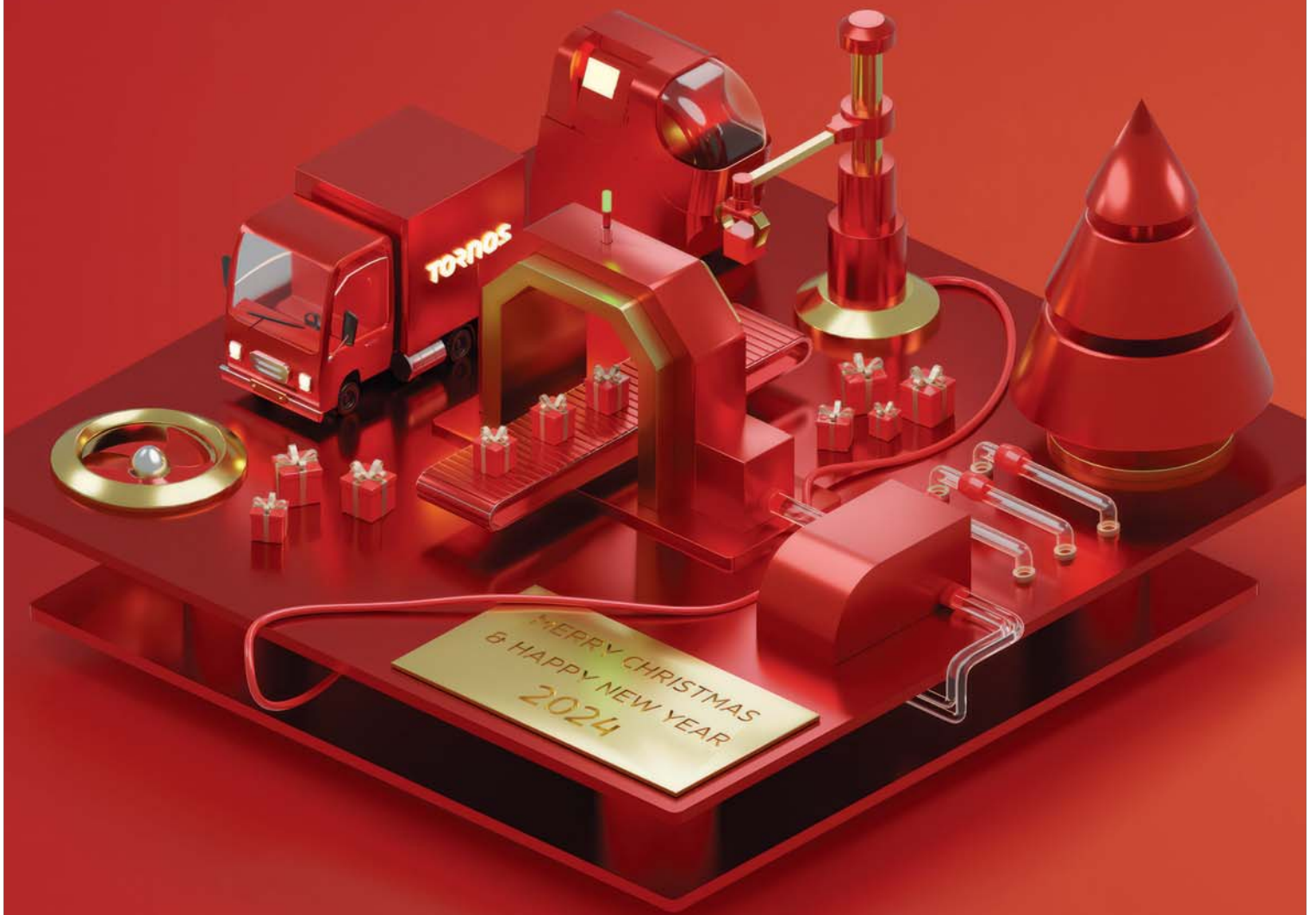


# deco magazine

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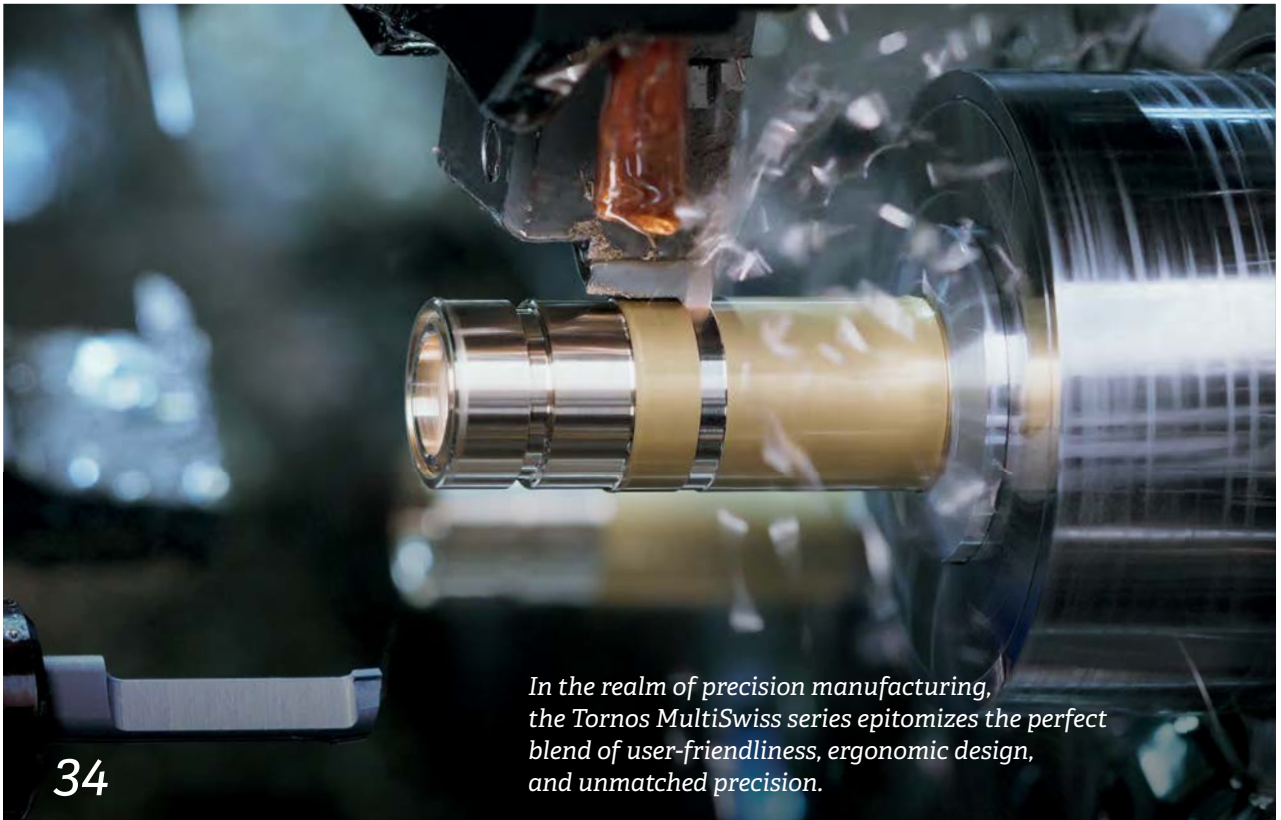
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starrag



TORNOS



*“The integration of Tornos’ and Starrag’s capabilities presents an incredible opportunity for synergistic growth.”*

Michael Hauser CEO from StarragTornos Group

# A new chapter: The successful StarragTornos Merger

**Michael Hauser** CEO from StarragTornos Group

*At Tornos, we are delighted by the successful completion of our merger with Starrag Group Holding AG, marking a transformative chapter in our history—and positioning Tornos to even better serve your needs, whatever your industry and wherever you are in the world. This merger, representing a strategic and visionary union, has been enthusiastically received by our stakeholders, confirming its promise of ushering in a new era of innovation and growth in the metal-cutting machine tool industry.*

## **Embracing change with optimism**

*The positive outcome of the Starrag and Tornos Extraordinary General Meetings conducted at the end of November reflects our shareholders' and customers' confidence and trust in this merger. The formation of StarragTornos Group Ltd., under the experienced leadership of Chairman and CEO Michael Hauser, is not just a new corporate structure; it is a beacon of new opportunities and possibilities.*

## **Enhanced value for customers**

*Our post-merger journey is—and will remain—customer-centric, focusing on delivering enhanced value, technical innovations, and expanded services. The combined Tornos and Starrag expertise and resources enable us to offer an enriched product portfolio and more comprehensive solutions, tailored to meet the evolving needs of our diverse clientele. This merger propels us forward in our commitment to being a reliable and innovative partner to our customers.*

*As we celebrate the successful merger of Tornos with Starrag Group Holding AG, forming the new StarragTornos Group Ltd., we assure you—our valued customers that this change brings with it a promise of continuity and enhanced service. For you, nothing fundamental changes in the way we operate or serve you. Our commitment to providing top-notch products and services remains steadfast. This merger is about augmenting what Tornos has always excelled at: delivering precision, quality, and reliability in the metal-cutting machine tool industry.*

*The coming together of Tornos and Starrag means that Tornos will now be bigger and better, equipped with broader resources and a more extensive network to meet your needs. We are more ready than ever to address your requirements with an expanded portfolio of innovative solutions and a strengthened global presence. This strategic expansion ensures that we can more efficiently and effectively cater to your needs, solidifying our role as a key partner in your success. Rest assured, the Tornos you have always trusted is set to become even more responsive, resourceful, and attuned to the evolving demands of the industry.*

## **Synergistic growth and global expansion**

*The integration of Tornos' and Starrag's capabilities presents an incredible opportunity for synergistic growth. Our expanded presence, particularly in the Americas and Asia, will allow us to tap into new markets and further penetrate existing markets. This*



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“Our employees are our greatest asset, and this merger opens up new avenues for their professional growth and development.”

