

deco magazine



Can a job shop benefit from a CNC multispindle? This one does

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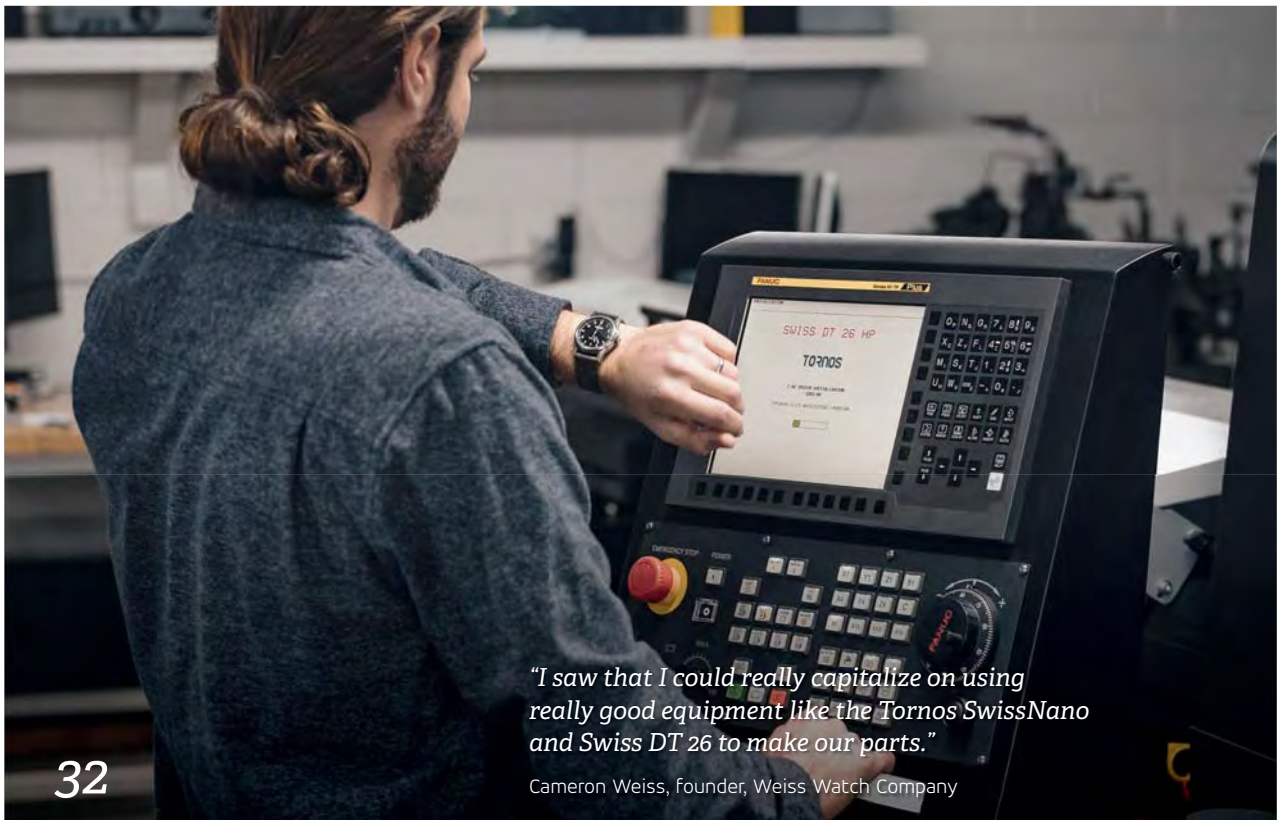


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"I saw that I could really capitalize on using really good equipment like the Tornos SwissNano and Swiss DT 26 to make our parts."

Cameron Weiss, founder, Weiss Watch Company

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“In a market where parts are becoming more complex, we are constantly striving to increase the capabilities of our machines.”

Michael Dünner Head of Product Management Swiss-type

Performance and ease of use: Guarantees of efficiency

Michael Dünner Head of Product Management Swiss-type

2023 is set to be a very promising year for Tornos on several fronts. After performing well and standing out from the competition, despite a difficult geopolitical footing marked by the Coronavirus pandemic and the outbreak of the war in Ukraine, our company remains on track and is strengthening its position in the particularly buoyant medical & dental sector.

Our society is changing, and certain observations are leading us in the industry to explore other options daily. This field, which is booming, is a particular point of focus. Indeed, the constant increase in life expectancy and the ageing of the baby-boomer generation and the population in general mean that we must find innovative solutions.

The ageing population leads to an increase in the prevalence of chronic diseases, but it also has some side effects. Older people require more care and are more prone to accidents, as their bodies age and become more fragile. It is then necessary to repair and consolidate the damage, and to replace teeth worn out by years of chewing with implants.

With solid experience in this sector, Tornos is constantly developing new applications for its machines and is constantly innovating by adding options to existing Swiss-type machines, while developing new concepts and offering complete

solutions adapted to your needs. In this respect, our SwissNano 10 is a real asset in the production of medical and dental parts. The epitome of precision and efficiency, it is fast and reliable, and its compact size minimises the footprint.

This latest evolution of the SwissNano allows us to offer up to 8 tools in counter-operation, 4 of which can be motorised. In addition, there is the option to have up to 4 motorised front tools under the counter spindle to allow work with the guide bush, which opens up new perspectives and is already proving very successful with our customers. In a market where parts are becoming more complex, we are constantly striving to increase the capabilities of our machines.

In this issue, we are also introducing a brand new version of the Swiss GT 13. Many of our customers who use it daily have given us feedback, so we decided to further improve the performance of this machine to make it even more productive. The Swiss GT 13 is a versatile, high-performance machine, like all the machines in this range, and now has an optional B axis. This option makes all the difference, as it allows even more flexibility, meaning it can perform more complex multi-surface machining operations with ease. Thanks to this option, the Swiss GT 13 B can be fitted with up to 28 tools, of which 19 are rotating.



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“In Spain, for example, two of our major customers are setting themselves apart by manufacturing increasingly complex medical and dental parts, and have chosen Swiss GTs for this purpose.”

Adding a B axis will then transform the Swiss GT into a true bar milling centre, with the B axis guaranteeing that any angle can be milled on the machine simply by programming the CNC. This makes it possible to compensate for any mechanical angle settings automatically, a task that is usually extremely time-consuming when carried out manually. This option is something that appeals to more and more of our customers, already won over by the undeniable performance of the Swiss GT range which is increasingly being emulated almost everywhere in the world.

In Spain, for example, two of our major customers are setting themselves apart by manufacturing increasingly complex medical and dental parts, and have chosen Swiss GTs for this purpose. This allows them to produce dental implants in large numbers to meet the ever-increasing demand.

The highlight of 2023, the EMO in Hanover, is always the opportunity for Tornos to meet both its existing and potential customers. This is the perfect opportunity to unveil a world-first that looks set to cause a sensation. Tornos is looking forward to seeing you in September to unveil this brand-new product. In the meantime, we look forward to meeting you at the various trade fairs throughout the year or in our various showrooms around the world. Until then, why not browse through our decomagazine 103, which contains both technical articles and testimonials from satisfied customers while also focusing on current trends, including sustainability – another key focus for us as a responsible machine-tool manufacturer.



As a job shop, Mitotec Precision continues to identify ways to speed changeovers for jobs that run across its two CNC multispindle machines for operators such as apprentice-now-employee Trevor Hutchins. Batch sizes of 20,000 parts is its sweet spot for these machines. (Photo Credit: Mitotec Precision)

Can a job shop benefit from
a CNC multispindle?

This one does

Although CNC multispindle machines are often dedicated to running one part or family of similar parts, this Wisconsin job shop has found a way to make 20,000 parts per run is its sweet spot, so the equipment better serves multiple customers.

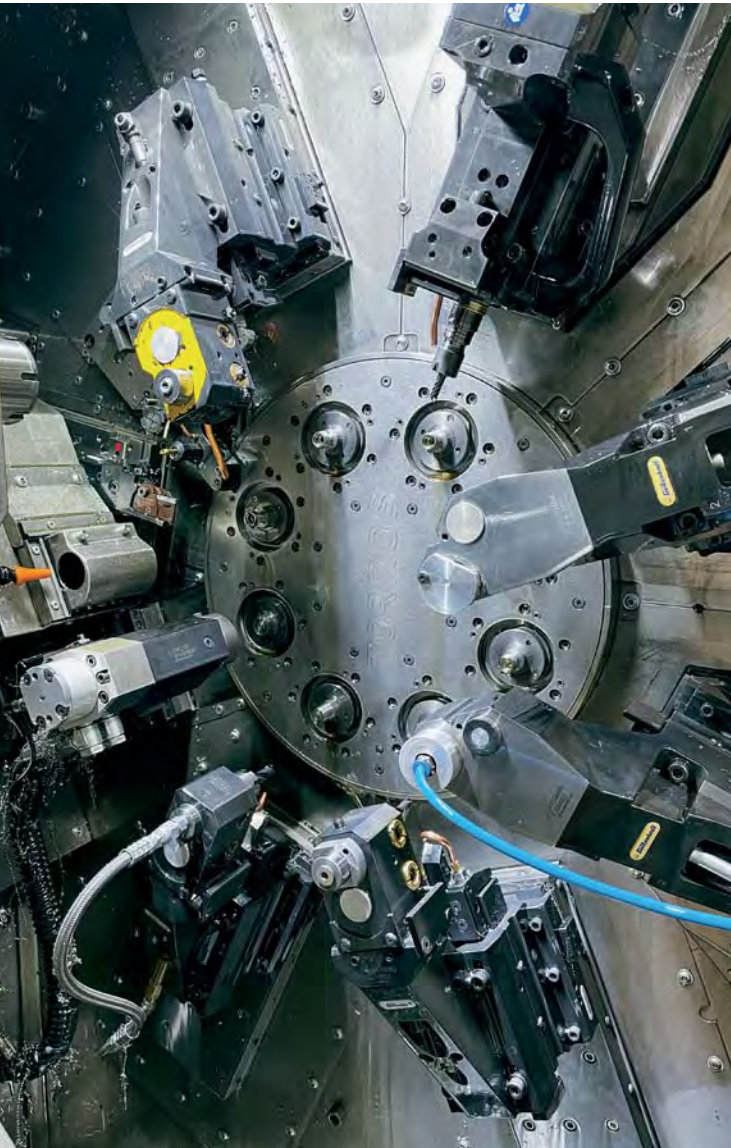


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Mitotec Precision is no stranger to multispindle cam automatics, but is new to CNC multispindles having purchased its first one in 2019 (added a second in the spring of 2022). What's interesting is the Necedah, Wisconsin, company has never used its traditional cam or more recent CNC multispindles as one might expect for these types of high-production machine tools.

