

deco magazine

108 02-2024 ENGLISH



*Ace in the hole:
Swiss GT 32 puts
Ace Machining at
a distinct advantage*

12

*A sustainable
commitment to the
circular economy*

22

*A tradition of excel-
lence and innovation
in precision screw
machining*

28

*The immersive
experience of the
Starrag Showroom
in Vuadens*

42



starrag

bumotec

The **Bumotec 191^{neo}** machining centre combines high efficiency & autonomy for advanced performance.

191^{neo}

**PERFORMANCE
HAS A FUTURE**

SHOWROOMVUD.STARRAG.COM



Or on our **BUMOTEC** YouTube channel
with numerous movies of applications





On March 20, 2024, Tornos took a major strategic step in its expansion into Asia with the inauguration of its new machine works in Houli, Taichung.

IMPRESSUM

Circulation

17'000 copies

Available in

French / German / English / Italian / Spanish / Polish / Portuguese for Brazil / Chinese

Publisher

TORNOS SA
Rue Industrielle 111
CH-2740 Moutier
www.tornos.com
Phone +41 (0)32 494 44 44

Technical Writer and
Publishing Advisor

Brice Renggli
renggli.b@tornos.com

Editing Manager

Joëlle Chatelain
chatelain.j@tornos.com

Graphic & Desktop Publishing

Claude Mayerat
CH-2830 Courrendlin
Phone +41 (0)79 689 28 45

Printer

AVD GOLDACH AG
CH-9403 Goldach
Phone +41 (0)71 844 94 44

Contact

decomag@tornos.com
www.decomag.ch

© 2023 Tornos Group.
All rights reserved. No part of
this publication may be reproduced
without the prior written
permission of the publisher.

SUMMARY

- 4 Editorial—Turning Together: Tornos inaugurates new plant in Houli, Taiwan region
- 8 Revolutionize machining with the Swiss XT range from Tornos: compact, versatile, and high performance
- 12 Ace in the hole: Swiss GT 32 puts Ace Machining at a distinct advantage
- 18 New record in lead-free machining
- 22 Reconditioning Tornos machines: a sustainable commitment to the circular economy
- 28 DE REU Décolletage: a tradition of excellence and innovation in precision screw machining
- 33 Meet the future of automation with the Custom Development Department at Tornos
- 36 Harnessing precision in electromobility: Tornos' MultiSwiss 8x26
- 42 Beyond the virtual: the immersive experience of the Starrag showroom in Vuadens
- 46 Tornos inaugurates its new plant in Houli, establishing a sustainable future of innovation



"We are proud of this increased capacity to build, sell, and showcase Tornos' products, and even better serve our customers around the world."

Michael Ho General Manager Tornos Taiwan

Turning Together: Tornos inaugurates new plant in Houli, Taiwan region

Michael Ho General Manager Tornos Taiwan

Tornos opened a new chapter in its long history on March 20, 2024, with the official Grand Opening of a new, state-of-the-art plant in the Central Taiwan Science Park in Houli district, Taichung, Taiwan region. I speak for the entire team at Tornos (Taichung) Machine Works Ltd. (TTW) when I say that we are proud of this increased capacity to build, sell, and showcase Tornos' products, and even better serve our customers around the world.

The Taiwan region's advanced manufacturing technology and skilled workforce are appealing to Tornos, which has been present in this region since 2014. With strong capabilities in precision machining and manufacturing, the Taiwan region offers access to highly qualified employees and reliable partners. Additionally, this region is a transportation hub in the Asia-Pacific region, with superior international geographic advantages. Located in the middle of the region, Houli district is close to the port of Taichung, highways, and the high-speed rail station, with convenient transportation. Our new facility here is an investment in our employees, the Houli district, the Taiwan region and—importantly—the future of our customers around the world.

It is worth mentioning that this two-year construction project was very carefully planned and executed and, even in the face of the Covid-19 pandemic, Russia-Ukraine war and related supply chain challenges, we were able to open our new plant on time, thanks to our excellent partners. This achievement is even further proof of Tornos' commitment to excellence in all aspects of its business.

In addition to having five times more production capacity—and room to further expand—than we had at our previous site, our new facility's rooftop solar panels put Tornos among our region's leaders in terms of environmental sustainability:

We generate our own electricity and any additional power can be sold to power companies in the Taiwan region and also provide carbon credits to Tornos. Additionally, we utilize large industrial fans on the production line to promote efficient air circulation through convective heat transfer and reduce the need for air conditioning.