*strategic expansion is not just about increasing our global footprint; it's about bringing our innovative products and services closer to you, wherever you are in the world.*

#### **A future of collaborative innovation**

*Innovation is the cornerstone of the new StarragTornos Group. By pooling our technological expertise and research and development (R&D) capabilities, we are set to advance the development of cutting-edge solutions in the precision machine tools sector. This collaborative approach to innovation ensures that we stay at the forefront of technological advancements, cementing our position as industry leaders.*

#### **Strengthening our workforce**

*Our employees are our greatest asset, and this merger opens up new avenues for their professional growth and development. The combined knowledge and experience of our teams will foster a culture of learning and excellence. We are committed to investing in our workforce, ensuring that our employees are equipped with the skills and knowledge to thrive in this new and dynamic environment.*

#### **Sustainable growth and shareholder value**

*The merger is a strategic step toward sustainable growth, with a keen focus on creating long-term value for our shareholders. The projected sales and cost synergies, as a result of our combined strengths, set the stage for enhanced profitability and financial stability. We are confident that StarragTornos Group Ltd. will deliver on the promise of sustainable shareholder value, underpinned by steady growth and operational efficiency.*

#### **Looking ahead**

*As we embark on this exciting journey, we are filled with a sense of purpose and optimism. The successful merger of Tornos and Starrag is not just the culmination of months of meticulous planning and collaboration; it's the beginning of a promising new chapter. Together, as StarragTornos Group Ltd., we are poised to redefine the standards of excellence in our industry.*

*We extend our heartfelt thanks to our customers, employees, and shareholders for their unwavering support and trust in this ambitious endeavor. The future is bright, and we are committed to navigating it with innovation, excellence, and a unwavering commitment to all our stakeholders.*

*Tornos, as part of StarragTornos Group Ltd., looks forward to this new era of shared success and achievement. Together, we are moving forward, united in our vision and strengthened by our collaboration.*

**StarragTornos: moving forward, together.**



The Swiss DT 38 is a pivotal machine in the Tornos offering, ensuring the transition to larger dimensions.



THE SWISS DT 38 FROM TORNOS:

# A gateway

*to large diameter bar turning*

For a long time, the world of bar turning was limited to a maximum diameter of 32 mm, a barrier that few automatic lathe manufacturers crossed. With its Swiss DT 38, Tornos not only breaks this limit but also opens the door to larger diameters.

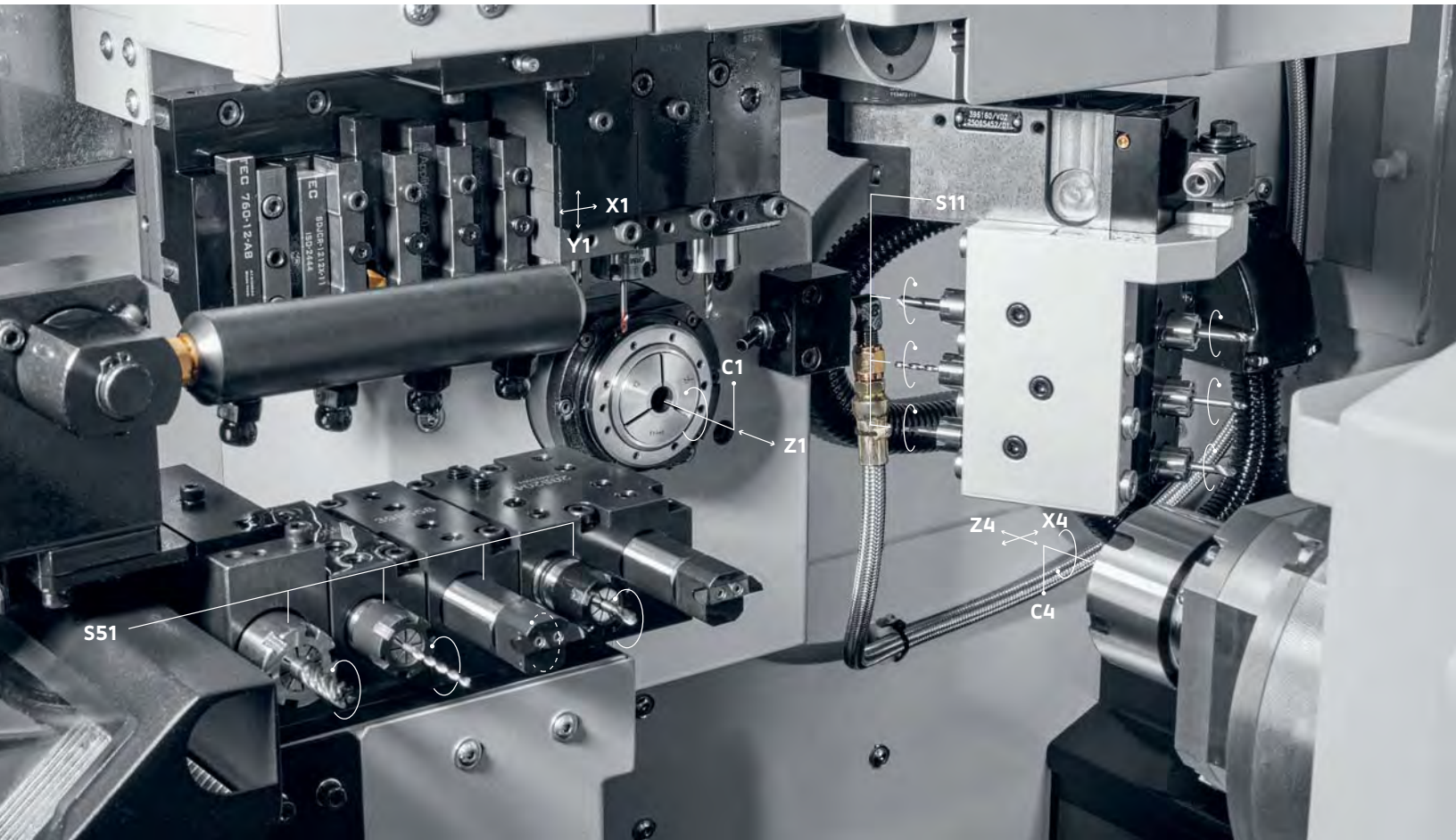
## TORNOS

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*Compact and efficient, the machine occupies a footprint of just 2,230 x 1,250 mm, making it one of the smallest in its class, while offering an extended range of features and impressive production capacities. This reduced size makes it easy to integrate into shops where space is at a premium while maintaining the robustness and performance characteristic of Tornos machines.*

*The Swiss DT 38 is a key machine in the Tornos range, ensuring the transition to larger dimensions. Capable of machining workpieces up to 32 mm in diameter with its guide bush, the machine extends its capacity to 38 mm when operating without a guide bush.*

*With an impressive configuration of five linear axes, two C-axes and two independent tool systems, the Swiss DT 38 can accommodate up to 28 tools, including 14 rotating tools.*



### Power and precision

The Swiss DT 38 provides exceptional power and torque, outperforming its direct competitors. With a 10.5 kW main and counter spindle, the machine excels in the removal of large chips. Its ultra-rigid base allows it to operate at high feed rates, even with notoriously difficult-to-machine materials such as titanium or cobalt chrome.

### Modularity and options to meet every need

Swiss DT toolholders are interchangeable not only within the range but also with the Swiss GT and the previous Swiss DT range. This allows quick and transparent optimization of machines. The Swiss DT 38 has a modular machining zone that can be easily adapted to the specific requirements of each part.

The machine is designed for special operations such as the production of medical threads with a thread-whirling device or hexalobular milling. It can even cut gears, eliminating the need for costly rework to finish the part directly on the machine.

### A revolutionary B-axis

The major innovation of the Swiss DT 38 is its 'plug and play' B-axis, which can be fitted according to the part requirements. Equipped with three rotating ESX 11 spindles, with an optional fourth ESX 8 spindle, this B-axis revolutionizes the machining of complex shapes.

### Improved chip management with ACB Plus

Chip management is essential, and the Swiss DT 38 is equipped with ACB Plus as an option. This technology uses low frequencies to control chip production, making the machining process safer and improving machine uptime.

### Concrete examples of the performance of the Swiss DT 38

At EMO, the Swiss DT 38 demonstrated its exceptional capabilities by producing complex parts. One of these was an aluminum magnifier with a diameter of 38 mm, demonstrating the machine's ability to work with large diameters. The part, produced in multi-program tandem with a ring, illustrates the machine's flexibility and efficiency.

### Chip control with ACB

One of the highlights of the demonstration was the chip management. Thanks to ACB Plus technology, the Swiss DT 38 was able to maintain a controlled chip flow throughout the process. This feature is critical not only to the quality of the machined parts but also to the safety and longevity of the machine.

These practical examples show the Swiss DT 38 not only as a theoretical solution to specific bar turning needs but also as a machine proven in real production conditions, capable of meeting complex challenges with ease and precision.

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







Tornos has set itself ambitious but realistic sustainability targets.



# *If you can't measure it,* you can't improve it

As part of its commitment to operate more sustainably, Tornos has decided to associate itself with several specialists in the sustainability field to make the right choices and find appropriate solutions to ensure a paradigm shift in the company. Tornos is aligned with Agenda 2030 and its 17 Sustainable Development Goals (SDG) adopted by the United Nations and with the Task Force on Climate Related Financial Disclosures (TCFD). This constitutes the new global and universal frame of reference for sustainable development.

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*Through exchanges and various recommendations, Tornos established contact with the B Lab Switzerland organisation and was keen to find out more about the Swiss Triple Impact (STI) programme. While the B Corp certification developed by B Lab is considered by many to be the Rolls Royce of sustainability certifications, to which very few companies can aspire, the STI programme itself is a little more accessible. Like the B Corp certification, its core vision is to build a sustainable and resilient economy. This is underpinned by a firm establishment both regionally and throughout Switzerland, as well as a shared frame of reference: Agenda 2030 and its 17 Sustainable Development Goals (SDG). This highly ambitious yet accessible programme helps Swiss companies evaluate their contribution to the SDGs while identifying the main areas for improvement. The STI programme helps these same companies set concrete, measurable goals.*

“To date, almost 380 companies have signed up to the STI programme”, reveals Maryline Dafflon, STI coordinator for Fribourg, Neuchâtel and Jura.

“The STI programme aims to create a movement and to help companies structure their sustainability strategy. The majority of companies identify 5 or 6 SDGs from the 17 to which they wish to contribute. For example, SDG 12, focuses on responsible consumption and production through the use of reusable materials and favours a circular economy. SDG 15 also plays a vital role in protecting soils and biodiversity. SDG 13 aims to reduce greenhouse gas emissions, while SDG 3 ‘Good Health and Well-being’ is very important for companies, as is SDG 5 which covers gender equality.”