"We're a job shop," explains Clinton Pouillie, general manager. "Although a multispindle machine conventionally might be dedicated solely to running one part or a family of like parts, we've found a way to make 20,000 parts per run work for us despite the changeover times.

"In considering this, we first asked what we are as a company," Clinton Pouillie explains. "If we are a multispindle company, then that's where we need to make our capital investments. We also considered how this could help mitigate the challenge of finding



The shop chose 8-spindle machines with 26-mm barstock capacity believing this configuration offered the right combination of size and speed for the complex parts it would run across them. It is also in the process of eliminating external coolant lines, instead running oil through the tooling to further speed changeovers.

new team members as the machines can match the output of four single-spindle machines that might require multiple operations as well as boost overall production compared to those machines.”

But even beyond the higher production capabilities, a CNC multispindle would offer the opportunity to respond faster to customers’ shrinking lead times/hot jobs that might be challenging to deliver on multiple single-spindle machines. In addition, it would create a single quality stream of machined parts to inspect rather than many streams from different machines.

I learned more about this during a recent visit to the 80-person, ISO 9001-2015-certified shop that is now working to speed setups to minimize changeover times for its now two CNC multispindles, while facing a good challenge to have: endeavoring to keep them fed with new work given they might produce completed parts every 8 seconds.

New Identity, Direction

The first CNC multispindle purchase was on the heels of a business rebranding. Until late 2018, the company was known as Necedah Screw Machine Products. The name change to Mitotec Precision was made to demonstrate to customers and potential new employees its move away from mechanical machines to new CNC technology such as Swiss-types and turn-mills. (The company says the prefix “mito” means “thread-like” or precise and its pronunciation implies strength and might. The second half of its name represents the technical aptitude of its team.)

The CNC multispindle platform was the next logical step in terms of multitasking machining technology. After considering a few builders, the shop chose an 8x26 MultiSwiss from Tornos Technologies U.S. Corp.

Pouillie notes that Tornos offers its multispindle machines in a few different configurations. The shop chose 8-spindle machines with 26 mm barstock capacity believing this configuration offers the right combination of size and speed for the complex parts it runs. It is also in the process of eliminating external coolant lines, instead running oil through the tooling to further speed-up changeovers.

“A multispindle gets us the ability to respond with one machine and one quality value stream for us to control.”

He also appreciates the machine’s hydrostatic spindle bearing design. “What impresses me is that the machine can be running eight 1-inch-diameter steel bars at 5,000 rpm and you hear the sound of the mist collector over any spindles noise,” Pouillie says, “We don’t hear vibration or rattling which leads to higher tool life, improved surface finishes and overall process stability.” Oil temperature control also contributes to process stability, while high-pressure oil delivery (the machine features 20-, 40- and 80-bar high-pressure coolant pumps) is very helpful in breaking chips and evacuating them from the cutting zone.

Mitotec Precision reconfigured its floor space to leave room on either side of its two CNC multispindles because it envisions adding more of these high-production machines as part of its business model moving forward.

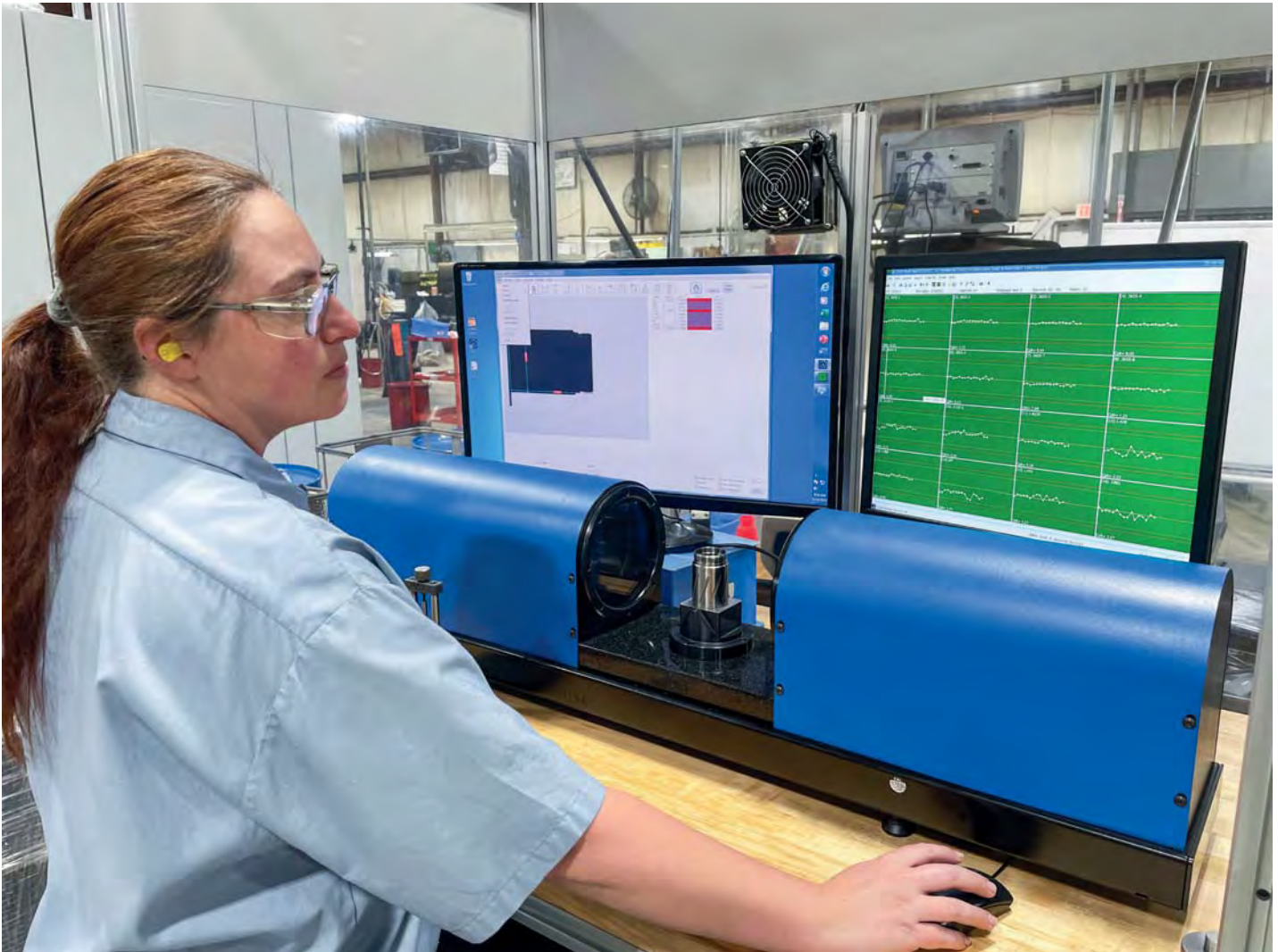


“Fast, automated inspection processes enable us to satisfy quality reporting requirements while keeping these machines up and running.”

Pouillie says the shop uses TB-Deco programming software from Tornos which he feels is particularly valuable for the multispindle platform.

“The programming isn’t as hard as one might think as each spindle has its own program, but it can be a challenge to coordinate wait codes without the software,” he explains. “Plus, it also automatically simulates a part run to reveal any error codes or overtravel conditions prior to running a job. In addition, it calculates the cycle time extremely precisely as it proves out a job.”

Automated vision inspection systems such as this help alleviate measurement bottlenecks created when CNC multispindles significantly increase production volumes the shop must handle.



The TB-Deco software also automatically adjusts an entire part program as a programmer makes changes to perhaps move operations from the spindle that has the longest cycle time (which on a multispindle is the true cycle time for the part) to another spindle(s). Mitotec Precision has an offline seat and its engineering team uses it to create all programs for the two CNC multispindles.

Currently, the shop is devising ways to reduce changeover times which for now stands at under 8 hours. Although that can be twice as long as

setting up a single-spindle for a new job, the production speed of an 8-spindle machine makes up for that.

For example, it is machining channels on the side of its Goeltenbodt toolholders that mate with a ground stop to enable fast changeover with high positioning repeatability. In doing this, each tool becomes dedicated to a specific spindle and there is no need to touch off cutters. The shop is also in the process of eliminating external coolant lines and instead running oil through the tooling to further speed changeovers by eliminating the need for operators

Like part inspection, part cleaning can become a bottleneck when production volumes increase. This is one reason why Mitotec Precision added a single-chamber, solvent parts washer with automated loading/unloading system.





