



deco magazine

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For micro-machining and other machining operations, ODU relies on tooling solutions from Horn and machine tools from Tornos.

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*“Anticipating trends
and embracing challenges
as they arise.”*

Michael Hauser CEO of Tornos

Boosting sustainability to ensure longevity

Michael Hauser CEO of Tornos

Whether as a result of measures implemented by the Confederation or because of a decision to adopt a greener approach, in the prevailing climate and faced with the current energy crisis, companies have little choice but to find solutions that will help them improve their sustainability. Sustainability has long been a priority for Tornos, and we have already implemented a range of initiatives based on the circular economy within the company.

This was seen last year when we introduced the DECO 10 Plus to mark the 25th anniversary of one of our flagship machines dating back to the late 1990s: the DECO 10. This initiative meant any customer could (and still can) return their DECO 10 to us for a technical makeover. The operation involves a complete interior overhaul to maximise the capabilities of this extraordinary machine and extend its lifetime, while taking advantage of new features.

However, for Tornos, sustainability is not all about the circular economy. It is an approach that creates long-term value for stakeholders through the implementation of a commercial strategy. Sustainability covers all of a company's operational considerations, including ethical, social, environmental, cultural and economic factors. Tornos understands this well and, in early 2022, the company embarked on an ambitious programme to further boost its sustainability. In this issue, we present you with an outline of our "Turning Sustainable" program.

Indeed, adapting and evolving is an integral part of any company's operations and, in the industry, in particular, we need to constantly demonstrate that

we can be agile – anticipating trends and embracing challenges as they arise. And, above all, by looking to the future and finding the best people to take our company forward. Inspired by the positive initiative of Titan Gilroy, who set up the Titans of CNC Academy in the USA, we have decided to share in his success to offer young people a future career in the field of machine tools and bar turning-related professions.

With several of our machines installed at the Academy, and a machine operator specialising in the field, we'll be working together with Titan to train future generations of skilled bar-turners that will be the jewel in the crown of our industry. In Issue #102, we will also be celebrating young people through SwissSkills, a brand-new Swiss championship that brings together the best young professionals across a wide range of disciplines. We have included an article where you can discover an entire universe linked to this unique experience, which will be hosted on the stand of the Employers' Federation of the Swiss watch industry. The stand will include a Tornos SwissNano with its watchmaking configuration and it will feature a watch in its many stages of processing.

The search for future talent is a major priority for Tornos, with the process conducted in such a way as to ensure that our employees, the heart of our business are happy, respected and listened to. They are the guardians of our expertise, and it is thanks to them and through them that we will be able to continue developing our machines and offering increasingly innovative and effective solutions.



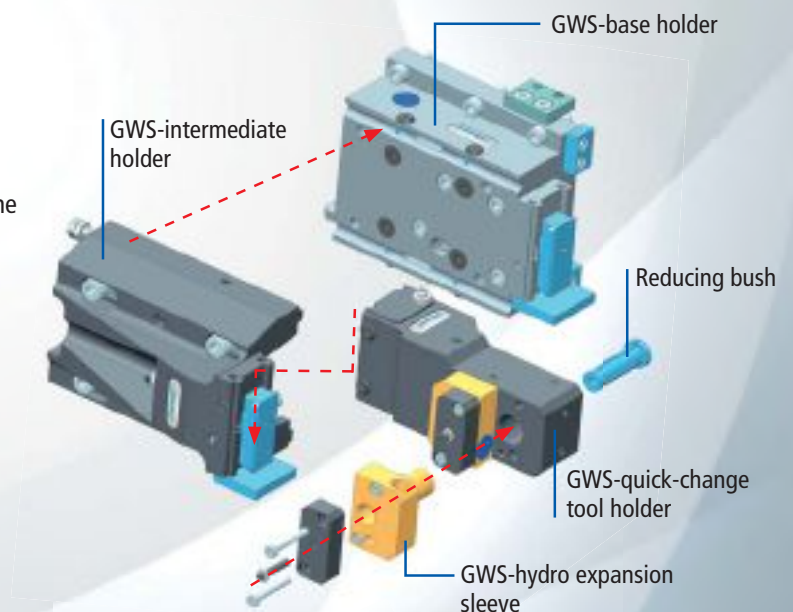
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In this edition, we include an overview of some of these solutions, from our brand new SwissNano 10 to the incredible options available on the SwissDECO machines that offer astonishing performance with minimal environmental impact.

As you can see, sustainability is not just a vague concept, but rather a strategy to be implemented and actively pursued. That is why we are working to create solutions that are greener, increasingly sustainable and that reduce our environmental impact.