To find out more, visit:  
 Swiss Triple Impact |  
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 program | Switzerland





The 380 organisations already involved with the STI programme are committed to creating an inclusive and regenerative economy. "Committing to a sustainable strategy is a major undertaking, which is why our support is so important. We structure the strategy over three steps. Step 1 is the evaluation: measuring the socio-environmental impact, connecting the business model and the SDG, and analysing the risks and opportunities in the company's sustainability strategy. Step 2 involves structuring the sustainability strategy around actions and commitments that are compatible with the company's business model. This is about maximising your positive impact. And finally, Step 3 is where the STI programme supports companies individually in finalising their action plan, the commitments of which are published in the STI Directory. As a member of the Directory, a company can communicate its commitments to its stakeholders in a transparent way."

To support companies and encourage the sharing of good practices, STI members build their strategy collaboratively with other companies of all sizes and across all sectors. The STI programme now also offers a variety of sector-specific approaches for companies operating in the same industry. "The most important thing is to involve employees in bringing stakeholders on board with the strategy and sharing good practices. And, last but not least, it's about measuring the identified objectives and the progress you're making."

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With a varied range of machines, including 45 Tornos CNC machines, 11 Tornos SAS 16 and 5 SwissNano, Cox is well equipped to handle short and medium production runs.



# *The legacy of precision:* How Cox Manufacturing and Tornos are shaping the future

## **A family affair: The Cox legacy continues**

Founded in 1956 by William T. Cox Sr., Cox Manufacturing has come a long way from its humble beginnings in a rented space with a single Swiss automatic screw machine. Today, the company is a leading supplier of precision machining services, employing over 200 people and operating across three shifts.



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*The legacy of delivering “as promised,” initiated by William Cox Sr., has been carried on by his son, Bill Cox, and now extends to a third generation—William Cox, who is currently responsible for sales.*

## **Investing in the future: The apprenticeship program**

*Cox Manufacturing is not just about machines; it's about people. The company runs a Department of Labor-certified Apprenticeship Program, a three year apprenticeship aimed at training the next generation of machinists. This investment in workforce development is a testament to Cox's core values of Teamwork, Continuous Improvement, and Perseverance.*

## **Production capabilities: A symphony of technology**

*Cox Manufacturing's production capabilities are a testament to its commitment to quality and efficiency. With a diverse range of machines, including*



“The SwissNano’s performance in terms of precision is nothing short of excellent, making it a fantastic choice for small, intricate parts.”

*45 Tornos CNC Swiss-type machines, 11 Tornos SAS 16, and 5 SwissNano, Cox is well-equipped to handle both medium and short-run projects. Their adherence to exacting specifications and complex geometries makes them a leader in the industry.*

#### **Certifications & quality assurance**

*Cox Manufacturing, based in San Antonio, Texas, is a trusted domestic supplier known for technical expertise, reliable quality, and competitive pricing. They have a robust capacity with over 270 spindles and a skilled workforce of over 200 employees, ensuring timely and accurate high-volume production.*

*The company is ISO 9001:2015 certified and ITAR registered, adhering to stringent industry standards. Their Patent for the “Advanced Unity Control” Quality System leverages Industry 4.0 technology for real-time quality monitoring.*

*Cox employs lean manufacturing practices and offers flexible inventory management through their proprietary ERP software. They also provide value*



engineering support to high-volume buyers, aiming to lower the total cost of ownership.

They work with a wide range of materials and serve multiple industries, from aerospace to medical.

**The DECO and SwissNano advantage:  
The dual pillars of Cox Manufacturing's success**

At the core of Cox Manufacturing's production capabilities are two game-changing machine series: the DECO and the SwissNano. Together, they form the backbone of the company's operations, each bringing its own set of unique advantages to the table.

**The DECO range**

A fleet of 45 DECO machines serves as the cornerstone of Cox Manufacturing's business. These machines are not just workhorses; they are finely

tuned instruments that can be customized to meet the specific needs of any part, no matter how complex.

The DECO machines offer unparalleled modularity in their machining area, allowing for a wide range of configurations to suit the intricacies of each project. This adaptability is further enhanced by an extensive





array of rotating tool holders, enabling the machines to tackle even the most challenging geometries with ease.

Speed, reliability, and precision are the hallmarks of the DECO series. These machines are built to deliver high-quality parts at an exceptional pace, ensuring that Cox Manufacturing remains a leader in the industry.

### The SwissNano range

The SwissNano machines are the latest addition to Cox Manufacturing's arsenal, and they have already proven their worth, especially in the dental and electronics industries. These machines are designed for ease of use and quick setup, making them incredibly flexible for a variety of applications.

What sets the SwissNano apart is its thermal precision and ergonomic design. Operators can stand directly in front of the guide bush to center their



tools, enhancing both comfort and accuracy. The SwissNano's performance in terms of precision is nothing short of excellent, making it a fantastic choice for small, intricate parts.





### A synergistic relationship

Both the DECO and SwissNano machines have proven their worth in critical situations, most notably during the Covid-19 pandemic, where they were instrumental in producing ventilator valves that passed quality checks with a 100% success rate on the first pass.

### A Covid-19 Success Story: The unmatched capabilities of DECO machines at Cox Manufacturing

During the height of the Covid-19 pandemic, Cox Manufacturing rose to the occasion by fulfilling a critical need for ventilator valves. What set them



apart was the unparalleled performance of their DECO machines. These machines are not just fast and reliable; they offer a modular machining area that can be fine-tuned to meet the specific needs of any part. Equipped with a plethora of rotating tool holders, the DECO machines provide the flexibility to handle complex geometries and tight tolerances with ease.

Mike Petrusch, VP of Manufacturing, attributes this remarkable achievement to the DECO machines' unique combination of speed, modularity, reliability, and precision. The result was a batch that passed a 100% quality check on the first attempt, a feat that outshone competitors who had been in the

business for years. This success story serves as a testament to the DECO machines' power and stability, proving them to be indispensable assets in times of crisis.

### A partnership built for the future: Precision, values, and legacy

Cox Manufacturing and Tornos share more than just a business relationship; they share a commitment to quality, innovation, and customer satisfaction. As both companies look to the future, their partnership promises to continue shaping the industry, one precision part at a time.

Cox Manufacturing is not just open for business; they are open for challenges. With a robust apprenticeship program designed to train the next generation of machinists, and a legacy being carried forward by William Cox, the company is poised for long-term success. Their core values of teamwork, continuous improvement, and perseverance are not just words but a philosophy that drives every project they undertake.

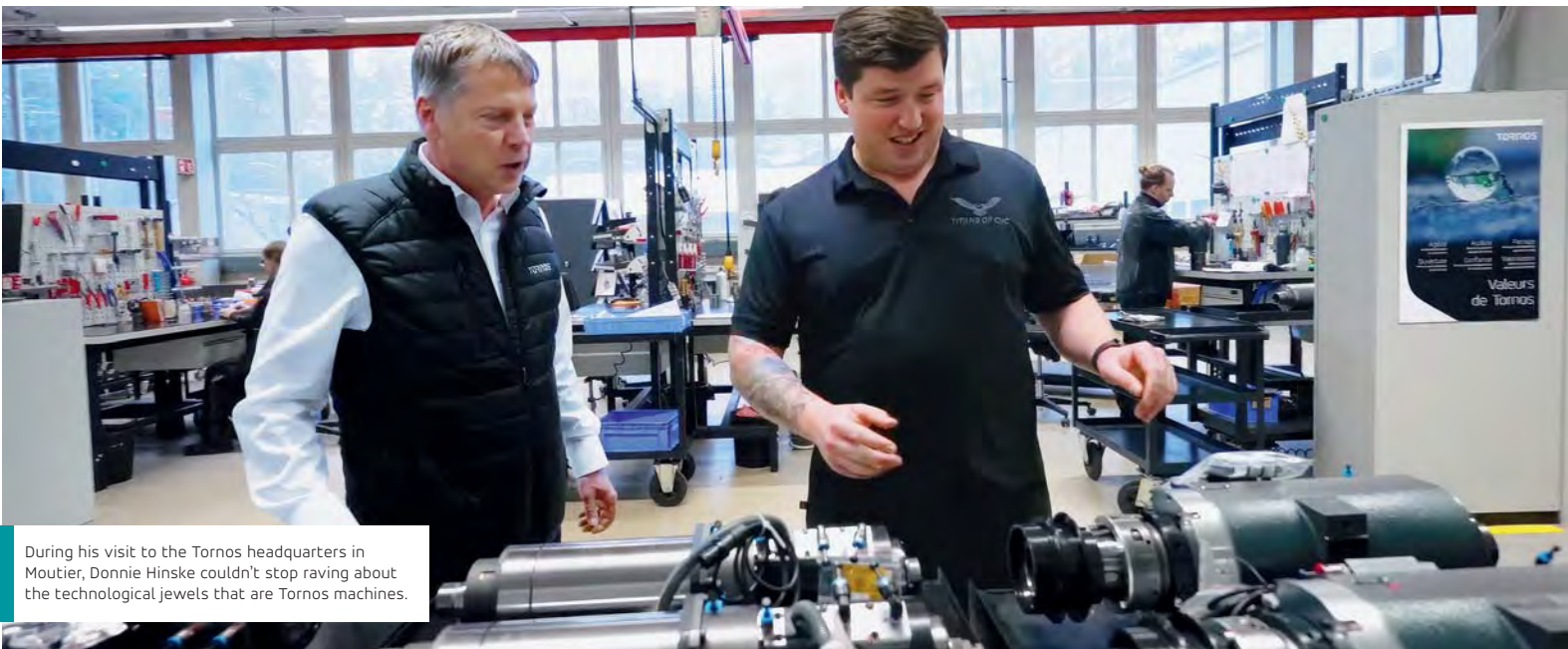
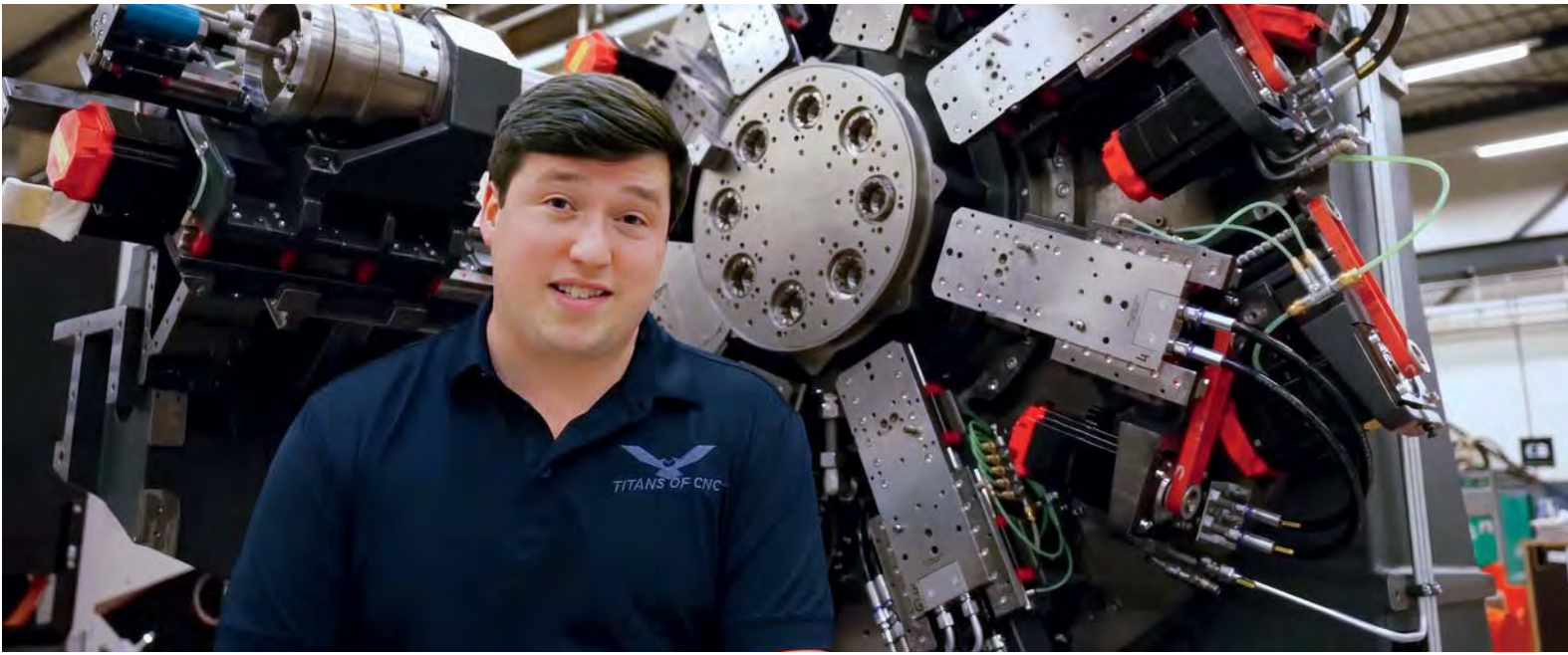
William Cox, the torchbearer of the family legacy, is committed to not just maintaining but elevating the standards set by the company. Under his leadership, Cox Manufacturing is not just ready for the future; they are shaping it.