The CNC multispindle's opened-up additional capacity on Mitotec Precision's four VMCs that were previously used for second-op work. Now, the shop is using machines such as this Brother VMC with pallet changer and hydraulic workholding for production work.

such as Trevor Hutchins, shown in the lead photo, to remove and reclamp coolant hoses. Pouillie notes that the open design of the MultiSwiss provides Hutchins with easy access to the toolholders "without getting drenched in oil," he quips.

Improved Customer Response

Mitotec Precision has run a number of jobs across its MultiSwiss machines and has been able to more quickly respond to customers' hot jobs. "A customer might call needing 20,000 pieces of a complex part in a month, Pouillie explains. "Normally, this means we'd need open capacity on multiple machines, which we might or might not have. A multispindle gets us the ability to respond with one machine and one quality value stream for us to control.

The MultiSwiss also offers a safer chance to take on more work from one customer because the shop won't have to tie up multiple single-spindle machines for just one customer. That doesn't make good business sense. And now that the shop has two CNC multispindles, customers with jobs running on one won't have to worry about their work not being completed on time if that machine goes down because the job could be easily transferred to the other.

Faster Production Ripple Effects

Although Mitotec Precision has benefited from the boosted machined parts production and other advantages the CNC multispindles offer, that higher production from two individual machines has caused bottlenecks with regard to part inspection and cleaning that it has worked to open.

Per the former, the shop's automated vision systems from Oasis Inspection Systems have proven valuable in speeding part inspection. "We certainly don't want to have to halt production on a CNC multispindle that might be dropping completed parts every 8 seconds to manually inspect them at specific intervals throughout a job," Pouillie notes. "Fast, automated inspection processes enable us to satisfy quality reporting requirements while keeping these machines up and running."

Per the latter, Mitotec Precision added a single-chamber, vacuum-solvent parts washer with automated loading/unloading system from JCOM Imports. Like part inspection, parts cleaning can become a bottleneck given the CNC multispindles are producing complex parts (sometimes having features such as blind holes) so fast. In addition, part cleanliness regulations continue to become more stringent.

Parts are cleaned by flooding the unit's drum (with the option to swivel or tumble parts as well as use ultrasonics) to clean them to medical-grade standards (50 different cleaning programs/recipes are available). It is also operated under vacuum for energy efficiency and to help protect the machine components. Mitotec Precision is integrating a bar code system for each parts basket with the proper

cleaning “recipe” to simplify the process for employees. Conversely, the CNC multispindles have opened time on the shop’s four VMCs that previously were used primarily for secondary operations. Now, it uses these machines for production work. One example I saw during my visit was a small casting for a medical application run across a Brother VMC with pallet changer using hydraulic vises and Paws Workholding system on a rotary table.

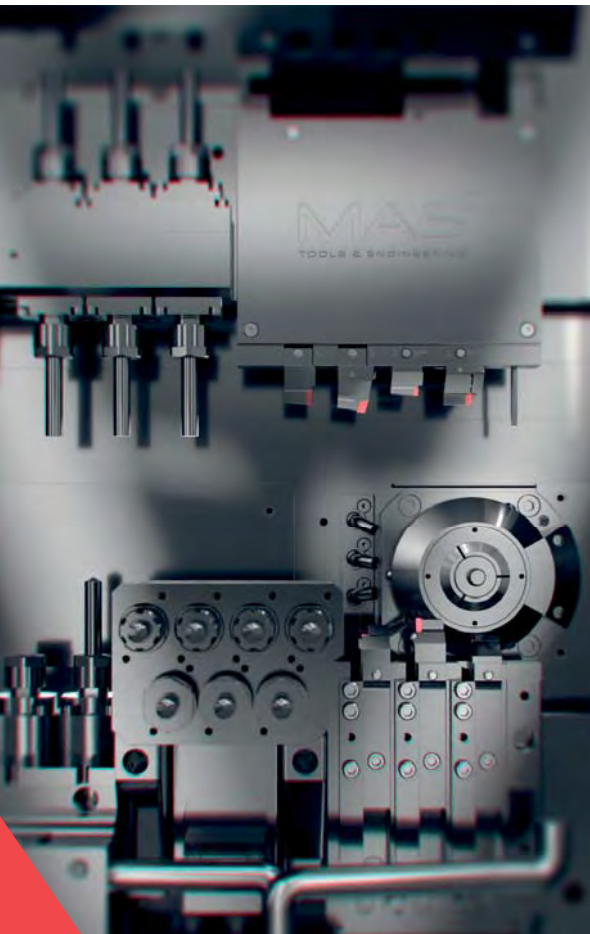
Next Steps

The shop has taken further strides along the CNC multispindle path by altering the layout of its shop floor — not only to accommodate its second MultiSwiss, but additional CNC multispindles on either side of the current pair. One challenge for Sales

Manager Warren Schoenborn, however, is finding new work to both generate a backlog on those machines while maintaining availability to work in a high-volume job when a customer needs it. Per the former, he’s eyeing new markets for the shop, such as medical and optics.

Regardless, this falls in line with Mitotec Precision’s mantra of thinking differently and creatively. This is an example of shops with which I enjoy staying in touch. Who knows what new process or technology a subsequent visit at some point might reveal.

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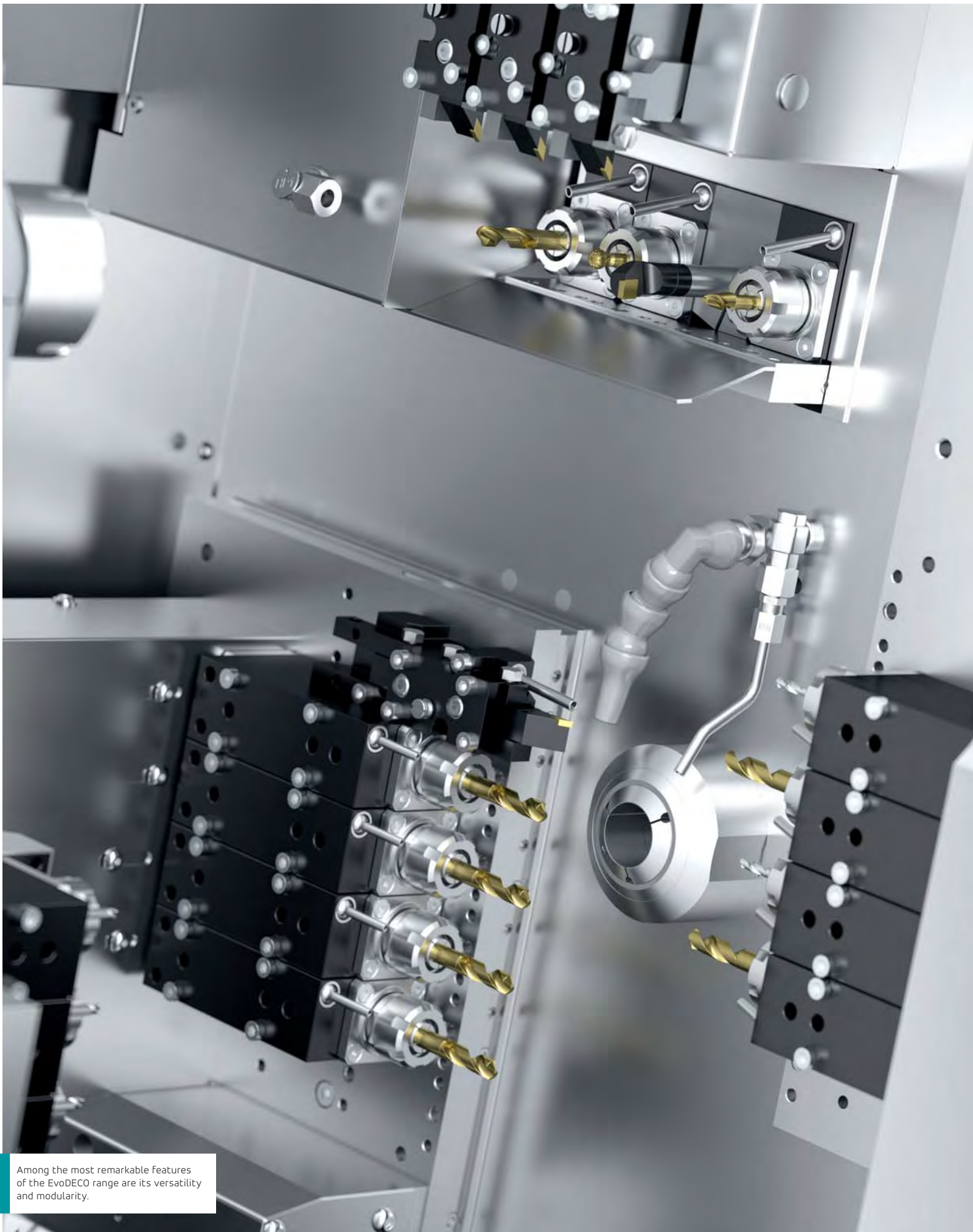
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Among the most remarkable features of the EvoDECO range are its versatility and modularity.

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Sliding head machines are widely used in the production of small, complex parts for a variety of industries. These machines are ideal for producing parts that are too small or too complex to be machined on conventional lathes.

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Since the very beginning, DECO and EvoDECO machines have been designed to meet the needs of modern manufacturers seeking efficient and cost-effective solutions.