While overhauling our old machines that have given customers years of reliable service is an integral part of our 'Turning Sustainable' programme, it is only one element of our sustainability strategy. The strategy has a broad base that covers diverse areas that encompass ethical, social, environmental, cultural and of course, economic considerations.

We look forward to working together with you to write the next chapter in the Tornos story – a greener and more sustainable story based on the respect and ethics that characterise our profession. A profession built on faith, for the future of our business. Until then, I would like to wish you a very happy festive season and a wonderful 2023. We hope it is full of precision and efficiency! Let's continue 'Turning Together'.





The kinematic structure of the SwissNano has been designed for exemplary balance and thermal management.

The SwissNano 7 and SwissNano 10:

Two highly modular machines

The SwissNano 7 and 10 machines can be adapted to any market. They are extremely versatile and efficient in the electronics, dental and even medical fields. These machines have undergone considerable development since their introduction to the market. Today, they have evolved into the complete turning centre with the ability not only to produce parts that are precise but also highly intricate.

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Stability, the key to success

The kinematic structure was designed for exemplary balance and thermal management. The axes and cast iron base are aligned symmetrically to the guide bush, and the thermal aspects are managed by 'mini-loops' that prevent heat propagation. The structure is anchored on three damped points. To hone the machine's thermal properties, the spindles are equipped with a built-in cooling circuit.

Rigidity and vibration stability have reached new peaks, which has resulted in precise and high-quality machining. The SwissNano range undeniably has the best kinematics on the market. Compact and efficient, the machine is incredibly straightforward to set up. The design of the machine allows the operator to work opposite the back spindle to facilitate setting and centring operations. The most unusual element of kinematics is undoubtedly the counter spindle which uses three numerical axes.

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A nano-turning centre

The machines can now be fitted with up to 25 tools, including 10 rotating tools. While secondary operations were previously limited to four positions on the SwissNano, double this number is now possible. As an option, the machine can be fitted with up to eight tools, including four positions that can be motorised. The secondary operation position is still modular and can be adapted to the requirements of the part at any time, for example by installing a gear hobbing device. It is possible to install up to three tools in fixed positions beneath the counter spindle. A new option will soon be available, making it possible to motorise these three positions to increase the machining options offered by the SwissNano 7 and SwissNano 10. This new configuration transforms the machine into a complete turning centre.

The machines' strength lies in their modularity. It can be adapted to numerous industry sectors. For example, in the medical and dental sectors, a thread whirler and a radial drill, or an angle tool post with two frontal tool holders, can be added. The SwissNano's flexibility is not restricted to the medical sector; the machine is also equipped to service the electronics industry. A polygon tool can be installed for both main and secondary operations to boost the machine's capabilities.

Want to find out more about the SwissNano?
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Performance has a future



*Tornos is strengthening its focus
on sustainability with its new*

Turning Sustainable programme

The Tornos Turning Sustainable programme has been introduced with the aim of supporting the efforts made by countries, in particular Switzerland, to ensure we attain sustainability, preserve resources and protect future generations.

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To implement a paradigm shift within the company, Tornos has turned to the 2030 Agenda and the 17 Sustainable Development Goals (SDGs) set out by the United Nations, which form the new global and universal framework for sustainable development.

For Tornos, this strategy consists of producing its products whilst limiting its environmental footprint and improving its contribution in terms of CSR (Corporate Social Responsibility), particularly on an environmental, social and economic level.

As part of this, the group has introduced certain initiatives, including the launch of the circular economy programme which relates to the update of the technology used in the DECO 10 machine, called the DECO 10 Plus programme.

SUSTAINABLE DEVELOPMENT GOALS



This proposal has generated a lot of interest from our customers, and a strong upturn in demand led Tornos to embark on a sustainability programme to stay ahead of the curve as the company continues its sustainability journey. This journey began with the appointment of Anne Hirtzlin as the company's Corporate Sustainability Manager. Driving the implementation of the programme and the actions undertaken and to be taken in the future, she here outlines the challenges and prospects that Swiss companies can expect, led by Tornos.

"Increasing efforts are being made to find sustainable solutions to preserve our resources and protect our future. The need for systemic change in how companies and industries operate has become necessary, and we are seeing innovative ideas come to the fore and be implemented," Anne Hirtzlin stated from the outset.

An undeniable change to the way in which consumers and our customers consume is already under way. Growing demand for sustainable products opens up the economy to new markets and an undeniable source of potential.