So, if you have a part that others find too challenging to make, bring it to Cox. With their state-of-the-art DECO and SwissNano machines, and a team trained to excel, they are more than equipped to turn challenges into triumphs.

In a world that's constantly changing, some things remain constant: the quality of Cox's work, the integrity of their team.

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





During his visit to the Tornos headquarters in Moutier, Donnie Hinske couldn't stop raving about the technological jewels that are Tornos machines.

TITANS OF CNC AND TORNOS:

# Driving a revolution in technical education

Computer numerical control (CNC) machining powerhouse TITANS of CNC launched a revolution in technical education with its free, online-based TITANS of CNC Academy and today—with Swiss automatic lathe pioneer Tornos at its side—is paving the way to the future of turning by lifting up students, educators, and the manufacturing workforce.

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*Under this long-term partnership, signed in October 2022, the TITANS of CNC Academy uses Tornos Swiss-type lathes to provide its learners with the machine training to succeed in the technical professions. The initiative answers the shortage of qualified machine operators and, at the same time, demonstrates the precision, reliability, and efficiency of Tornos machines.*

*Case in point: Tornos' SwissNano—the micro and nano precision specialist. As the partnership was getting underway, TITANS of CNC Swiss-type machining supervisor Donnie Hinske—a consummate CNC machinist with more than 20 years in the business—journeyed from the company's headquarters in Grapevine, Texas (United States) to Tornos' flagship site in Moutier, Switzerland, to explore a wide range of Tornos solutions. Among his guides were Tornos CEO Michael Hauser and Chief Sales Officer Jens Thing.*



# “The birth of a CNC machine right here—how cool is that?”

## Donnie Hinske

Swiss-type machining supervisor,  
TITANS of CNC

### 'So cool!'

*“I'm going to be honest: I am extremely excited. This is so cool!” Hinske said upon entering Tornos' machine production hall, where Hauser showed him a tiny—just 0.165 mm in diameter—SK4 steel balance axis for a watch.*

*That nearly microscopic component breathes life into Tornos' claim that the SwissNano delivers the highest precision on the market.*

*“I can show the limits of the machine—and I can even show it to our competitors because I don't think anyone else is able to make this part,” Hauser said, showing Hinske the schematic diagram for the part and explaining that the real challenge producing the part was machining its miniscule tip.*

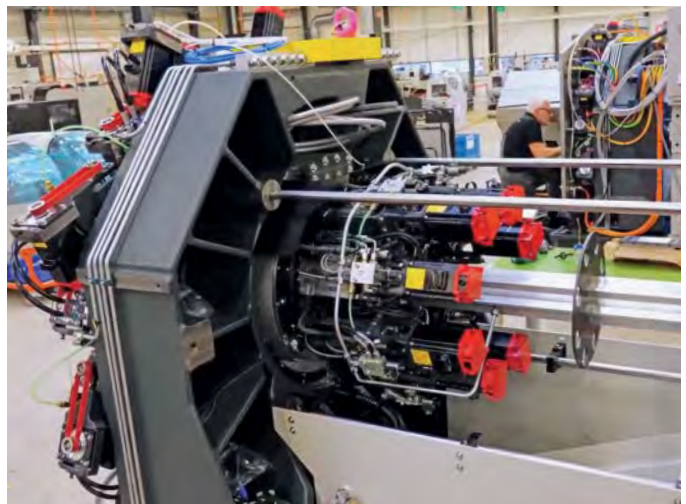
*“So that's the limit of what can be machined,” Hauser added.*

*“I would challenge any other company to try to match that,” Hinske said, clearly astounded.*

*Hinske's next stop was Tornos spindle department, where Thing explained how Tornos' machine spindles are manufactured.*

*“Right here is the center of any Swiss-type machine,” said Thing, pointing out that the spindle is the heart-beat of those machines. “We build thousands of these spindles every year. Every single spindle that we produce that has more than 10,000 rpm has what we call hybrid bearings. That means we actually put in steel cages and ceramic balls just to make sure [our machines] can run at high speeds without overheating.”*





### 'A modern marvel'

Hinske also toured the area where the SwissNano, EvoDECO, SwissDECO, MultiSwiss, and micro milling machines are produced.

"That one's got me super excited," Hinske said, referring to the MultiSwiss. "Just looking at [them] being built, it is insane how many FANUC motors are on [them]. Let's break that down: [On the MultiSwiss 8x26, you have eight motors for these eight spindles, eight motors for the Z axis, and eight for the X axis, and the [counter] spindle motors and then you have X and Z on that—so that's 33 different FANUC motors on one machine. All the bars will be rotating so every single operation, after it's done, the whole drum rotates from station to station. This is a modern marvel."

Hinske was equally awed by the MultiSwiss.

"Look at the manufacturing power you have here! Each of these machines has eight spindles, right? That's replacing eight Swiss-type machines potentially [which] take up so much space and that's just one of the many advantages—and you can load up to 8 tons of material on here."

The CNC control is another advantage, Hinske pointed out.

"[This is] what a CNC control should look like: a nice, sophisticated, modern computer," he said.

The SwissDECO 36 also caught Hinske's attention.



*"The whole turret is the B axis on this machine! You have to realize, most machines' B axis is three or four tools in a hanging gang [but] this entire turret rotates. That means you could theoretically have 12 tools on your B axis, as opposed to four... on a normal machine," he explained.*

### **TISIS: head-turning software**

*Tornos' TISIS programming software turned Hinske's head.*

*"A machine like this runs off of three programs that are running simultaneously, and you can see them displayed on the screen here. The TISIS software separates the program according to which codes you have," he said. "And when I select a part of the*

*program, what's really nice is that you can see on the Gantt chart where that is. It will show you where you're at in the program—that's super for a CNC control."*

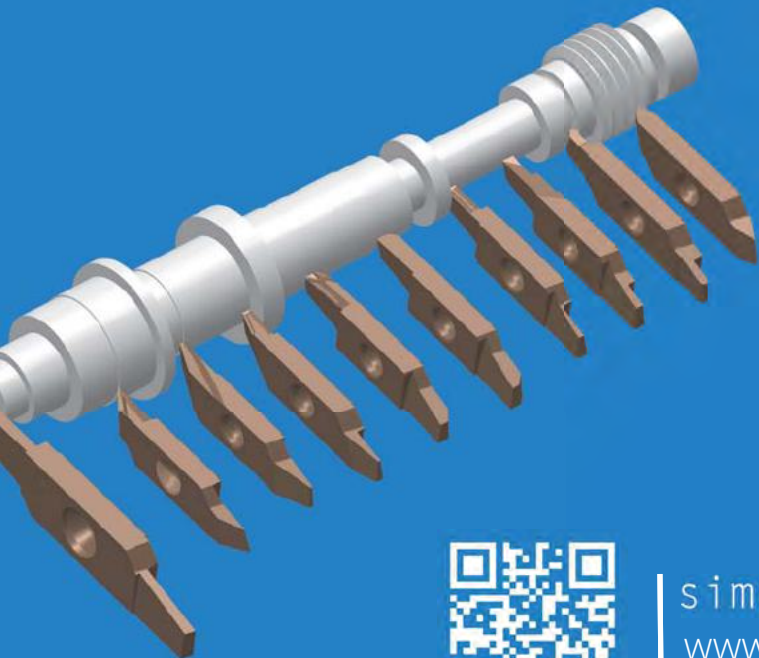
*Being immersed in the full production process around Tornos' Swiss-type and multispindle machines left Hinske amazed.*