The very philosophy is rooted in cam-type machines and their unparalleled productivity levels. Tornos has been operating for over 140 years, during which time the company has earned a reputation for producing innovative and high-quality machines. The EvoDECO machines perfectly embody the company's commitment to quality and precision.

Among the most remarkable features of the EvoDECO range are its versatility and modularity. The machining area is 100% modular, which means that it can be adapted to meet the specific needs of each customer. This unique design concept enables customers to add or remove options as required, ensuring that the machine is tailored to their specific production needs.

These machines are capable of performing a wide range of operations, including turning, drilling, milling, threading, polygon operation, gear hobbing, thread-whirling and much more. Their four tool systems and fully modular machining area make them ideal for a variety of applications, from the production of medical components to the manufacture of high-precision watch parts. These advantages make it possible to achieve productivity that is difficult to surpass - unless you consider a multi-spindle machine. DECO and EvoDECO machines help their users reduce production time and improve production precision.

These machines are equipped with high-quality components and advanced technology, such as servomotors, high-precision ballscrews and a compact and rigid design. The result is incredibly precise and repeatable machining, even with the most difficult materials. These machines are true boundary pushers! Capable of producing parts to tolerances as low as a few microns, EvoDECO machines are an excellent choice for manufacturers that demand the highest levels of precision.

The EvoDECO range is designed to be easy to use, despite its four channels. These machines have an

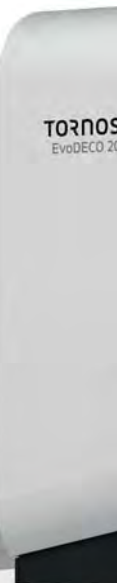
EvoDECO		10	16	20	32
Maximum diameter	mm	10	16	25.4	32
Number of linear axes		10	10	10	10
Number of C axes		2	2	2	2
B axis		-	Option	-	-
Number of independent tool systems		4	4	4	4
Total number of tool positions		22	27	27	27
Rotating tool positions		11	15	21	21

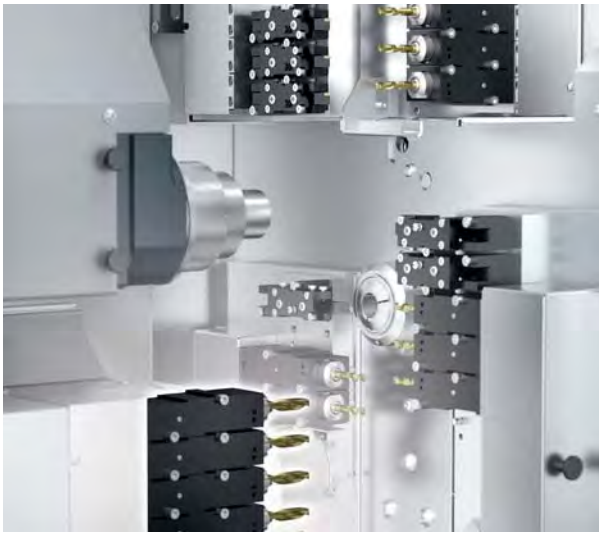


EvoDECO 10



EvoDECO 16





The EvoDECO end unit is based on the kinematics of cam-type machines to increase productivity.

intuitive user interface that enables simple operation, making them easy to use even for operators with limited experience with the TB-DECO or TISIS software. This simplicity allows manufacturers to train new operators quickly and efficiently, minimising machine downtime.

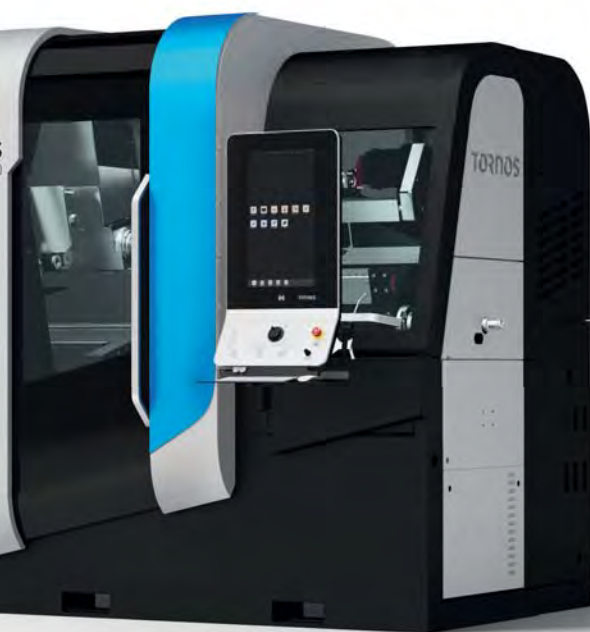
The EvoDECO range offers a high level of precision, versatility and ease of use. With its advanced technology and Swiss quality design, the range is an excellent choice for those seeking a reliable and cost-effective solution to produce small and complex parts. Whether you are a medical device

manufacturer, a watchmaker or a producer of precision parts, the EvoDECO is a machine you can rely on to get the results you need.

Available in four different diameters that include 10 mm, 16 mm, 20 mm and 32 mm. Each diameter is designed to meet specific production needs and offers unique benefits. Better still, the optional counter-operation B-axis allows the EvoDECO 16 to perform machining operations at different angles, providing better access to the part and enabling parts with complex geometries to be produced. This makes it ideal for the production of parts for the medical device industry, where precision and accuracy are essential.

Whether you are producing small delicate components or large complex parts, you will find a machine in the EvoDECO range to meet your needs. To find out more, contact your nearest Tornos representative

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EvoDECO 20



EvoDECO 32



*Bioscience Medical and Tornos,
high-quality products with*

exquisite design

From its beginnings in Switzerland in 2014, Bioscience Medical has become a renowned expert in everything related to high-end implants and prostheses. Since it was founded in La Chaux-de-Fonds and then moving to Rossemaison, this multinational has chosen Tornos as its one and only partner to ensure its production of intramedullary rods, screws and plates for the medical sector.



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Eight years ago, Bioscience Medical, a company which is part of Bioscience Group, a Swiss holding company, established itself on the world market for premium implants and prostheses. Highly sophisticated, high-quality products are designed and manufactured using state-of-the-art technology, with Tornos machines the sole resource for everything related to priority medical intramedullary rods and screws. The commitment to the patient's health is demonstrated throughout the life cycle of the product, starting from the use of first-choice materials, which are differentiated by their mechanical, physical and chemical characteristics.

"We are a true Brazilian family business, working in the health sector, with a strong base in Switzerland, where we were immediately given an excellent welcome. From the outset, our goal was to develop a new external fixator for arthroplasty. The parent

“The parent company, Biomecanica, was founded by my parents, and over the years we have had the opportunity to play an active role in all aspects of orthopaedics in Brazil.”

company, Biomecanica, was founded by my parents, and over the years we have had the opportunity to play an active role in all aspects of orthopaedics in Brazil,” says Ana Carolina Pengo.

Biomecanica is an orthopaedic implant and prosthesis company with 34 years of history, trust and transparency. The impetus behind Biomecanica was the dream of helping patients to get better. With this idea in mind, their president, José Roberto Pengo, took a blank sheet of paper and a pencil and turned these into tools to create an external closure. This fixator was the precursor of this company and continues to provide a source of inspiration because it helps us to envisage dreams and projects, that can become reality, and lead to so many success stories. Biomecanica is more than just square metres of machines and equipment in a factory, it is people with a commitment to health. They carry within them the essence of life. Widely recognised because of the conviction they have demonstrated for so





many years, they work to rehabilitate both bodies and minds. "We design our products to better serve the orthopaedic market, and our focus is always on improving the quality of life of our user, the patient!" explains Ana Carolina Pengo.

"Biomechanica manufactures more than 9000 different products, mainly because in addition to our implants, we also produce instruments. We do not outsource any type of production. For example, we have developed an innovative new product right here in Switzerland. It is a proximal femoral stem and it is a pioneering product. We also produce plates. These include a special locked plate to inject orthopaedic cement directly into the bone, a really interesting feature! We also use buttons and we lock the plate with pins. We produce everything here in Switzerland," says Ana Carolina Pengo.



Bioscience Medical had to find a company like Tornos from the start for two main reasons. Firstly, the quality. The quality Tornos provides has never been in any doubt. "From the beginning, we knew it was the best choice we could make if we wanted to produce turned parts. The second reason is that we are in Switzerland and Tornos is our neighbour here," says Ana Carolina Pengo.

Thanks to this happy collaboration, Bioscience Medical has had the opportunity to make prototypes of some tiny parts, even though daily production is essentially all kinds of screws. Bioscience Medical produces all the screws for Biomecanica, and

everything is produced in Rossemaison, both for the premium line and the public health line. We create all types of screws: short screws, longer screws, and locking screws. What is probably most special for Bioscience Medical are the rods. The rods as well as their entire range of products are produced in-house. The longest nails are not only turned on the outside but are also subject to boring and tapping operations.

As a serious and dynamic company, Bioscience Medical is now taking the majority share of business in countries other than Brazil, mainly Switzerland. Thanks to its many years of experience and specific expertise, the company can meet all the challenges of the orthopaedic sector, of course, but also more broadly across the medical sector. It is constantly innovating whilst relying on its solid base, in a happy partnership with Tornos.