Taking the 17 SDGs (Sustainable Development Goals) as the foundation, Tornos has defined its Turning Sustainable programme and built its sustainability strategy around 7 points:

1. Reducing the total energy consumption in its infrastructures
2. Improving the energy mix by strengthening renewable energies
3. Optimising transport and relocating activities around strategic centres
4. Respecting human rights and equality of treatment without discrimination on the grounds of gender, race or religion.
5. Committing to promoting women within the Tornos Group
6. Making employees feel valued
7. Building long-term relationships with its commercial partners

Other initiatives have already been under way at Tornos for several years. These projects are now grouped together within the Turning Sustainable programme, and will allow us to respond in an agile way to the needs of our customers and the current energy challenges.



Visit the dedicated space
on our website

[tornos.com/en/content/
sustainability](https://tornos.com/en/content/sustainability)



Current initiatives include the installation of solar panels at the Moutier site, which will be used to generate 30% of its electricity needs, the installation of solar panels at our new site in Taiwan, which is currently being built, and improving the energy efficiency of our machines.

tornos.com





The history between Tornos and Acteon dates back several decades. Here, is one of the first parts from the origin of the collaboration.

ACTEON:

The specialist

*in high-power ultrasound for
conventional dentistry and surgery*

Acteon® is a large international group particularly active in the manufacture of ultrasonic dental and surgical equipment. These unique solutions have required years of development. The many turned parts, in particular inserts, accessories that are inseparable from machines, are all manufactured in Mérignac, using Tornos machines right from the start.



Acteon
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33700 Mérignac
France
acteongroup.com

A multinational company with unique expertise

The company's mission is to provide complete solutions for the daily operations of practitioners, providing the most effective, practical and comfortable care to millions of patients around the world. Acteon®'s history began in 1970 with the first generation of ultrasonic devices designed for dentists. Today, Acteon® provides complete solutions not only for dental surgeons, but also for cosmetic surgeons in rhinoplasty and veterinarians. Thanks to their precision, these ultrasonic devices, originally designed for dentistry, became popular for bone surgery operations. For example, in rhinoplasty operations, Acteon® technology makes it possible to literally sculpt bone with great precision. Patient recovery takes a few days only, in contrast to traditional surgery with manual instruments. The use of this type of system in bone surgery is revolutionary for this field and

“The Swiss DT 13 has become the ideal training partner for young technicians. This little machine is very efficient.”

Acteon® is the market leader. The first system for this application was unveiled in 2006 and, since then, the company has enjoyed exponential success with their product range, which fits the current trend for non-invasive surgery perfectly.

A comprehensive approach

The Group's philosophy is to provide practitioners with the possibility to control all the stages of a surgical procedure, from the diagnosis to treatment right up to follow-up within the same workflow. This approach has a vast scope and so requires significant investment. This is why the company has several research centres, proving once again that innovation is at the core of the company's objectives, and has been so for almost 50 years. The Group also actively develops relationships with many universities and

Acteon employs highly qualified specialists to meet the growing market demand.



international experts that share the same vision as Acteon®. These relationships allow the company to stick very closely to market reality.

Acteon® supports practitioners in all phases of treatment, as the company's expertise is not limited to surgical and conventional ultrasounds, but also includes digital imaging solutions, software, pharmaceuticals as well as precision manual instruments.

The same technology for two sectors

Ultrasonic tools and generators enable varied treatments in dentistry, from descaling to complex surgeries such as implantology. The ultra-precise equipment, and the inserts in particular, manufactured by Acteon® enable precise and minimally invasive procedures for the patient.

The inserts at the core of the Acteon® system

For every Acteon® ultrasonic device, there is a vast range of inserts available, which are either titanium or stainless steel depending on the specific and clinical requirements. These inserts are primarily machined with Tornos machines at the Mérignac workshop. Recently, the company has invested heavily

in Tornos production equipment and has acquired several EvoDECO 10 and EvoDECO 16 machines as well as a Tornos Swiss DT 13. Each of these machines are in constant use to meet market demands.

In the workshop, Acteon®, like many in the field, are faced with the thorny issue of a workforce shortage, but they have been focusing particularly on training. "The Swiss DT 13 has become the ideal training partner for young technicians. This little machine is very efficient" notes Jean-Michel Richer, executive engineer with Acteon®. "To begin with, the Swiss DT 13 was intended for the production of simple parts to free up the DECO and EvoDECO, but very quickly we were surprised by the capabilities of this little machine. We use it to make relatively complex parts also. It is simple to operate and allows the younger generations to learn the trade easily, and using these machines means we aren't taking any big risks."

"The vast majority of our machine inventory consists of the EvoDECO 16 and 10, as well as the DECO 10 and DECO 13. They are quick, precise, modular and make for reliable machining partners, which makes it possible to make any type of part, no matter how complex. Year after year, they continue to operate as they did when new. These machines are of the highest quality."



For each Acteon ultrasonic device, there is a wide range of inserts made of titanium or stainless steel.