It is in this atmosphere of excellence and future-oriented thinking that the TTW team produces some of Tornos' most reliable—and high-quality—Swiss-type lathes for export to high-precision parts manufacturers worldwide. Our team and our suppliers take great pride in the Swiss GT and Swiss XT machines we build here, following a strict quality control process established by Tornos Moutier (TMO). In addition to building the Swiss GT and Swiss XT solutions, our scope includes specific development, customization, setup, machine design, and on-site testing of the machines we build.

When we opened the doors for our Grand Opening and the Open House that followed it, we celebrated a successful two-year collaboration: Switzerland and the TTW team all Turning Together to keep our customers successful today, tomorrow, and beyond. In addition to shining the spotlight on Tornos' latest technologies and ability to impact business globally, we were proud to showcase our team's enthusiasm

DUNNER

SWISS TOOLING PRODUCER

De nouvelles matières à décolleter ?

Nous avons toujours de nouvelles solutions à vous proposer.

*Neue Werkstoffe, die auf Ihrer Langdrehmaschine bearbeitet werden sollen?
Wir haben immer neue Lösungen für Sie.*



Depuis toujours, une seule motivation : votre réussite.

www.dunner.ch

“We... are honored to have Tornos’ confidence and we look forward to a future of Turning Together on a continued path to growth and success.”

and expertise to our guests, including customers, senior Tornos executives from around the world, industry leaders, partners, and government officials.

At TTW and across Tornos sites worldwide, our employees are our most valuable asset; attracting and retaining top talent is key to Tornos’ success. This new plant was designed with a strong focus on creating a supportive, friendly and dynamic work environment. It utilizes an open office layout and lean manufacturing lines to encourage employee innovation, improve communication, and implement an ISO 9001 quality management system. By fostering a culture of continuous learning and development, we support our team in promoting innovation and achieving the highest quality in our products and services.

We at TTW are honored to have Tornos’ confidence and we look forward to a future of Turning Together on a continued path to growth and success.

MAS
TOOLS & ENGINEERING

TOOL[®]plate

- Quick-change System with central internal Cooling
- Quick and easy Installation
- High process Capability in Combination with our PZ[®]turn System and standard square shank Holders
- High Flexibility
- Plug & Play
- TOOL[®]plate for SWISS type Lathes
- Internal Cooling without annoying coolant Hoses

CHIPS AND COOLING FINALLY UNDER YOUR CONTROL





Revolutionize machining with the Swiss XT range from Tornos:

*compact, versatile,
and high performance*

The Swiss XT series by Tornos isn't just a series of machines—it embodies a commitment to excellence. Designed for high-throughput environments, the Swiss XT meets the precise demands of modern manufacturing. Each component produced is a testament to unmatched precision and reliability, making it ideal for industries where efficiency and sustainability are paramount.

TORNOS

Tornos SA
Industrielle 111
CH-2740 Moutier
Switzerland
Tel. +41 32494 44 44
tornos.com

Compact-design powerhouse

The Swiss XT combines compact design with versatile functionality, measuring 3,056 x 1,440 x 2,242 mm. Equipped with three independent tool systems and customizable axes, it's perfectly suited for industries that demand high precision and adaptability. This range not only offers an accessible machining area but also provides excellent value, setting new standards in the industry.

Spindle excellence: power & profit

Enhance your production capabilities with our robust main and counter spindles, each equipped with durable ceramic bearings that extend their lifespan and maximize productivity. These spindles are engineered

for balance, capable of managing heavy tasks in both main and counter operations without stalling, ensuring smooth and efficient processing.

Our spindles facilitate increased material throughput, directly contributing to higher profitability. They form the foundation of your production success. The Swiss XT range includes models tailored to diverse machining needs. The Swiss XT 16, with a bar capacity of up to 16 mm and spindle speeds of up to 12,000 rpm, is perfect for operations that demand precision and speed. For larger, more demanding applications, the Swiss XT 32 accommodates bars up to 32 mm in diameter and operates without a guide bush, offering enhanced material flexibility and minimizing waste. Additionally, each model features a quick guide-bush conversion system, allowing seamless transitions between guide bush and non-guide-bush operations in just 15 minutes.