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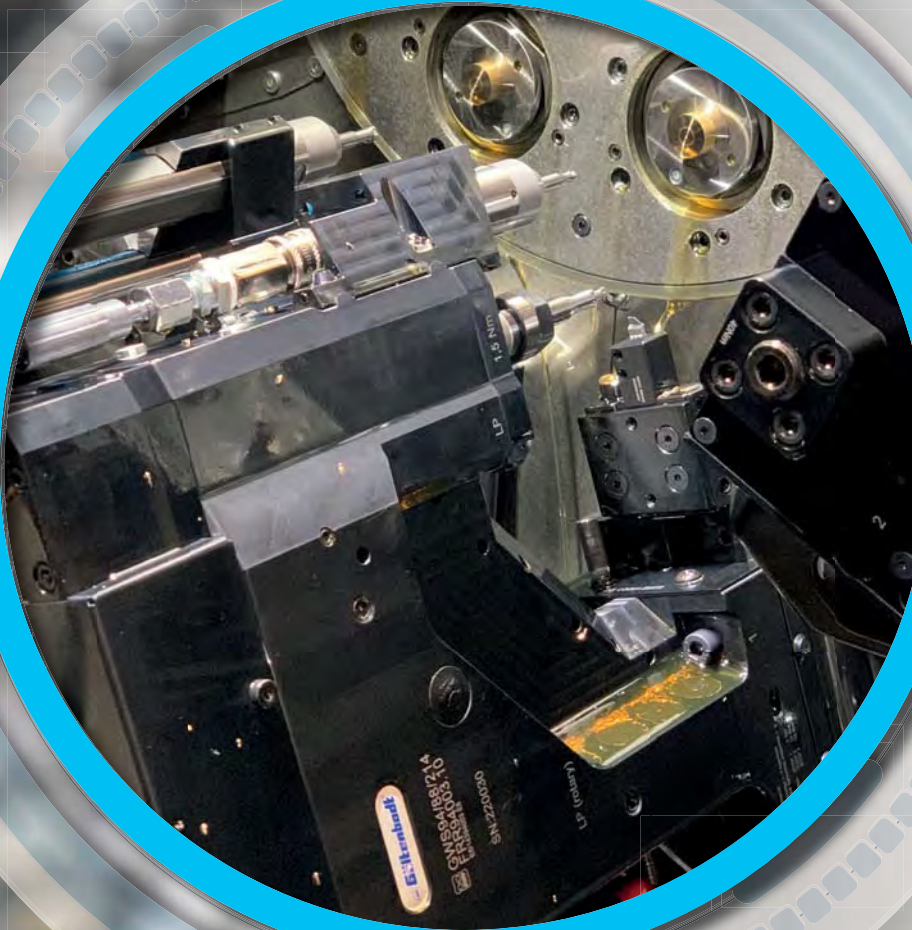


FOCUS ON PRODUCTIVITY



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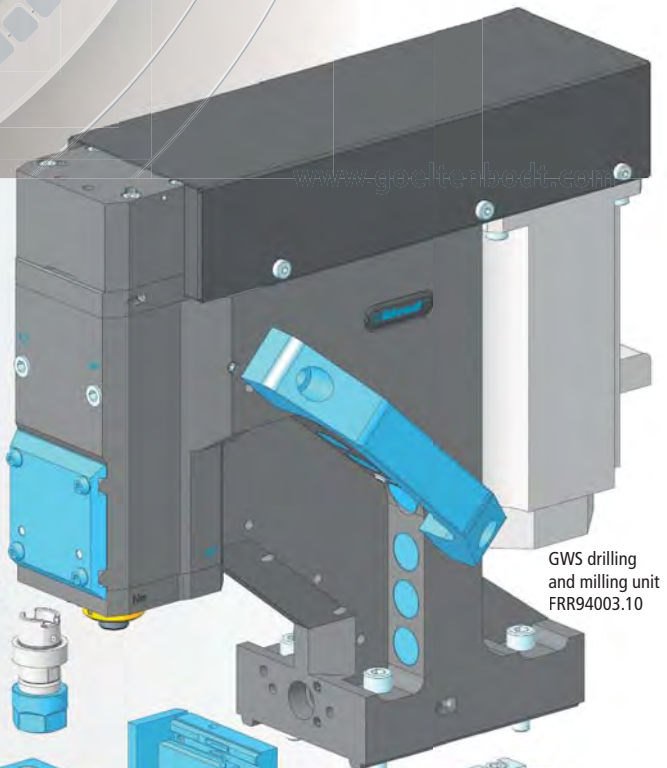
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(optional HSK-C32)
ER16 collet chuck



GWS drilling
and milling unit
FRR94003.10

Optional feature
GWS41 interface
for turning operations

GWS base holder
AD88001

MEETING WITH A MACHINING TECHNICIAN IN SPAIN

Tornos is committed to promoting
**women and future
 generations**

We would like to introduce you to Paloma López, Machining Technician at Remaches Albacete, Paloma gives us her perspective on working in the CNC machining sector.

TORNOS

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decomagazine: Hello Paloma, what led you to work in the CNC world?

Paloma López: Ever since I was a child, I have listened to my father talking about repairing cam lathes and preparing parts for customers, always trying to improve the way they are made, in the family business. This drew my attention to how the machines are handled. Thinking about how to improve the company, I saw that the next step was CNC lathes and when I became interested in the operation of these machines, I realised that this was what I liked the most.

dm: How long have you been working on this?

PL: From the age of 18, I spent my summers working in the company and now, at the age of 25, I have been working full-time for two years to take over the company in the future.



dm: What does your work consist of?

PL: My job consists of dealing with suppliers and customers, keeping the accounts, creating drawings, preparing and programming the parts ordered by our customers on the cam and CNC lathes, checking the quality of the parts and preparing them for shipment.

dm: You cover many facets...

PL: Yes, as is often the case in family businesses.

dm: What training have you had to complete to be able to do your job?

PL: I studied a vocational training course in machining and obtained a machining technician qualification. On this course, I learned how to design, create drawings, create programs for CNC machines, prepare the parts to perform hardness and resilience tests and more.

dm: What do you like most about your work?

PL: What I enjoy most is creating a part from scratch, both on the cam lathes and CNC machines, designing the drawings, programming the machines and assembling all the necessary tools.

dm: What do you expect from your job, and the company in the future?

PL: I hope to learn more every day and gain experience so that when I take over the company I can take it forward, growing it and reaching more customers.

dm: Why do you think there are not many women who have decided to go into this kind of work?

PL: In my opinion, the machining sector, like many other sectors, has always been aimed at men because it was thought that a woman could not carry a lot of weight, spend 8 to 10 hours on her feet, be in a very hard job and although there have always been

women who have wanted to work in these types of jobs, there were very few companies that gave them the opportunity. But fortunately, this mentality is changing, from the employers who want more and more women, to the women who are deciding to study these training courses to work in these sectors - and this can be seen in companies, as it is no longer unusual to see women operating machinery, lathes, CNC and milling machines.

dm: What should be done to bring more women into this sector?

PL: The idea should be instilled in schools and at home that being a woman does not mean you can only get one type of job. There are no jobs just for men or women, they are all for whoever is most qualified. Let young people see that, at home, it is not always the father who fixes a tap or drills a hole, the mother can do it too.

dm: Do you have a message for young women who are currently deciding their future?

PL: It may not be easy to start studying what you like the most, because there will always be the typical person who will tell you that because you are a woman you shouldn't study this or that, but you know what? Life is yours and never let anyone tell you what you can or cannot do. You are the only person who can set limits because you know yourself best. Keep in mind that if you are happy and you study or work at what you love, you will always have someone by your side to encourage you to keep doing it.

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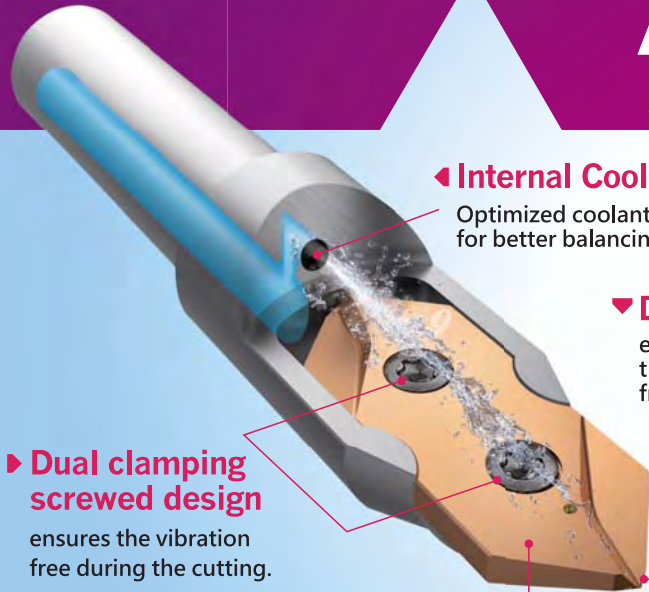
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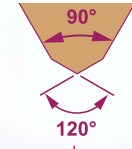


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Weiss Watch Company's Tornos SwissNano and Swiss DT 26 (shown here) are equipped with bar feeders, providing founder Cameron Weiss a greater degree of autonomy.

Time flies

Weiss Watch Company continues to take bold leaps

When Weiss Watch Company founder Cameron Weiss takes a leap, it's a bold one. Weiss will mark its 10th anniversary in June 2023. In the past three years, it has moved the business 2,000 miles across the country from its Los Angeles, California, birthplace to historic quarters in a former vinyl record label printing shop in Nashville, Tennessee. With expert support from Tornos, it has become an accomplished Swiss-type lathe business.


 The logo for Weiss Watch Company features the word "WEISS" in a bold, black, sans-serif font. The letter "I" is replaced by a stylized watch movement, showing gears and a central shaft.