Shared values

The history between Tornos and Acteon® goes back several decades. At the time, Jean-Michel Richer was looking for the right partner to produce his famous inserts. Very quickly, Tornos stood out from the competition because of the quality of their product and of the people that make up the company. "My contacts at Tornos are always qualified and able to resolve even the most complex machining problems", notes Jean-Michel Richer. "Whenever there is a problem, we can count on the Tornos France after-sales service, which is extremely responsive and competent. The machines themselves are also very reliable. We have a DECO 13a machine that has been operating since 2008 making titanium parts exclusively, which we are still very happy with."



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video report under

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Acteon® is very attentive to practitioner feedback. The company also regularly prototypes inserts to meet the needs of the market and respond to constant developments in the dental, medical and veterinary fields. For example, certain morphologies are specific to certain parts of the world and require specific insert shapes. Acteon® is also active in the veterinary field, so have also developed inserts with specific shapes and lengths for this field. For almost every need that may exist, they have the insert for it. This necessitates unparalleled flexibility, and to meet this, the EvoDECO range are the perfect machines!

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For micro-machining and other machining operations, ODU relies on tooling solutions from Horn and machine tools from Tornos.

The perfect connection

It was autumn 1955 and the wind was blowing the last brown leaves from the trees. Otto Dunkel was brushing up the leaves with his besom broom when he had a great idea. This was the moment when the wire spring contact was born. Today, ODU GmbH & Co.KG (Otto Dunkel) is among the world's leading companies for the development and production of connector systems. When it comes to manufacturing high-end connectors, the company relies on high-precision Swiss machines and tools from Paul Horn GmbH. For 20 years, the two companies have worked closely together to ensure that they can accomplish the demanding machining tasks needed for perfect connectors. This close partnership is set to continue too – especially when it comes to machining lead-free brass and other alloys.

Taking inspiration from the individual twigs in his broom, Otto Dunkel divided the contact surfaces into individual springs, so that there were many contact points. The result was a revolution - constant contact resistance and consistent pressure contact. This meant a weakness of communication transmitters, their unreliable plug-in contact, was finally overcome. Founded in 1942, the ODU Group of companies now has 2500 employees worldwide. The headquarters of the Bavarian company can be found approximately 80 km east of Munich in Mühldorf am Inn. ODU connector systems can be found in medical technology, measuring and testing, industrial electronics, military engineering and automotive industries, among others. For example, ODU developed the first high-current connectors for electric vehicles.

When machining components, Tobias Fuchshuber relies on a Tornos DECO 10 longitudinal turning machine.

Tools from Horn

"For special machining processes and specialist connectors, we often used to grind our tools. However, for quantities of several hundred thousand a year, we needed a reliable and productive tool system," explains ODU Tooling Manager, Tobias Fuchshuber. The collaboration with Horn has existed for around 20 years. Horn Sales Representative Michael Götze has been on the project since the very start: "Over this long period, we have been able to tackle many machining tasks for ODU. Our employees were also always on the lookout for new tooling technologies and so we were able to test new tools."

ODU relies on many Horn tool systems. "Our in-house machining tasks are diverse. With over 175 longitudinal turning machines, we can process micro-components with diameters of a few tenths up to parts with 30 mm diameters," adds Tobias Fuchshuber. Tools from Horn are used in all areas. From the S274 system with μ -finish option to the longitudinal turning of micro-components, and from broaching to internal turning and recess turning. At ODU, 80% of what we process is made from brass. The other 20% is split between aluminium, copper and stainless steel.

It's all about the surface

For contacts, a high surface finish is a key marker of a quality connector. When turning contact pins, ODU (and others) rely on the Horn S274 tool system with the μ -finish option. It requires a lot of expertise to grind a sharp and almost flawless tool edge. Sanding disks with the finest granulation, specialist grinding techniques and a 400x magnification microscope are needed to ensure that the tool can deliver the required performance when it comes into use. This is why every batch processed on the μ -finish system is subject to a 100% check. The important quality assurance criteria are a strict tolerance for finishes on the top face and flank, the centre height and especially the chipping of the cutting edge. Specifically, irregularities on the cutting edge exceeding 0.003 mm are outside of the tolerance for the μ -finish system.

The S274 μ -Finish system shows its strengths when micro-machining components.



Fuchshuber is on the hunt for a new machining solution to produce the coupling of a wire spring contact. "When you're drilling components, the problem lies in the specific form of the hole bottom," explains Tobias Fuchshuber. ODU manufacture seven different variants of the brass component with hole diameters of 1.43 mm to 3.6 mm. "Before the switch to the Horn tool, we pre-drilled the holes and then turned them with a tool that we ground in-house," he adds.