*"The birth of a CNC machine right here—how cool is that?" he said.*

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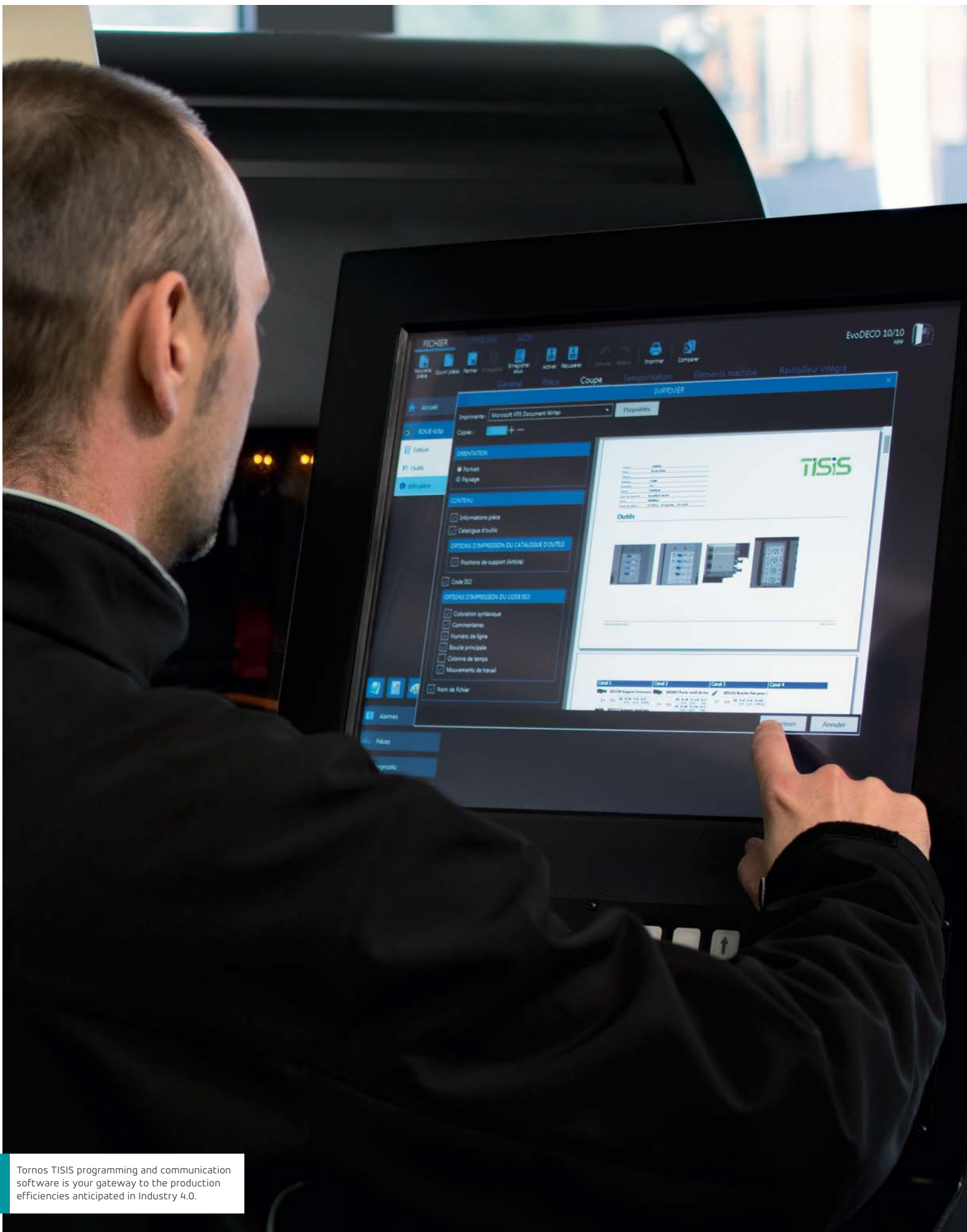
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TISIS, the programming and monitoring software from Tornos, celebrates its 10<sup>th</sup> anniversary

# Smarter, faster, *more accurate*

In today's highly digitalized world, software plays a crucial role in almost every aspect of our lives - and the manufacturing industry is no exception. As technology evolves, CNC machine tools are becoming more complex and powerful. At the same time, the demands for manufacturing efficiency, precision and reliability are increasing. In this context, software such as TISIS that facilitates and optimizes the operation of these machines is becoming increasingly important.

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*This development is part of a broader trend towards the automation and digitalization of manufacturing. In Industry 4.0, connected machines and automated processes play a central role in increasing efficiency, improving quality and reducing costs. TISIS, the programming and monitoring software from Tornos, has become an indispensable tool for many machining professionals. Today, more than 3,000 licenses are in daily use. To celebrate this 10<sup>th</sup> anniversary in style, we take a look at TISIS and its main functions, advantages and impact on the manufacturing process.*

### **What is TISIS?**

*TISIS (Tornos Integrated Solutions for Industry and Services) is a software package developed by Tornos, the pioneer and one of the world's leading manufacturers of sliding headstock lathes. Designed for use with Tornos machines, TISIS software allows you to program, monitor and optimize your manufacturing processes.*

**Key features of TISIS**

**Advanced programming**

The TISIS editor makes programming Tornos machines easy and intuitive. Templates are available for all Tornos machines, covering preparation and finishing operations. This allows the programmer to concentrate on what's important: the part.

The machining program can be written in the standard ISO programming language. TISIS supports this with its sophisticated error-checking functionality. This means that errors can be detected during the programming process, saving time and money. Graphical functions such as 2D toolpath simulation and Gantt diagrams are a further aid. They help

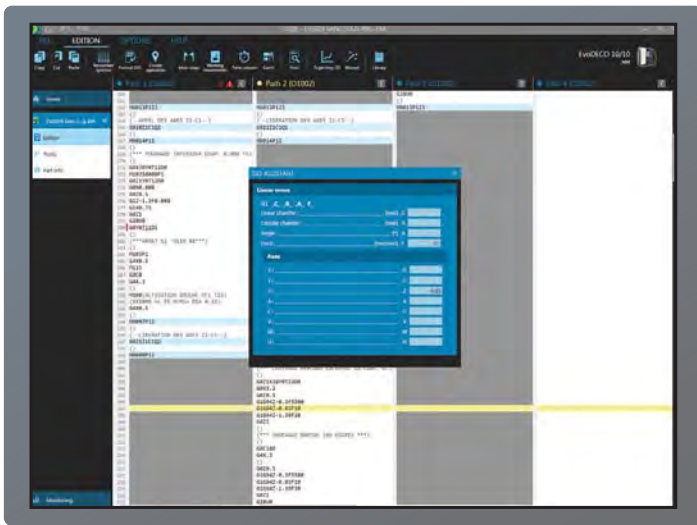
optimize cycle times and also aid in error detection. These features, combined with an easy-to-use, intuitive interface, facilitate the creation of complex machining programs and make the entire manufacturing process more efficient.

**Real-time machine diagnostics**

TISIS provides real-time monitoring of machining processes. The user can monitor machine parameters such as axis and spindle load, speed and temperature. Potential problems can be detected at an early stage. This ensures more reliable production by minimizing unplanned downtime and avoiding costly errors.







ISO assistant

With simplified programming and real-time monitoring, you can optimize machine utilization, reduce downtime and ensure more efficient production.

**Improved quality**

TISIS helps improve the quality of parts produced by quickly detecting errors or deviations in machining parameters. By monitoring machine performance in real-time, potential problems can be identified before they affect the quality of the final product.

**Production monitoring**

TISIS allows you to monitor and record all production-related data. This includes all production-related information such as processing times, downtimes, maintenance activities and much more. This data is not only available in real-time but can also be analyzed at a later date. In this way, TISIS not only monitors ongoing operations but is also a valuable source of information for strategic decision-making and process optimization.

**Benefits of TISIS**

**Increased productivity**

By integrating TISIS into the manufacturing process, companies can increase their overall productivity.

**Reduce costs**

By optimizing machining processes, TISIS helps reduce production costs. Faster, more accurate programming saves time and minimizes waste. What's more, real-time monitoring prevents unplanned stoppages and costly repairs.

TISIS, the Tornos programming and monitoring software, is a powerful tool for machine builders. By providing advanced programming, real-time monitoring, process optimization and production tracking functions, TISIS helps to increase productivity, improve quality and reduce costs. TISIS enables companies to optimize their CNC machining processes and remain competitive in today's demanding market.

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## The bold evolution of TISIS: Interview with Patrick Neuenschwander

Some engineers have played a leading role in innovation and technological development in the machine tool industry. Patrick Neuenschwander is one of them. During his long career at Tornos, Patrick Neuenschwander has held a number of different positions, but above all he has played a leading role in ushering in a new era of programming software with the development of ISIS, now known as TISIS. Now a teacher at HE-Arc, he took the time to stop by Tornos and agreed to talk to decomagazine readers about his career, his achievements with his team and the future of Industry 4.0. This interview provides an insight into the evolution of the machine tool industry and the changing dynamics dictated by innovation and technology. Patrick Neuenschwander's vast experience and vision continue to inspire his successors, who are constantly improving TISIS and opening a route to new horizons.

### **decomagazine: Patrick Neuenschwander, can you tell us about the birth of the system?**

**Patrick Neuenschwander:** At Tornos, I've been involved in many innovative projects, but ISIS was really a revolutionary project. It was launched at EMO 2013 in Hanover, marking the beginning of a new era of programming interface. It was mainly for the brand-new SwissNano that had just been introduced at that time.

### **dm: How did ISIS, or rather TISIS, distinguish itself from other software at the time, such as TB-DECO?**

**PN:** TISIS was born out of the need for software that was not only up to date with Industry 4.0, but also competent enough for machine connectivity. At the time, TB-DECO was powerful, but we needed something more advanced that could also give users a complete overview of the operation of the entire machine park.



### **dm: And regarding the addition of the 'T' to ISIS to become TISIS in 2015, can you shed some light on this decision?**

**PN:** Yes, it was a crucial decision. The name ISIS was unfortunately too similar to that of the Islamic State in Iraq and Syria (ISIS), so for obvious reasons we had to revise the name, and that's how TISIS came into being.