Unparalleled flexibility with dual kinematics

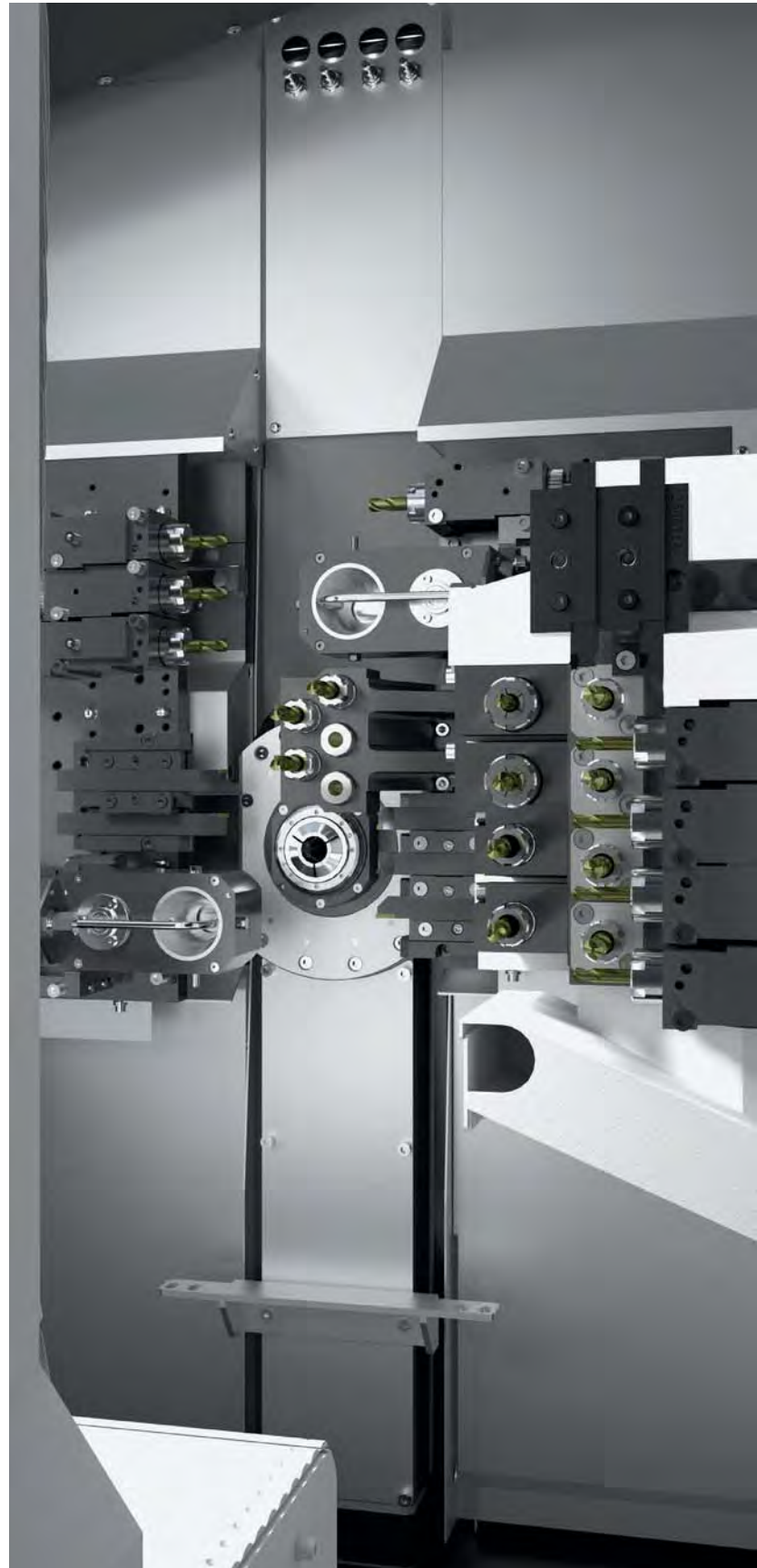
The Swiss XT offers unmatched configurational flexibility, available with either eight or nine axes to suit your precision needs. Enhance your machine's versatility with the optional Z2 axis on the second gang tool post, perfect for specialized tasks like deep drilling and balanced turning. This addition not only boosts the machine's capabilities but also its adaptability to complex operations.