DS milling cutter with special shape

However, during series production, problems arose with disrupted swarf flow. And so we saw the potential to optimise the machining time. As we're producing several hundred thousand parts per year, this is an important factor. Horn provided a

For contacts, a high-quality surface finish is required to optimise the quality of the connection.



Stamping the position moulding was a challenge in the tool design.





The special tool allows the stamping of the position moulding.

solution in the form of the DS milling system with internal through-spindle cooling. The milling cutters are ground with a special shape. Using a single full milling pass, the drill hole is machined using the special shape on the hole bottom. All of the seven milling variants are grinding-sharp and uncoated. By switching to the milling tools, one work process could

be omitted, and process safety could be improved thanks to the controlled swarf flow. Furthermore, the processing time was significantly reduced. "It only took about 12 weeks to switch over the seven variants. The reaction time, as well as the short delivery times from Horn, noticeably shortened the changes to our machining processes," said Tobias Fuchshuber. When machining components, Fuchshuber relies on a Tornos DECO 10 longitudinal turning machine.

For machining a casing bushing, other speciality tools from Horn are used. Tobias Fuchshuber uses the Supermini 105 system for two axial recesses. The recesses have a diameter of 11 mm and 7.7 mm, but what is different here is that a thin-walled bridge of 0.2 mm must be left between the two. The permissible tolerances here are very tight. An optimised speciality brass tool is also used here. The tool is grinding-sharp, uncoated and has a polished top face. In the interior of the turned part, a Supermini tool inserts a 20 mm long locking groove. The groove ensures that the connector can only be inserted into

The N105 stamping system can be adapted to many types of operation.





Peter Ortmaier, Tobias Fuchshuber and Michael Götze have worked closely together for 20 years.

the bushing in one position. The 1 mm deep groove is inserted in four strokes. At the end of the groove, an inner recess functions as an outlet for the broaching tool. At ODU, this component is also manufactured on Tornos machinery; production is handled by the DECO 13 and DECO 20 machines.

Broaching a positioning ribbing

"To shape the connector housing, we had a specific task. We didn't just need to insert a straight groove here, but instead a circular one. However, with a diameter of 13 mm, we needed a positioning ribbing with a width of two millimetres," explains Götze. "Previously, we had been stamping the ribbing on the outside. There were economies to be found in this work process," noted Tobias Fuchshuber. The solution required a broaching tool with an oval form. On one side, the shape of the ribbing is recessed. During machining, first of all, the interior is turned so that a ring forms. Then the tool goes into the part and begins the broaching process. It starts the broaching at one position and as soon as the diameter is reached, the spindle turns the part for the new broaching position. This process is repeated four

more times until the interior diameter is circular and the positioning ribbing is in the correct place. The entire machining time for the broaching process is approximately 20 seconds.

In the future, the successful collaboration between ODU and Horn will continue to grow even closer. Machining lead-free brass will be a particular focus. Brass is considerably harder to machine when the lead alloy component is removed. This presents users and tool manufacturers with new challenges. "Lead-free brass will pose new challenges for the efficient machining of our components very soon. However, with tooling partners such as Horn on our side, we feel well prepared to face these," says Tobias Fuchshuber.



At the SwissSkills 2022, the best young professionals from all over Switzerland faced great challenges.

SWISSSKILLS 2022

The SwissNano demonstrates its skills at this incredible competition for young professionals from across Switzerland

An intense and unforgettable experience

Considered the Swiss championship of vocational excellence, SwissSkills is an inspiring immersion into the vast diversity of professions in the world of Swiss apprenticeships. Over five days, the best young professionals from across the country demonstrated their expertise during this major event, which took place in Berne from 7th to 11th September 2022. Visitors were able to watch them up close and even try out a range of skills themselves.

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"Intense and unforgettable" is how Ludovic Voillat, Secretary General of the Swiss watch industry employers' association, described SwissSkills 2022. The experience was nothing short of mind-blowing for twelve young professionals. Amongst them were the best young Swiss designers in micro-technical construction and micro-engineers, who met up in Berne at the start of September for the SwissSkills championship. Four intense days of competition with two national titles up for grabs. These professional championships, coupled with watchmaking demonstrations, could be seen at the heart of the event.

For professionals from the watchmaking and micro-technical engineering sectors, there was great anticipation for the centralised Swiss championships, SwissSkills 2022 that took place from 7th to 11th September - and they were not disappointed!

After the 2020 event was cancelled because of the pandemic, the first-ever inclusion in the competition of two micro-technical engineering professions and the watchmaking demonstrations, centred on the stand for the watchmaking professions and organised by the Employers' Federation of the Swiss watch industry. This was a huge success, offering unrivalled visibility.