### **dm: How do you see the future of Industry 4.0 and machine tool technologies?**

**PN:** Industry 4.0 is constantly evolving. The future will be characterized by even greater interconnectivity and more intelligent systems. Software will play an even greater role in improving the productivity and efficiency of machine tools, while simplifying their operation and maintenance. Data, its analysis and use, will be at the heart of these advances, enabling more agile and responsive production.

### **dm: To conclude, a final word on your transition to HE-Arc?**

**PN:** My involvement at HE-Arc is characterized by a dual role, as a teacher and as head of a Competence Group. As a teacher, I teach courses, but I'm also responsible for guiding my team of engineers in solving challenges related to automation and robotics. This collaboration takes the form of concrete projects in partnership with companies in the Jura region and beyond.



The MultiSwiss range has been meticulously designed to put the operator first. With every feature, from lubrication points to coolant supply, the machine has been designed for ease of use.



# Revolutionizing precision manufacturing:

## *The Tornos MultiSwiss series*

In the realm of precision manufacturing, the Tornos MultiSwiss series epitomizes the perfect blend of user-friendliness, ergonomic design, and unmatched precision. Building on the legacy of their predecessors, the MultiSwiss machines are redefining what it means to be efficient and accessible in the world of multi-spindle machining.

## TORNOS

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*With several hundred units actively deployed in the market, these machines adeptly handle both complex and simple parts. A standout feature of the MultiSwiss series is its usability; setups can be changed as swiftly as those of single-spindle machines. This adaptability makes the MultiSwiss series an invaluable asset in economies with uncertain forecasts, enhancing the ability to react quickly. They facilitate the production of relatively large batches efficiently and swiftly, even when orders are placed at the last minute, thus significantly reducing response times.*

### **Unmatched part quality and capabilities**

*Tornos has set a new benchmark in the market with the MultiSwiss series. With a capability spectrum that ranges from the agile MultiSwiss 6x16 to the robust 8x26 and 6x32 models, these machines offer almost limitless potential.*

Rocco Martoccia, Tornos' Product Manager for MultiSwiss, explains that the series was conceived with the operator's ease in mind. These machines can produce highly complex parts with optional Y axes and house up to three tools per position, ensuring competitive edge in complexity. The design prioritizes operator access and comfort, offering superb ergonomics at an excellent cost/performance ratio. The MultiSwiss series bridges the gap between single-spindle and multi-spindle technology, making the latter accessible for those accustomed to the former.

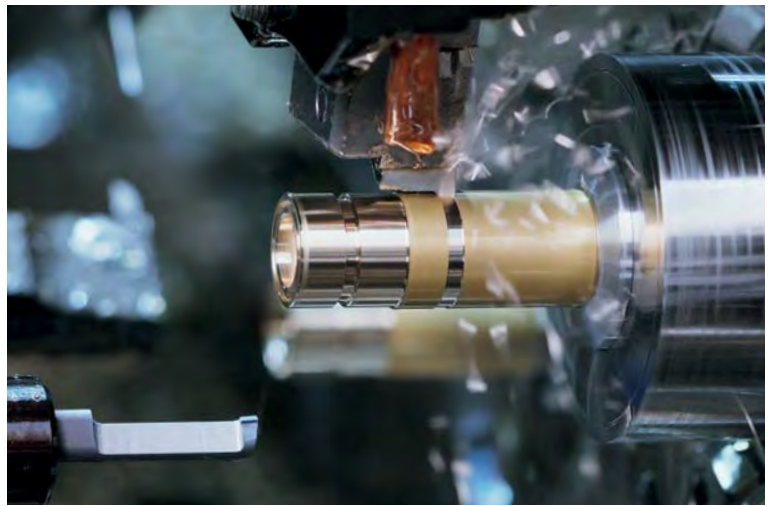
Special attention has been paid to the machining area to make it hassle-free. Both high and low-pressure connections are seamlessly integrated into the plate, eliminating any potential for chip traps. The use of hydrostatic technology offers dampening benefits, significantly reducing tool wear. The overarching goal is to simplify production management. While rapid production invariably leads to increased chip generation and tool wear, the innovative technology of the MultiSwiss series minimizes these impacts, facilitating easier and more efficient part production.

### Intelligent design for user-friendly operation

The MultiSwiss machines come as a comprehensive package, including a container for all peripheral units, ensuring a compact footprint. This turnkey solution includes a loader, cooling unit, and a two-stage filter system, along with a chip conveyor and optional oil mist extraction system. These features allow the MultiSwiss to replace single-spindle lathes seamlessly, providing a streamlined and efficient setup.

### Programming made simple

Contrary to the intimidating perception of multispindle machine programming, the MultiSwiss series stands out for its user-friendly interface. Equipped with an integrated PC and touch panel, operators can utilize the TB-DECO software directly on the machine, simplifying the programming process. The MultiSwiss 6x16, for example, can be programmed as easily as seven 2 or 3 axis lathes, despite its ability to house a maximum of four tools per position. The machine and software handle synchronization processes, including bar feeding, workpiece clamping, and part ejection, with finesse.



### Advancements in tool management

One of the primary concerns in high-speed production is increased tool wear. However, the hydrostatic features of the MultiSwiss machines significantly reduce tool wear by 30% to 40%, thanks to their capacity to achieve excellent surface finishes. This advancement simplifies tool management, making production on multi-spindle lathes more efficient. The thoughtful design extends to the tool holders, which are equipped with internal fluid channels for direct cutting oil supply, minimizing chip traps and facilitating chip management.

### Designed with the operator in mind

The MultiSwiss series has been meticulously crafted to prioritize the operator, with every feature from lubrication points to the cooling lubricant supply engineered for ease of use. Tornos has revolutionized the multi-spindle lathe, proving that its application extends beyond large-batch production. Many customers are successfully running batches as small as 500 pieces, showcasing the machine's flexibility. With over 250 machines already operational in workshops, Tornos can demonstrate the tangible benefits of the MultiSwiss series through real-world applications and satisfied users.





#### **Direct customer benefits: Efficiency, precision, and profitability**

*At the heart of the MultiSwiss series' innovation lies a direct translation of features into customer benefits. Tornos users experience a notable uptick in efficiency, with machines like the MultiSwiss 6x16 streamlining the transition from single to multispindle operations, allowing workshops to expand their production capabilities without a steep learning curve. Precision is enhanced, not just in the machining process but also in the economic precision these machines bring to the table—optimized tool life, reduced waste, and energy-efficient design contribute to a lower total cost of ownership. Profitability follows naturally; the MultiSwiss machines offer the flexibility to cater to both high-volume and small-batch needs, maximizing machine uptime and market responsiveness. This adaptability ensures that Tornos customers can swiftly adapt to market changes, seize new opportunities, and maintain a competitive edge in an ever-evolving industry.*

#### **A new paradigm in precision manufacturing**

*The MultiSwiss is not just a machine; it is a paradigm shift in manufacturing. It offers the productivity of five to eight single-spindle lathes while retaining the simplicity and setup speed of one. This series has been a game-changer for manufacturers who are now able to achieve high volume outputs without compromising on the agility required for smaller batches.*

*As Tornos continues to push the boundaries with the MultiSwiss series, the manufacturing world watches in anticipation, ready to embrace a new standard of precision, efficiency, and ergonomic design.*

#### **New capabilities for the MultiSwiss 6x16**

*The MultiSwiss 6x16 now stands out with an improved bar feeder system, capable of handling bars up to 200 cm (with options for 150 cm, 180 cm, or 200 cm). This innovation allows for an increase in machine autonomy by over 25%, thus meeting the growing production needs without sacrificing floor space. The intelligent design of the feeder integrates perfectly into the existing container, ensuring a compact and efficient setup. Planned for the coming months, this development will mark another step towards optimizing performance and autonomy, strengthening the position of the MultiSwiss 6x16 as a versatile and powerful solution for precision manufacturing. In a bid to increase versatility, Tornos also plans to introduce an option for adding a barloader from our Swiss-type range. This feature will extend the capabilities of the machine, allowing it to work with bar lengths of up to 3 meters or 3.70 meters (12 feet). This reflects Tornos' commitment to providing increasingly flexible solutions tailored to the diverse needs of its clients.*

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Headquarters of Ruihe Medical



Tornos machine tools in the Ruihe Medical Turning Centre



# Swiss quality

*fuels the rise of home-grown  
Chinese brand*

Hebei Ruihe Medical Device Co., Ltd. is a trailblazing Chinese firm specialising in the research and development, production and sale of numerous medical devices. As a thriving, home-grown medical brand, Ruihe Medical chooses Tornos machine tools to process its medical device parts. The excellent precision, efficiency and stability of Tornos machine tools, backed by comprehensive technical support, expert training and after-sales service, provide strong support that helps towards improving the quality and precision of Ruihe Medical products.



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hbruihe.cn

## A fast-rising star

*Founded in 2006, Ruihe Medical is headquartered in Shijiazhuang City, Hebei Province. Currently, Ruihe Medical has four manufacturing bases across China and a workforce of over 600 employees. "We started out back in 1998 as a foreign trading company dealing mainly in the import of foreign medical devices. In 2011, the company decided to transition from trading to production," said Ju Chongyang, deputy general manager of Ruihe Medical.*

*"From the outset, we were clear that the company should be technology-led, produce high-quality medical products and prioritise the purchase of advanced international production equipment." The first machining equipment purchased by Ruihe Medical after its transition was a Tornos, the Swiss GT 26.*

Since then, more than ten of the units have entered operation in the Ruihe Medical Turning Centre, where they busily manufacture core components for the company's products.

*"The reason we opted for Tornos machine tools is that Tornos are in line with our company's product and production strategies, and we are deeply impressed with the efficiency, precision, stability and pass rate of Tornos sliding head lathes. In some respects, they have resolved the technical difficulties we face in creating high-quality core products. In addition, Tornos offers a high standard of technical support and after-sales service, and delivers technical training to our staff, which has helped us to reduce certain production risks."*

Ju Chongyang added: *"The support of high-end equipment was instrumental to us winning a national procurement contract for spine products. In this regard, Tornos machine tools can efficiently process spine products with complex profiles, thereby providing a guarantee for the quality of our products. The design concept of Tornos machine tools is ahead of its time. Our existing machine tools are designed to leave sufficient room for the installation of robotic arms in the future, thereby aiding the company's development whilst reducing costs and increasing efficiency."*

### The story behind a national brand

The story of Ruihe Medical began with surgical sutures. The company's founder Ju Chonghe previously worked as a sales agent for surgical sutures, travelling to dozens of hospitals from Shijiazhuang to Cangzhou carrying a rucksack full of his products. Relying on a sincere, no-nonsense work ethic, he forged business relationships with 56 hospitals before moving into the medical device industry just over 20 years ago.