Weiss Watch Company
 405 Humphreys St.
 Nashville, TN, 37203
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 Tel. +1 213-587-1506
weisswatchcompany.com

Along the way, Weiss has managed to do the impossible: He has made appreciable progress toward restoring prestige to American watchmaking; He introduced his first dive and automatic watches; significantly reduced the number of watches the company produces while more than doubling their prices in order to ensure highest quality while meeting high demand; trimmed his workforce from five employees to just two—himself and his wife, Whitney; and began machining in-house several watch components that he previously outsourced. The rightsizing was made possible by the company's investments in highly complex and automated manufacturing equipment; the pared-down output maintains the highest level of watchmaking craftsmanship—including in the hand finishing and assembly stages—that truly distinguishes its handmade products. Ten years into

“TISIS takes some stress off of me. It’s really nice being able to track the 2D tool movements and see how the change in programming affects that.”

this change-filled journey as a watchmaker and business owner, Weiss is as enthusiastic and willing as ever to take on a challenge.

Capitalizing on Tornos solutions

“Five years ago, I was afraid to touch a Swiss-type machine, but I’ve always wanted to work with them and make the parts—I just didn’t think I could do it,” Weiss explained. “Then, out of necessity with us wanting to move the business and realizing I’d have to find new workers—during the COVID-19 pandemic—I realized that being able to work alone would be very valuable. And Swiss-type turning technology today is at a level where I can do that because our volume and product mix are not huge. I saw that I could really capitalize on using really good equipment like the Tornos SwissNano and Swiss DT 26 to make our parts—and that it wouldn’t be such a huge undertaking if I could program the machines properly.”

That’s where Tornos’ application expertise made a world of difference.

“We don’t make high volume parts and we don’t make particularly expensive parts. But for me as a watchmaker, coming from the technical side and

being able to make the parts in our own workshop and learn all about it, that’s the exciting part,” Weiss explained. “Time will tell whether this all becomes financially rewarding, but it’s been good enough to support the machine purchases—including



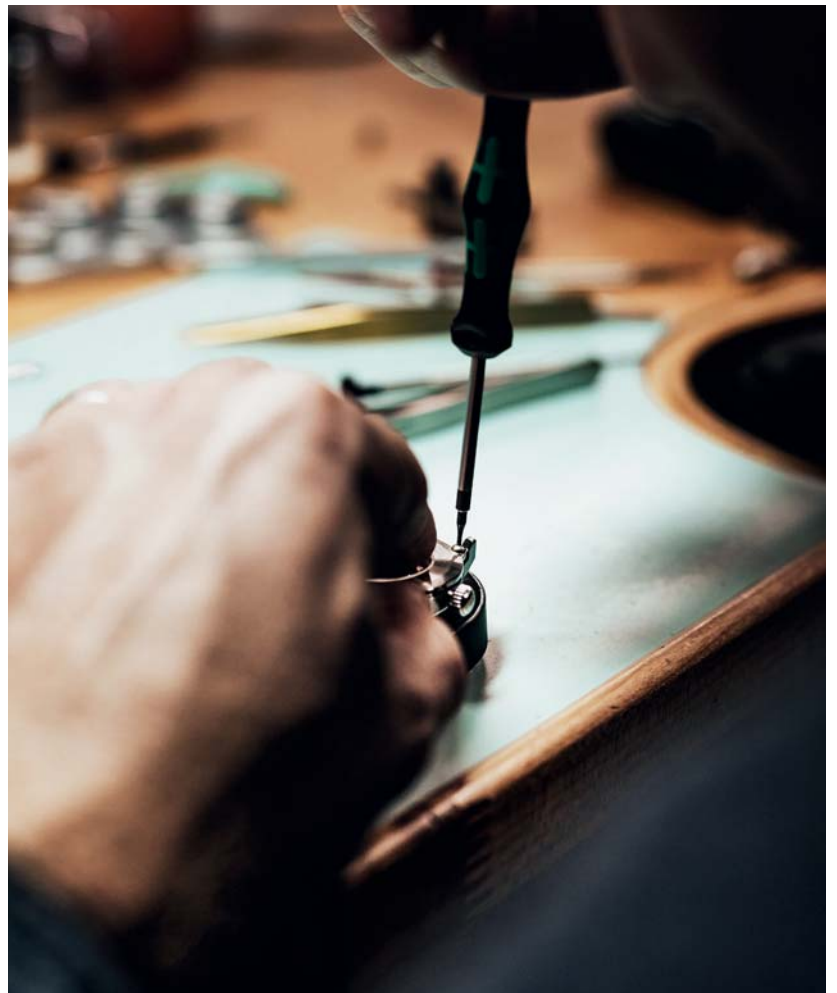
the Tornos SwissNano in 2018 and a Tornos Swiss DT 26 last summer—so far. It's just me running the machines now to make our parts so I'm focusing heavily on using the best technology possible—like the bar feeder on both of our Tornos Swiss-type

machines so that I can just program the machine, turn it on, and it can run unattended through the night. This allows me to just focus on making and assembling watches while the machines are working hard.”





Weiss Watch Company founder Cameron Weiss is bringing added prestige to American watchmaking.



To make all that happen—right-sizing his workforce, in-sourcing an ever-expanding array of watch components, and optimal use of his own time—Weiss turned to Tornos for the technology and in-depth training to make himself a Swiss-type lathe programmer and operator. While he uses his SwissNano to make, for example, sliding pinions—the component that interacts with the watch’s setting wheels of the watch to enable the crown to be turned to move the hands on the watch—he uses his new Swiss DT 26 to produce the watch crown, the small knob that sits on the side of the watch case and allows adjustment of the time displayed.



Priceless Tornos training

Weiss credits Tornos application engineer Piotr Wilk, who is stationed in Poland and a former member of Tornos’ legendary “Jump Team” that can be dispatched anywhere in the world to support customers on-site, with getting him up to speed on the SwissNano and the Swiss DT 26.

“Piotr is great, a really good teacher. He taught me the maintenance that needs to be done on the machines, where everything is located, what type of oil to use and where it goes, and what I needed to know about tool inserts for turning, the geometry, the different inserts that you need for different features—even just figuring out what companies to buy those tools from, because watch-making tools are very specific and very few companies make tools that are that small to cut super-specific watch features,” said Weiss, who considers that one-to-one tutoring a high-value investment. *“My Tornos training was priceless because it’s very difficult to find people to teach you—and if you can’t find the right people to teach you, even the best machines are absolutely worthless if you don’t know how to run them.”*

That training has allowed Weiss to enjoy an unprecedented level of autonomy, as has Tornos’ TISIS software, which makes part programming a snap.

“TISIS takes some stress off of me because I don’t know any alternative to TISIS. I have never programmed a Swiss-type machine at the controls, so I don’t even know what that would be like,” Weiss said. *“It’s really nice being able to track the 2D tool movements and see how the change in programming affects that.”*

What’s next for the company that is now solely a family business? Weiss said it’s important to him to maintain a connection with his community of customers, continue to fine-tune his knowledge of machining technologies, and introduce new models of watches “designed and built for everyday adventures.”

weisswatchcompany.com



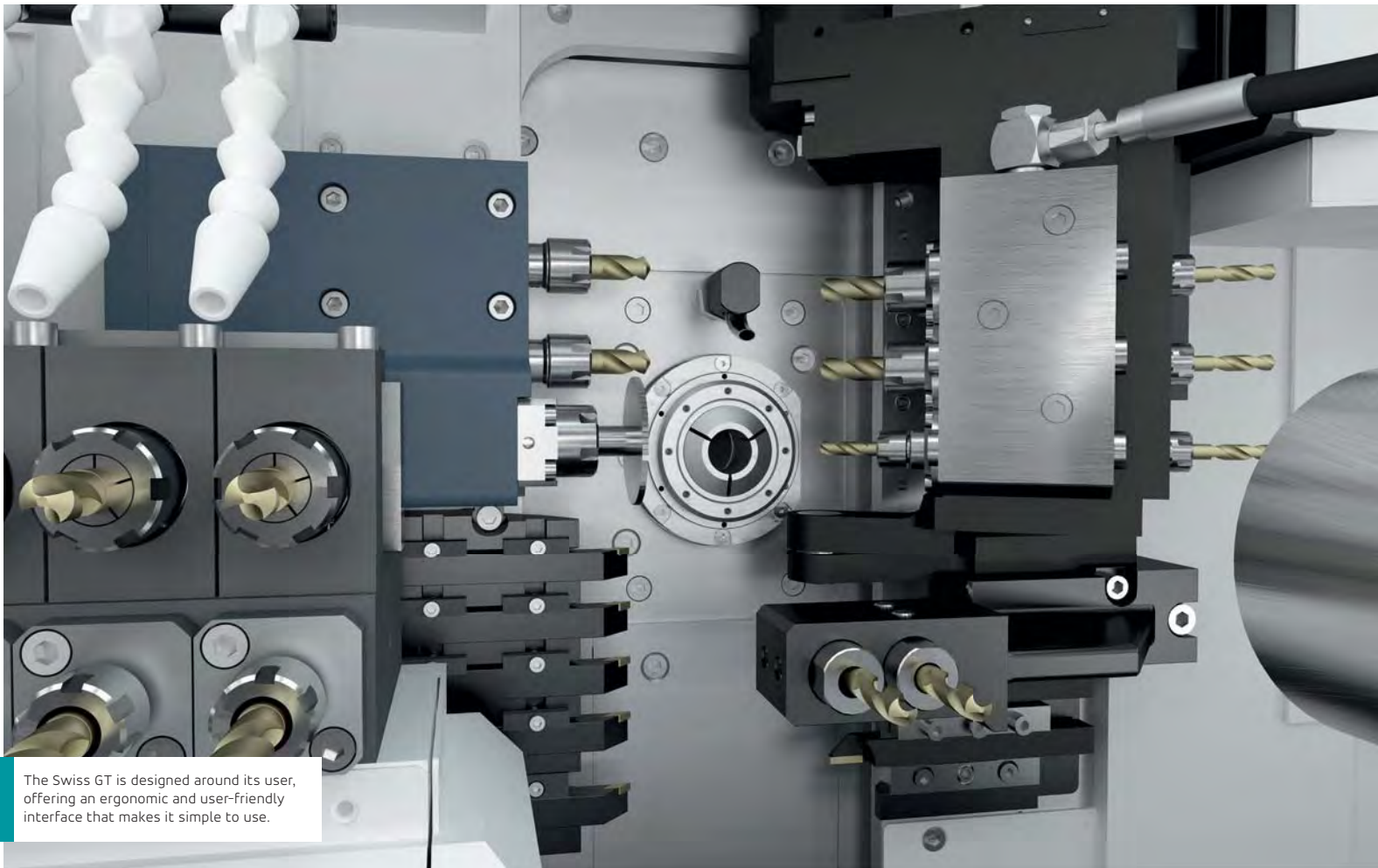
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The Swiss GT is designed around its user, offering an ergonomic and user-friendly interface that makes it simple to use.