"We had taken part in SwissSkills in the past, but never with a stand of this size. Of course, it was a natural step for us to work with a company like Tornos so that we could demonstrate one of their machines on our stand," explains Ludovic Voillat. And the SwissNano in its watchmaking configuration, with these watches and mechanisms displayed on its different facets, truly looked the part. "As it was an ultra-modern stand, we were delighted to be able to have a brand-new machine to demonstrate. It was able to illustrate how greatly the working environment has changed and how machining is no longer the messy job it used to be," he added, with a smile.

The stand, at the heart of BernExpo, was undoubtedly a positive sign for the industry, which is seeking to train a large number of apprentices in no fewer than eight disciplines.

A record edition

This third edition allowed visitors to immerse themselves in the vast diversity of Swiss apprenticeship disciplines, in an area of over 100,000 m², the equivalent of 14 football pitches!

The best young professionals from across the country demonstrated their expertise during this major event that spanned five days. The 120,000 visitors were therefore able to observe almost 150 disciplines, 85 of





which were being judged in competitions leading to a national title. These included a team competition which brought together designers in micro-technical construction and micro-engineering. This team format involving two disciplines was new to SwissSkills and it illustrates how vital collaboration between professionals from these two sectors is.

A first for micro-technical engineering

After the qualifying rounds, held in March in Delémont, only twelve candidates remained with a shot at winning the first national titles in micro-technical engineering: six designers in micro technical construction and six in micro-engineering. Over four days, these young professionals from across the Jura watchmaking region were able to push their limits and complete a demanding task. At the end of the last day of the competition, there was a mix of excitement and exhaustion before the final results were announced. "If you asked me to do this again, right now, the answer would be no", confided one of the competitors.

They continued: "But in a few days, I would probably change my mind. It has been an intense but unforgettable experience". A few hours later, the results were in. During the XXL closing ceremony at the PostFinance Arena, the three top competitors from each discipline were rewarded with a medal around their neck, something they are more used to designing or machining! Floating on a cloud after celebrating in the arms of their parents, one of them summed up the feeling: "It's incredible! Last week I was an apprentice in my company, and now I'm in front of thousands of people having my photo taken with Federal Councillor Guy Parmelin".

That is the magic of SwissSkills in a nutshell. There is no doubt that these moments will remain etched in their memories, and that the experience they have gained will be hugely beneficial to the rest of their career. A fantastic experience, which Tornos is privileged to have been involved in by demonstrating one of the jewels in its product range, the SwissNano, a stunningly efficient precision instrument.

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



VCN has been relying on Tornos for many years, mainly because of the quality of the after-sales service.

VCN INDUSTRIES:

A winning team for exacting customers

VCN chose the village of Sigoulès, in the heart of Périgord to establish their bar turning business. This area is very far from the Arve valley, the nerve centre of the French bar turning industry. This choice might at first seem surprising, however, it was a deliberate move to stand out from the fierce competition in this field. The company provides a local service to local industries, which remain a major users of workpieces. This highly dynamic company has used Tornos machines for many years to expand their business in this region. Interview with Jean-Michel Vacher, director of VCN Industries



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A bold development strategy

The primary objective for VCN was to be a local supplier to the aerospace industry, which has a large presence in the region. To stand out from the competition and provide superior responsiveness, it was decided to set up shop in the Périgord region, an area that featured no other bar turning industries. Not everything went as expected as, right from the beginning, the medical field which was supposed to be the secondary focus of VCN rapidly became the primary focus. Today over 75% of turnover comes from the medical field.

“I needed a responsive, productive and flexible machine and the DECO 13a proved to be the ideal partner.”

VCN began operations in 2003 with a machine from one of Tornos' competitors. While VCN was satisfied with the machine itself, the responsiveness of the after-sales service left a lot to be desired. This was a concern as the company was completely reliant on the machine's availability. After several meetings with Jean-Michel Donnio, Sales Manager for Tornos France, Jean-Michel Vacher was convinced of the reliability of Tornos' after-sales service and acquired

EvoDECO machines are at the heart of VCN's production.

VCN's headquarters are located in Sigoulès in the heart of the Périgord region.



the company's first Tornos machine, a DECO 13a, the Swiss manufacturer's flagship model. "As a subcontractor, I couldn't afford to turn down a job just because we didn't have the tools or axes. I needed a responsive, productive and flexible machine and the DECO 13a proved to be the ideal partner," notes Jean-Michel Vacher. The machine was perfectly suited to VCN's production needs and the after-sales service turned out to be excellent.

Unsurpassed expertise in the medical field

VCN specialises in highly complex medical parts and covers a vast range of products from implants and dental instruments to orthopaedic parts for spinal surgery.