In 2002, Ju Chonghe registered the company, which initially operated in the field of orthopaedics. In 2011, after careful consideration, Ju Chonghe decided to boost home-grown manufacturing by refocusing the company from trading to production. Since then, Ruihe Medical has blazed a trail in manufacturing products that serve the people of China.

In 2015, the foundation stone of Ruihe Medical's Shijiazhuang factory was laid and the company's



Jin'ou Medical production base

**"For products with high specifications that are technically challenging to process, we tend to opt for the Tornos machine tools."**

*R&D project team was established. In 2018, construction of the Ruihe Medical headquarters officially began in Shijiazhuang. In February 2019, work started on the company's Shanghai factory and in April 2020, the foundation stone of the company's Xinji factory was laid. In July 2020, products independently developed and mass-produced by*



Ruihe Medical entered the market, and the company's Massic (thoracolumbar posterior screw fixation) system was implanted into a human patient for the first time.

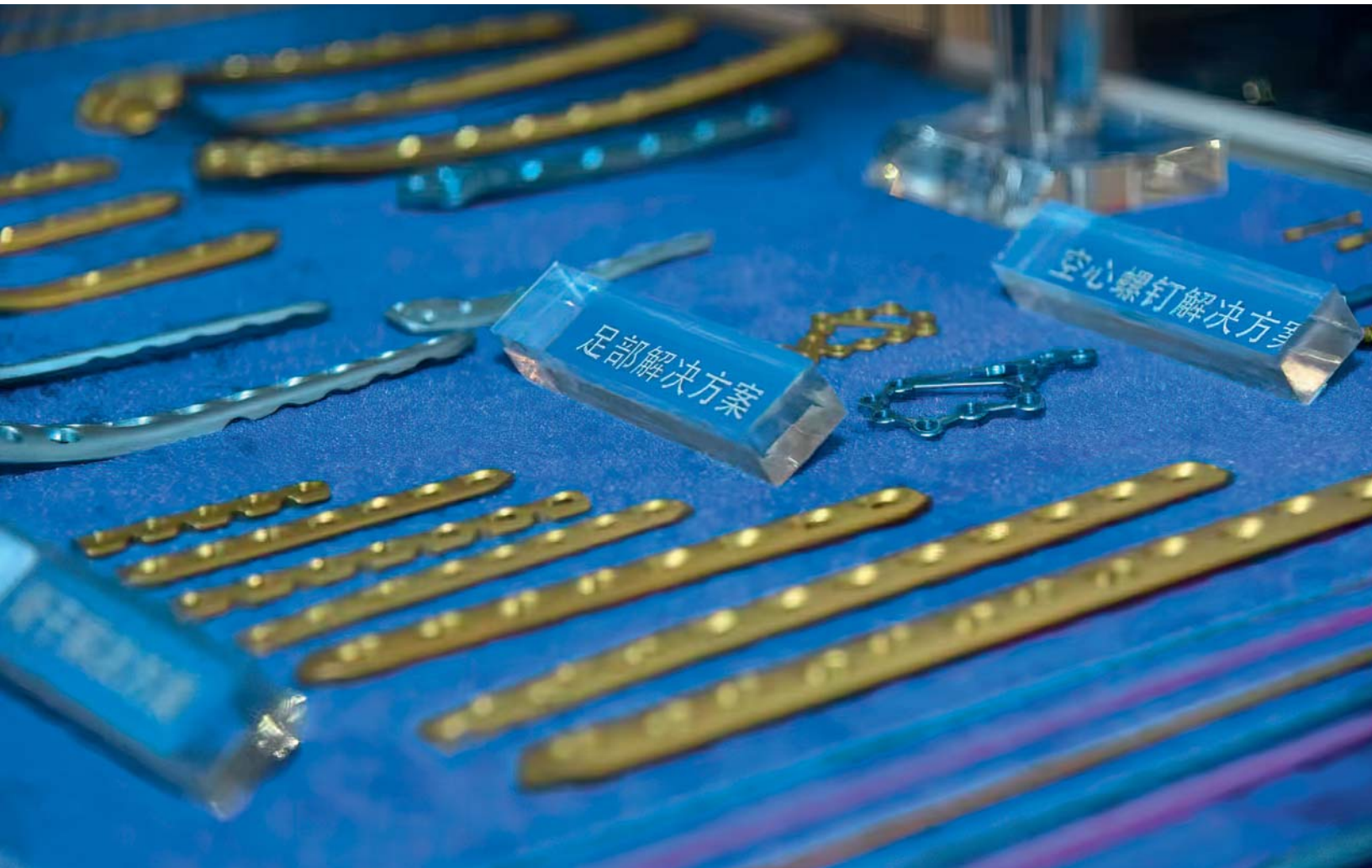
To date, 290,000 Ruihe products have been implanted into patients. In July 2021, Ruihe Medical won a procurement contract tendered by the Twelve Provincial Orthopaedic Trauma Medical Consumables Alliance. In September 2022, Ruihe Medical secured a national centralised contract to supply eight spine product systems and in May 2023, work began on Ruihe's new 33-acre production base, Jin'ou Medical, located in Xinji, Hebei.

The successful transformation of Ruihe Medical from a medical device distributor to a leading enterprise in the production, research and design of

medical devices in Hebei Province owes much to the company's steadfast adherence to scientific and technological innovation, as well as its proactive recruitment of professionals in clinical medicine, materials science, mechanical design and other related disciplines. At the same time, Ruihe Medical has entered into partnerships with many key universities, research institutes and hospitals in China and abroad, to actively carry out research into new technology and promote the transformation of scientific research results into new products.

To date, Ruihe Medical has obtained a total of 86 patents, in addition to 28 registration certificates for Class III implantable orthopaedic medical devices, comprehensively serving hundreds of distributors and nearly a thousand medical institutions across China.

Trauma series products



## Machining sharps is about more than just precision

Wang Xuexin, manager of Ruihe Medical Manufacturing Centre, was full of praise for the technical support from Tornos: “We encounter various problems in the mechanical processing of products with relatively complex structures, which is impacted by numerous factors. The most impressive thing regarding the technical challenges we face is that when using the B-axis T330, T340, and T350 tool positions and back spindle of the Tornos machine tools to work products with specially-shaped features, technical difficulties are quickly overcome after in-depth communication and numerous discussions with the Tornos technicians. There are many similar situations in which we received fast and effective support from Tornos each time.” Ju Chongyang added: “The Tornos after-sales service slots almost imperceptibly into our workflow – they are even able to proactively provide on-site service each time.”

Tornos machine tools are easy to operate, which is especially important for a medical device manufacturer. The Ruihe Medical technicians underwent a series of technical training sessions and are already proficient at various machining operations and tool changeovers. Wang Xuexin described the modular exchange function of the Tornos Swiss GT 26 machine tool as “excellent”, saying that it greatly improves productivity, flexibility and convenience, shortens adjustment times during the production process and ensures stable production. Some products in Ruihe Medical’s trauma series—such as the intramedullary nail, thoracolumbar posterior screw-rod series, and thoracolumbar posterior internal fixation series—require high-precision machining or have complex structures that make them difficult to process. Currently, Ruihe chooses to process most of these products using Tornos machine tools.

Ju Chongyang concluded: “For products with high specifications that are technically challenging to process, we tend to opt for the Tornos machine tools.”

Top priorities when it comes to precision machining include high precision, yield rate, high efficiency and production stability. The key to winning centralised medical device procurement contracts is delivering high-quality products at a price that patients can afford, so yield rate and reducing production costs are important.



Metal locking intramedullary nail

The maximum machining diameter of the Tornos Swiss GT 26 is 25.4 mm (compared with 20 mm for other turning machines). It is also ergonomically designed and has a larger internal space. Currently, the Tornos sliding headstock lathe is used to produce almost all key components of Ruihe Medical spine systems. The B axis has a total of 8 tool positions, and 4 driven tool holders. It uses ER20 collets with a maximum tool clamping diameter of 12 mm. The counter spindle is equipped with a 10.5 kW motor, allowing it to reach the same rotation speed as the main spindle (10,000 rpm), but the counter spindle has stronger drilling power and rigidity. The total length of products in the thoracolumbar posterior internal fixation series is 175 mm. The Tornos equipment has a main spindle stroke of 220 mm and a counter spindle stroke of 311 mm, so the products can be formed and manufactured in one pass. Due to their interchangeability, the tool position modules—including a three-tool plate for turning tools, a three-hole holder for drilling tools, and fixed milling tool positions can easily be switched, allowing quicker and more convenient tool changeovers between processes.

Wang Xuexin said: “The stroke provided by the Tornos machine tools is longer than that of other machine tools, so it can form some of our products with longer processing dimensions in one pass.





Thoracolumbar posterior screw-rod fixation system



Thoracolumbar posterior internal fixation system

*The advantages of this are obvious. Firstly, it ensures the precision of the products, and secondly, it ensures their stability. Finally, the consistency is also very good and efficiency is high. Particularly if the distance from the B-axis dimension is not long enough, it is difficult to achieve one-pass forming."*

#### **A pioneer of smart manufacturing for the future**

As a specialised and sophisticated enterprise manufacturing new and unique products, Ruihe Medical has actively introduced smart production lines and is striving to set a benchmark for production and manufacturing standards in the Chinese medical device industry. In recent years, Ruihe Medical has sharply increased its production investment, introducing hundreds of advanced production equipment units from Germany, Japan, Switzerland and other countries, as well as close to 100 international advanced inspection and testing units for comprehensive testing and stringent control of product quality.