A new version of the Tornos Swiss GT 13

for greater performance and ease of use

The Swiss GT series offers a range of advanced features and capabilities that set it apart from other machines in its class. The machines in the Swiss GT range are all equipped with six numerical axes and have three drives for the rotating tools.

Available in three diameters – 32 mm for the Swiss GT 32, 25.4 mm for the Swiss GT 26 and 13 mm for the Swiss GT 13 – the line is specifically designed to drive successful production of long and short-turned parts. The Swiss GT 13 from Tornos is a high-performance, versatile machine designed to meet the demands of the modern manufacturing industry, and now, we are presenting a new version of this bestseller.

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A range of high-performance machines

The Swiss GT is designed around its user, offering an ergonomic and user-friendly interface that makes it simple to use. The machine is also highly modular, which means it can be easily configured and customised to meet the specific requirements of each application. Simple and ergonomic, the Swiss GT range offers easy access to all tool positions. It is easy to use and maintain due to its automatic lubrication unit, a chip tray and a high-volume removable oil tray. The range offers the option of operating with or without a guide bush, which provides additional flexibility and versatility to the machine. The conversion is very simple via the interface developed by Tornos on the numerical control. The guide bush can be stored in the spindle area without disconnecting



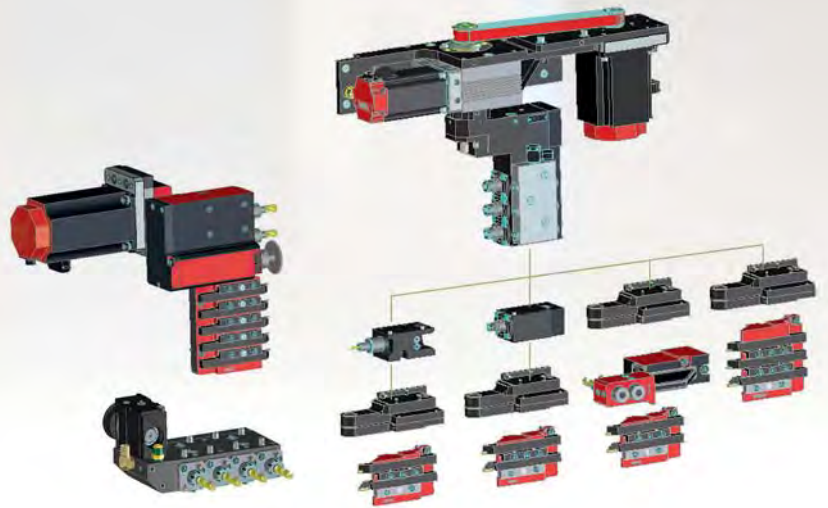
cables and the machine recognises that it is working without a guide bush and the spindle automatically feeds in this configuration.

An evolution for more performance: Optional B-axis

The new version of the Tornos Swiss GT 13 benefits from several important updates that enhance its performance and capabilities. With a maximum diameter of 13 mm, six linear axes and two C axes, the Swiss GT 13 can accommodate up to 30 tools, 12 of which rotate.

A B-axis is now available as an option on the Swiss GT 13, offering even greater versatility and flexibility to the machine. With the B-axis, manufacturers can now perform more complex multi-surface machining operations with ease. The Swiss GT 13 B can be fitted with up to 28 tools, 19 of which rotate.

The B-axis is supported by two attachment points to make the device more rigid and to allow it to handle higher chip removal rates. Equipped with three (ER 11) rotating dual spindles (operations/secondary operations) enabling a maximum rotation speed of 6000 rpm, this position proves highly effective for



Tornos Swiss GT 13



performing milling and drilling operations in any type of material. As an option, it is possible to install a fourth (ER 8) rotating spindle (operations/secondary operations) or a high-frequency spindle. Adding a B axis transforms the Swiss GT into a true bar milling centre, with the B-axis guaranteeing that any angle can be milled on the machine simply by programming the CNC. This makes it possible to compensate for any mechanical angle settings automatically – a task that is usually extremely time-consuming when carried out manually.

The Swiss GT 13 also offers the option of 5-axis simultaneous machining with its B-axis, which increases the flexibility and versatility of the machine. This allows complex workpieces to be machined from multiple angles in a single setup, reducing the need for multiple setups and the associated time and risk of error.

In addition to the B-axis, the new Tornos Swiss GT 13 features several important upgrades that improve its performance and capabilities. One of the most notable improvements is that the ballscrews in the Z1, X4 and Z4 axes are now larger, improving the machine's accuracy and stability, allowing it to tackle more demanding machining tasks.

Another significant improvement is the use of roller guide rails instead of ball guide rails on the X4/Z4 axis. The use of roller guides also improves the durability and longevity, as well as the wear resistance of these key components.

Managing your chips with the ACB Plus

It is possible to add the Active Chip Breaker Plus (ACB Plus) as an option to the Swiss GT range. ACB Plus uses low-frequency technology. This unique system

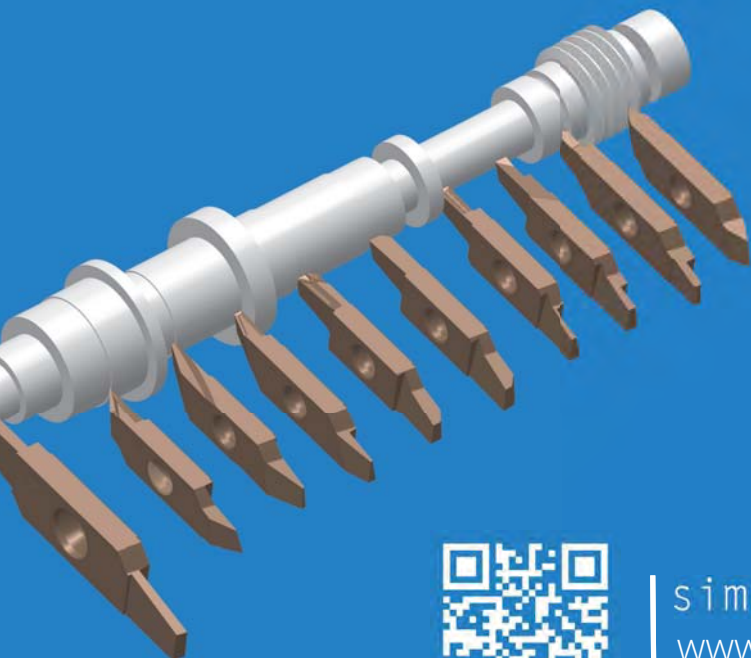
enables synchronised vibration of the longitudinal axes with the machine spindle. This action creates a brief interruption in the cut that allows the chips to be ejected in a controlled way; in other terms, it is possible to manage chip production. The new Swiss GT 13 has improved chip management, with a 40% larger chip tray, which reduces the frequency of cleaning. The machine also has improved cutting fluid flow management.

The new Tornos Swiss GT 13 is a high-performance machine well suited to the demands of modern manufacturing. With its larger ball screws, roller guides and other important improvements, the Swiss GT 13 offers increased performance, accuracy and reliability. Visit your nearest Tornos representative to find out more or visit our website tornos.com

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Tornos' sustainability initiatives include the development of greener products and the use of energy-saving technologies in its machines. For example, the ECO mode on machines will save a lot of energy by automatically switching off power-consuming components when the machine is in standby mode. The Green Motion function, available on high-end machines such as the SwissDECO and EvoDECO, optimises machine performance to reduce energy consumption.