VCN has continued to trust Tornos for these production requirements and today it has 21 of their machines, including two DECO 13a and fifteen EvoDECO 16 machines. Each of these machines is fitted with a Tornos FluidManager. This device includes an additional tray, paper filtration, high-pressure pumps as well as an oil cooler. This ensures high quality and excellent machining stability. The company also has two Swiss GT 32 and two Swiss GT 13 machines. These are used to make simple, less elaborate parts, freeing up the DECO and EvoDECO machines for the production of more complex parts.

VCN's key to success has also come from simplifying processes. The entire inventory is now programmed

VCN's employees are trained in-house. According to its manager, human capital is the key to the company's success.





The dental industry is one of VCN's specialities.



VCN also manufactures parts
for the luxury industry



with TISIS and TISIS Optimove, including the EvoDECO machines. VCN struggled with the limitations of TB-DECO given the complex nature of the parts the company produces. Today, this is no longer an issue as with TISIS Optimove, these limitations have been eradicated.

It should be noted that VCN does not shrink back from carrying out a study, even if we think the part would be impossible to make. As Jean-Michel Vacher points out: "If we think we can't manufacture the part, we will try to find an alternative with our customer. We will consider all types of series, as we must remain flexible."



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High precision and tradition.

The human element at the core of VCN's DNA

As specialists in parts with high added value, VCN needs to have highly qualified staff to rely on. As Nathalie and Jean-Michel are quick to point out, VCN wouldn't be where it is today were it not for the men and women that make up the company. VCN's success lies primarily in the strong cohesion and expertise of its team. Having set up in an area with very few qualified employees available, training has been essential for VCN. This is carried out internally, with close to four years needed for each employee to fully integrate into VCN's DNA according to the Director. "We produce complex parts, either by nature of their shape or the materials - or because they require tight tolerances. So, we need a team that is up to the task of developing these parts." This is why we do everything we can to retain our staff, regardless of the economic situation. The factory itself has been designed not only to ensure efficient production but also to protect the well-being of employees.

Tornos France and VCN: A dynamic partnership

If VCN trusts Tornos, it is obviously because of the performance of Tornos products, but it is the Tornos France team that makes the difference also. "It's important for VCN to know we can count on professionals that understand our problems and can resolve them quickly. Thanks to this unique expertise, Tornos and VCN make an excellent team," concludes Jean-Michel Vacher.

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Titans of CNC's visit to the Tornos booth at IMTS in Chicago created a sensation

A win-win partnership between Tornos and Titans of CNC

Tornos has just signed a long-term partnership agreement with prominent industry figure Titan Gilroy, who has set up a concept like no other: the Titans of CNC Academy, which provides beginners and experts alike with the machine training to succeed in the technical professions. This initiative is a response to the global shortage of qualified workers and offers Tornos an opportunity to demonstrate once again how precise, reliable, and efficient its machines are in every respect.

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After losing nearly everything, Titan has a new mission in life—teaching the importance of manufacturing. From boxing in the ring to building his own successful machining company, Titan knows how to fight. His machine shop in Northern California went from “basically nothing” in 2005 to 55 employees and 20 computer numerical control (CNC) machine tools just a few years later. He went from zero dollars in his pocket to making millions and it’s no wonder why: Titan made precision titanium components for sub-sea customers like Schilling Robotics. For a while, it looked as though Titan was unstoppable. And then the recession hit.

“We lost around 80 percent of our work basically overnight,” said Titan. “I had to lay off 40 employees. I lost my house and cars. And I kept thinking that,

“Our students learn how to 3D model and program a part on the first day and are actually standing in front of a CNC machine on day two.”

at the end of the day, none of it really mattered if it could all be gone so quickly.”

That experience also made Titan think about the 50,000 companies that had gone out of business during the recession, and how the shops that remained—many of which were once his competitors—were using only a fraction of their capabilities, but were blind to that fact because they weren’t talking to other manufacturing people.

“They were locked up in their buildings, everyone in their own little bubble, literally fighting over scraps,” he said. “From that point on, I decided to dedicate my entire life to education.”

Jens Thing, Chief Sales Officer (CSO) of Tornos, Michael Hauser, CEO of Tornos and Titan Gilroy, CEO of Titans of CNC at IMTS 2022 in Chicago.



No sooner said than done, Titan started his TV show, *Titans of CNC* (formerly *TITAN American Built*), so that he could share what he had learned and raise public awareness of manufacturing. After the show's third season, however, he began to realize that he must do more if he were to accomplish his broader mission: teaching everyone the skills needed for good-paying jobs in machining.

"As the show grew in popularity, I had the opportunity to meet more and more people and visit a lot of vocational schools," he said. "That's when a big alarm bell sounded for me. I saw that all these students were spending time and money on a one- or two-year program, but they weren't making more than a few different parts, and the ones they do make are useless—aluminium smartphone cases and stuff like that. The schools just don't have the financial resources for everyone to get the kind of hands-on training needed to succeed."