In addition, Ruihe Medical is striving to build a medical services brand with 'Intelligence, Data, Systems, Precision' as its core values. In September 2022, Ruihe Medical officially launched its own ERP omnichannel mobile marketing platform. Through proprietary software, the mobile platform provides a unique

two-way logistics product tracking mechanism for the orthopaedic industry, resolving the difficulties and pain points inherent in medical implement and product sets; At the same time, it offers systematic support for the transformation of the entire centralised procurement industry from a traditional sales model to a consignment sales model. Using the mobile platform, hospital staff can more conveniently carry out operations such as reporting and ordering items for surgeries, reporting consumption, and returning unused items to the warehouse. The whole process is based on a closed-loop control system, in which business inventory is synchronised in real time. At the same time, the mobile platform is perfectly integrated with the company's ERP system, and the integrated operation ensures comprehensive management of procurement, inventory, sales, finance, planning, production, and cost information so that each product is traceable to its source.

Ju Chongyang said that by implementing the ERP system, the company has paved the way for workflow management that encompasses finance, commerce, and logistics, and has started planning the introduction of a manufacturing execution system (MES). Discussions with numerous MES software and equipment manufacturers on the construction of intelligent digitalised systems are already underway.



## TUNGSTEN CARBIDE AND DIAMOND PRECISION TOOLS

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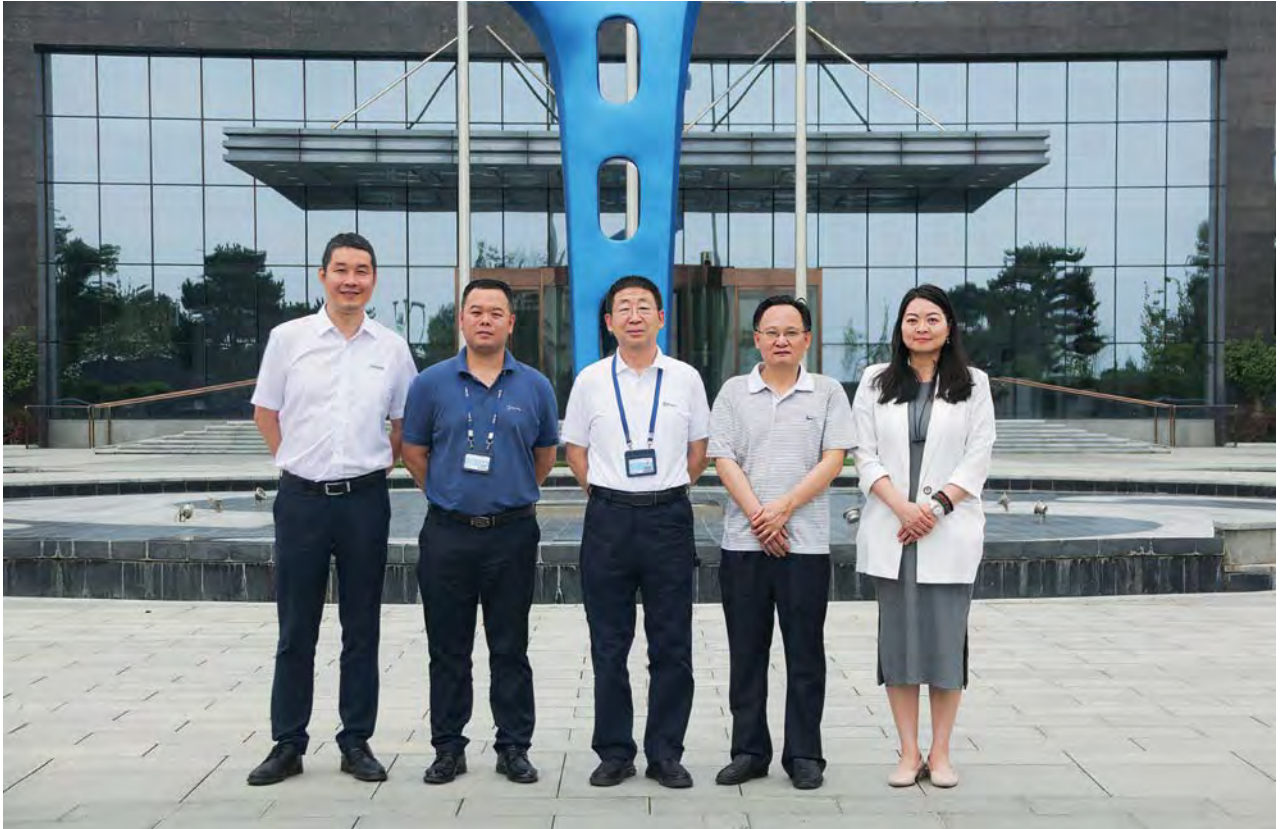


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PRECISION CARBIDE TOOLS







Ju Chongyang, deputy general manager of Ruihe Medical (centre), Wang Xuexin, manager of the Ruihe Medical Manufacturing Centre (second from left), and Li Gang, Regional Sales Manager North for Tornos (first from left), in a group photo in front of the R&D complex at the Ruihe Medical Group headquarters.

*The Industry 4.0 interface and bus technology used in Tornos machine tools is helping the company to build an integrated workshop IoT (Internet of Things) system, which is crucial to the intelligent upgrading of the company's equipment in future. It could be said that smart manufacturing is the direction in which the company is developing. Purely from a product quality perspective, reducing manual intervention in production processes is most conducive to guaranteeing quality.*

*Company Chairman Ju Chonghe, who has led Ruihe Medical for more than 20 years, is determined to create more suitable and cost-effective medical devices for Chinese doctors and patients. The goal of Ruihe Medical aims to rival the products of its international competitors, achieve breakthroughs and strive to become an industry benchmark for ingenuity and quality. And thanks to its unswerving sense of purpose, steady progress and far-reaching ambitions, Ruihe Medical is already making a brilliant contribution to China's medical device industry.*

[hbruihe.cn](http://hbruihe.cn)



The students who pass through this laboratory will be highly skilled professionals dedicated to a specific field, with access to a benchmark machine in the precision machining market, a Tornos SwissNano 7.



# Southern Brazil gets first micro-machining training center

Thanks to a partnership between Tornos and Senai Paraná, trained professionals will be able to work primarily in the manufacture of parts for the medical & dental, electronics and micromechanics sectors.

## TORNOS

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*In partnership with Swiss multinational Tornos and the world leader in SolidCAM software, Senai Paraná's CIC unit in Curitiba has become the first in Brazil to offer micro-machining technology using a mobile head, with a focus on professional training for the industry.*

*The president of the Fiep system, Carlos Valter Martins Pedro, the regional director of Senai Paraná and superintendent of Sesi and IEL in the state, Fabiane Franciscone, welcomed Tornos CEO Michael Hauser; Tornos CSO Jens Thing; the director of Tornos North America and Brazil, Naiane Nunes; and the CEO of SolidCAM Brazil, Camila Sarantopoulos, on August 8<sup>th</sup> to a ceremony to hand over the SwissNano 7 micromachining technology, manufactured by the Swiss company Tornos. "Now Senai Paraná's CIC unit, its teachers and students have this cutting-edge technology, they can offer more resources for teaching and learning to those who will be the future of manufacturing," emphasized Michael Hauser, CEO of Tornos.*

*An important pillar for Tornos is the training and development of its workforce. "We know how important it is to train people so that they can use all the*

technologies to come, and so that these future professionals can work on high value-added machines, with increased precision and productivity,” explained Naiane Nunes, Director of Operations for North America and Brazil.

Fabiane Franciscone, Regional Director of Senai Paraná and Superintendent of Sesi and IEL in the state, points out that the partnership has come to fruition with Tornos and it has reinforced Senai’s vocation to train excellent employees in line with industry requirements.

“Thanks to this technological upgrade, we expect around 800 registrations for CNC programming with SolidCAM software. Shortly, these professionals will work primarily in the manufacture of parts for the medical, electronics, dental and micromechanical fields. The industries benefit from highly skilled

workers, and society also benefits from the new employment opportunities that are opening up,” he declared.

At the equipment handover ceremony, SolidCAM Brasil director Camila Sarantopoulos emphasized the partnership between industry and education to train new professionals.

“The students that will pass through this laboratory and manufacturing room will be professionals dedicated to a specific field, with access to a reference machine in the precision machining market. They will also access one of the world’s fastest-growing CAM software packages, with powerful features for tailstock machines,” she said. “We want students to leave here prepared to deliver excellent, high-quality work. May they feel valued and determined to do superior work, and may they be even more appreciated in an increasingly demanding and competitive job market,” she concluded.







*Intended for the production of implants and accessories for the medical and dental sectors, as well as parts for the electronics industry, the SwissNano 7 machine has been designed to machine bars up to 7 mm in diameter and meet the demand for high-precision parts. It is now part of the metalworking shop at Senai Paraná's CIC unit, in the Espaço Tornos SolidCam.*

*Thanks to the software licenses provided by SolidCAM, Senai Paraná's teaching technicians and students will be trained in the Swiss-type moving head and CNC programming, opening up new opportunities for vocational training.*

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





# FOCUS ON PRODUCTIVITY



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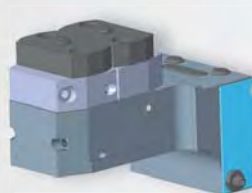


THE GWS-TOOLING SYSTEM:  
INNOVATION MADE BY GÖLTENBODT!

## The GWS-tooling system: Innovation made by Göltenbodt!

Göltenbodt driven tool holders provide solutions for practical needs geared to highest standards of quality and precision.

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GWS-change holder static  
2 hydraulic expansion units,  
Ø 20 mm (reducible)



GWS-change holder VDI25  
1 driven ER16



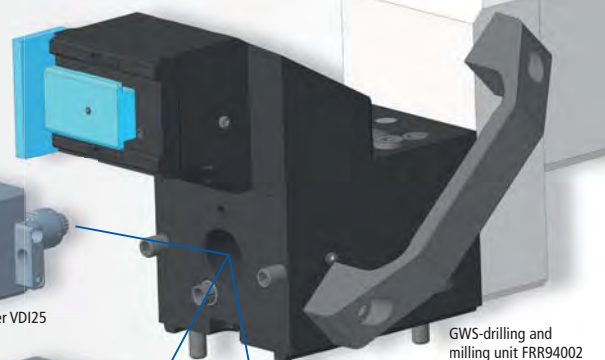
GWS-change holder  
VDI25 2 driven ER16



GWS-change holder VDI25  
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# TORNOS



## BUILDING THE FUTURE TOGETHER

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