ECO mode: Unlock your savings potential

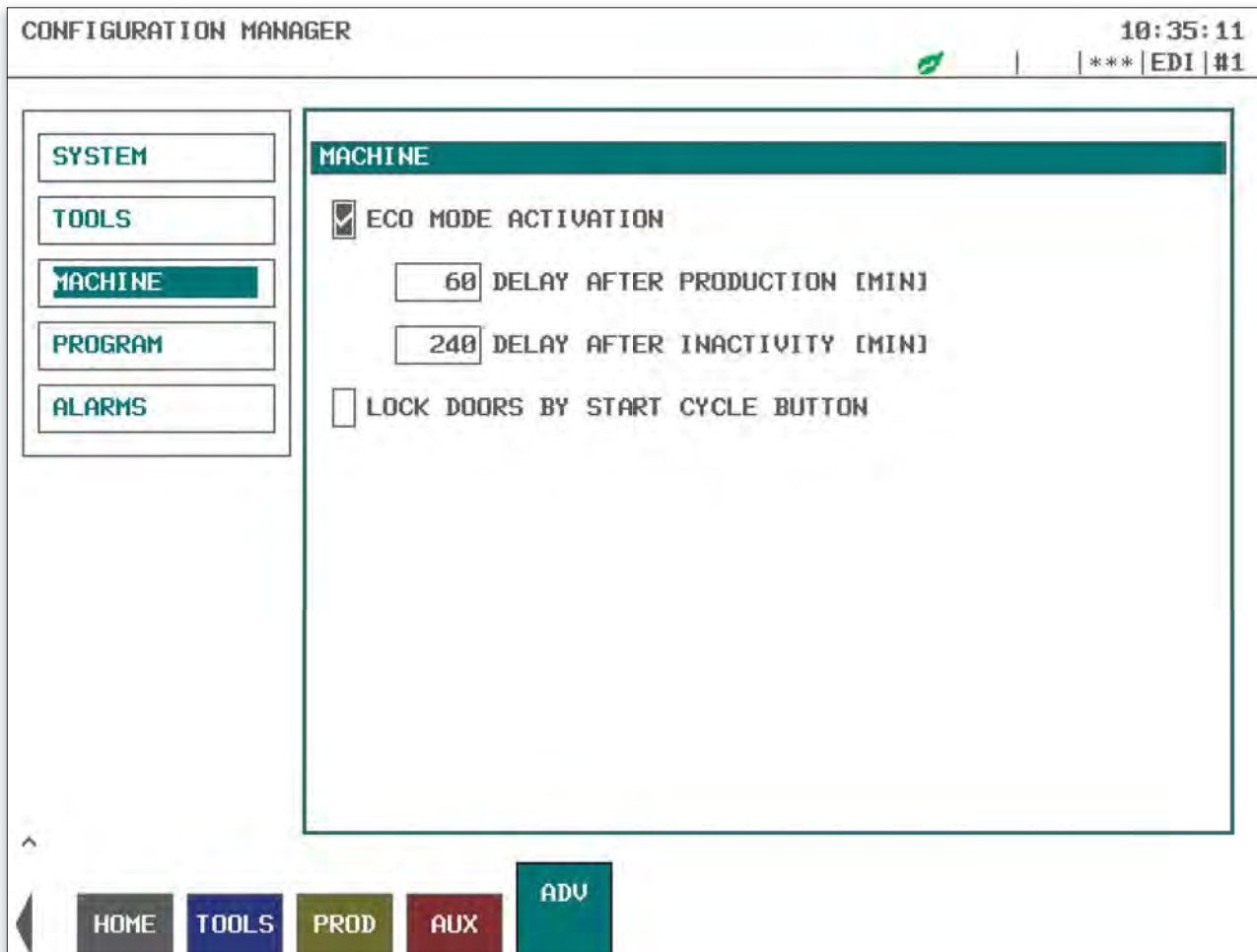
Tornos is committed to sustainability and energy savings. In line with the company's objective, all Tornos machines are equipped with an ECO mode that reduces energy consumption by up to 75%.

The ECO mode works by automatically switching off several power-consuming components such as pumps, mist collectors and even the door lock when the machine is in standby mode.

This simple but effective feature allows machine operators to save energy and money while reducing their carbon footprint.

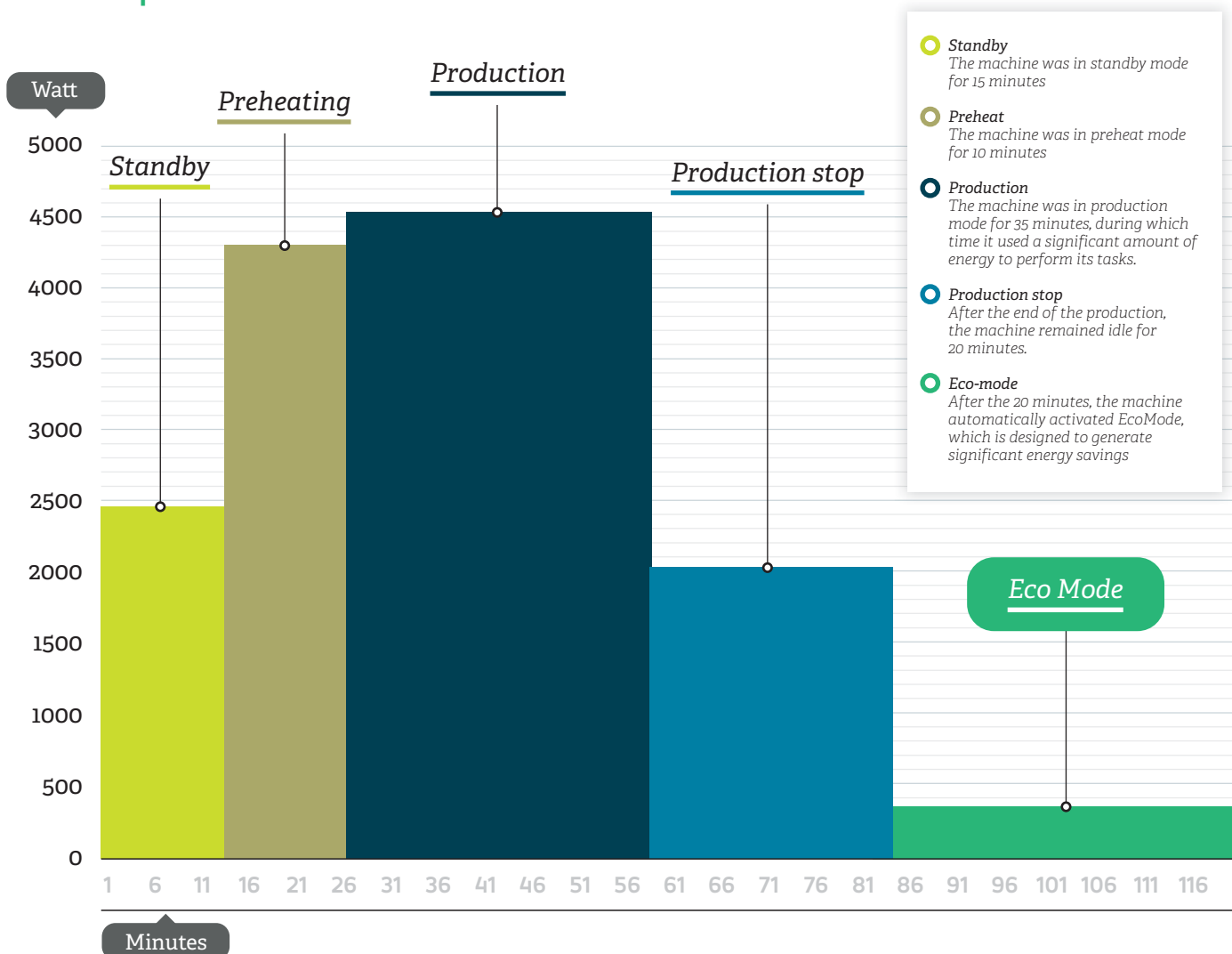
ECO mode can be used on almost all Tornos machines, including the SwissNano, SwissDECO, EvoDECO, DECO 10 Plus, DECO, Swiss DT, Swiss GT, MultiSwiss 6x32, MultiSwiss 6x16, MultiSwiss 8x26, CT 20 and BA 1008. Further information on ECO mode and its features can be found in the operating instructions supplied with each machine.

By activating ECO mode, machine operators can enjoy the benefits of energy savings without compromising the performance or quality of their machines.



ECO mode: Unlock your savings potential

Electrical consumption of a Tornos Swiss GT in production with Eco-Mode



Preheating option: Faster start-up for greater savings

Tornos offers a preheating option for its machine-tools that allows operators to start production more quickly and make the most of their time. By incorporating the preheating option, the machine can be operational more quickly.

The preheating option is available on a range of Tornos machines including the SwissNano, SwissDECO, EvoDECO, DECO 10 Plus, DECO, Swiss DT, Swiss GT, MultiSwiss 6x32, MultiSwiss 6x16, MultiSwiss 8x26, CT 20 and BA 1008.

The advantage of the preheating option is twofold: faster production times and greater energy savings. By warming up the machine before production starts, the operator can reduce non-productive time.

Whether you are a small shop or a large manufacturing plant, the preheating option is a valuable addition that can make a big difference to your results.



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Green motion: Increase efficiency and reduce energy consumption with Tornos

Tornos offers a state-of-the-art function called Green Motion, which is available on its high-end machines including the SwissDECO and EvoDECO. This innovative technology is designed to increase efficiency and reduce energy consumption by optimizing machine performance.

Green Motion is available via the TB-DECO software for EvoDECO and DECO machines or the TISIS Optimove software for SwissDECO machines. The software calculates the minimum feedrate for each tool-indexing operation, without changing the workpiece cycle time. This results in reduced energy consumption, which can lead to savings of up to 7%.

In addition to these direct energy savings, Green Motion also offers other benefits. Remote programming and simulation capabilities allow for substantial energy savings and increased accuracy while reducing mechanical wear. These features can help to streamline the production process, increase efficiency and improve the overall performance of the machine.

Want to know more about the energy-saving potential of your machines? Contact your nearest Tornos representative.

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