According to Titan, the curriculum itself is also flawed. Those responsible for its development are often trying to teach kids the same skills that they themselves learned decades earlier. And while machine tools today are much more complex than they were back then, the machining process is in some ways far easier to master.

"Everyone's making it more complicated than it actually is," he said.

For example, modern computer-aided manufacturing (CAM) software eliminates virtually all the tedious mathematics that was once required for machine tool programming, Titan explained. Nor is there a need to spend months learning how to operate an engine lathe or knee mill when so many of the available jobs are for CNC equipment. Titan took the old school way of teaching and flipped it on its head.

"I spent two years of my life and my life savings to build my own **free** video-based online school, with my own curriculum," he said. "Our students learn how to 3D model and program a part on the first day and are actually standing in front of a CNC machine on day two. They learn through repetition, machining hundreds of real-world parts from titanium and other challenging materials. It gives them a sense of confidence. When they complete our program, they have tangible skills to offer an employer."



Simply put, the *Titans of CNC Academy* is the equivalent of learning how to drive a car, but instead of hours spent in a simulator and reading textbooks, students are immediately placed behind the wheel.

Titan said more than 155,000 students have enrolled from 170 countries and more than 2,500 facilities. He also took his program to San Quentin prison to help inmates develop the skills necessary to re-enter society. It would seem that this former resident of Halawa Correctional Facility was facing the financial good times once again, except for one thing: the *Titans of CNC Academy* is free.

"You know, we have the greatest country in the world, but nobody talks about manufacturing," said Titan. "Because of that, our young people are reluctant to enter the trades. This is the problem that nobody's been able to fix. My goal is to bring as many of them as possible into this amazing career that has given me so much. That's what's most important to me now."

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Intrigued by the innovative concept and exceptional Titans of CNC Academy that Titan has established to train young people and give them a taste for bar turning, Tornos is delighted to supply several machines from its portfolio to enable them to develop their skills.

In addition, a specialized, expert machinist has been specially hired to teach academy participants how to harness the full potential of Tornos machines. All the elements are therefore in place for Tornos machines to become a reference within the Titans of CNC Academy. Several machines arrived today in Texas, including the Swiss GT and the Swiss DT, two precision jewels that have already proven themselves time and time again.

With this win-win partnership, Tornos is sure to continue "Turning Together" with more and more convinced users. From apprentices to experienced bar turners, everyone will clearly see what they can achieve using Tornos machines.

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ROTATING TOOLS:

New HSM Jet Spindle *option*

Despite the wealth of machining options offered by modern machines, some requirements for parts may still not be met. Here, we present a versatile new system that uses coolant to achieve higher cutting speeds.

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The fact that cooling lubricant has additional uses besides its traditional one is not new. However, this innovative new option is designed to facilitate high-speed machining (HSM). The new HSM Jet Spindle unit is powered by a turbine and it works extremely precisely and efficiently while using the coolant as a free and readily available energy source.

Installing the spindle in a machine enables conventional machining operations as well as micro-machining and high-speed machining up to 55,000 rpm. The speed depends directly on the pressure and flow rate of the coolant pump.

The applications are many and varied; one example would be medical or aerospace engineering where very high cutting speeds are required for engraving (traceability), chamfering and small grooves, profiling and other finishing operations. These spindles are perfect for all high-quality machining applications using small cutting tools.

At a pressure of 15 or 20 bar, a speed of 20,000 to 30,000rpm can be achieved, depending on the model. At 40 or 70 bar, the maximum speed can even reach 45,000 to 55,000rpm. The minimum requirement for using an HSM spindle is a coolant pressure of at least 15 bar and a flow rate of over 10 l/min. All HSM jet spindle models can be connected to a wireless display unit, enabling the spindle rotation speed to be monitored in real time during machining.

One of the main advantages of machining at this high speed is that the cutting tools can be used at their optimum conditions and higher feed rates. This reduces machining times and cycle times. In addition, the tool drive of the CNC machine does not need to operate in the highest speed range and is therefore optimally maintained. This results in less wear and



tear thereby extending the lifetime of the machine spindle. Another important aspect is that less heat is generated when operating tools at high speeds.

There are two versions of the HSM Jet Spindle:

- 1) From 35,000 to 55,000 rpm,
- 2) From 20,000 to 45,000 rpm
for higher torque applications.

The Jet Spindle is very straightforward to install and commission. Users simply move the coolant to the desired position. The unit is compact and can be easily installed in virtually any machine tool.

Contact your nearest Tornos representative for further information.

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