Plug-and-play Baxis for ultimate versatility

Maximize your machining options with our optional plug-and-play B axis, which integrates effortlessly into your existing setup. This innovative feature supports the addition of up to four additional tools in main operations, maintaining a backlash-free design that ensures lasting precision under rigorous use.

Modular working area: a hub of productivity

Transform the Swiss XT into a bar milling powerhouse with the optional inclusion of up to five motors for rotating tools. This Swiss-type machine becomes a comprehensive milling center at a fraction of the usual cost. It features a user-friendly kinematic arrangement with 2x3 axes in both main and counter operations, allowing for precise numerical adjustments in all directions without the need for manual tuning.



Efficiency redefined

The Swiss XT streamlines complex tasks with 14 dedicated tools for counter operations, reducing cycle times and enabling more efficient production of intricate designs. The double gang tool configuration in the main operation further optimizes task division, significantly boosting productivity.

Simplified programming with TISIS

Eliminate the complexities of programming machines with three independent tool systems. Our TISIS software simplifies this process, ensuring smooth operations and efficient task management. The Gantt chart enables quick balancing of operations across channels, while the ISO editor navigates you through the intricacies of G-code, helping you tailor your Swiss XT to meet the specific requirements of your parts.

Affordable ACB Plus for superior chip management

Enhance and secure your process autonomy with our optional Active Chip Breaker Plus (ACB Plus) software. Utilizing ACB technology, this feature delivers best-in-class chip management, maintaining cleanliness and efficiency.

Eco-conscious machining

Committed to sustainability, the Swiss XT range includes features such as Tornos' Eco Mode, which reduces energy consumption by up to 75 %. The pre-heating option accelerates production ramp-ups and enhances energy savings, reflecting Tornos' commitment to minimizing environmental impact without sacrificing performance.

tornos.com





"We try to be the most technologically advanced shop and that means taking on the equipment that no one else has."
Ron Wallace, president, Ace Machining

ACE IN THE HOLE:

Swiss GT 32

*puts Ace Machining at
a distinct advantage*

When Ron Wallace—president and co-owner of Ace Machining in Dartmouth, Nova Scotia, Canada—couldn't find a supplier to manufacture a batch of 5 mm diameter stainless steel pins for a marine application, he turned to Tornos' highly versatile Swiss GT 32 Swiss-type automatic lathe, a solution that sets his company apart from competitors in eastern Canada.



Ace Machining
30 Orion Ct
Dartmouth
NS B2Y 4W6
Canada
Tel. +1 902-463-6347
info@acemachining.ca
acemachining.ca

Established in 2008—during the global financial crisis that saw real manufacturing global domestic product fall by more than 18% between 2007 and 2009—Ace Machining appears to be undefeatable and that likely has a lot to do with the can-do attitude of Wallace, his business partner Andy Race, and the shop's 50-plus employees.

"I'm a welder by trade and always have had a passion for metal and metalworking. In 2008, I was working in the hospitality industry and had hoped to buy the business I was working for, but the owners sold it to another company. I said, 'Well, it's time for me to start something,'" Wallace said, recounting how he and Race—a manual machinist—hit on the idea of starting a manual machine shop.

Sixteen years later, the machine shop that started with just three employees in a space that Wallace describes as "a dungeon" is likely the most high-tech machine shop in eastern Canada, boasting not only traditional manual milling, lathe and welding services, but waterjet machining and computer

“The Swiss GT 32 with TISIS is very job-shop friendly... If we buy another Swiss-type machine, it will be a Tornos. They’re just workhorses.”

Ron Wallace
President, Ace Machining

numerical control (CNC) machining. Even the Covid-19 pandemic didn't put a ding in Ace Machining's armor: In fact, the business was hiring and paying overtime while other small businesses were laying off employees or closing permanently. "I went out and I hit the pavement and I hustled. I really thought we might go out of business due to the pandemic, so I hit the ground selling, selling, selling," Wallace said.

Busy innovating

At the same time, Ace Machining was busy innovating. Understanding that industries—including fast food—needed to continue serving customers while keeping both customers and employees safe, the company designed and manufactured protective Poly (methyl methacrylate) barriers; supports to hold hand sanitizer jugs; and service trays to ensure hygienic Dairy Queen drive-through sales in Canada and the United States.



Ace Machining's Covid-19 hustle did more than keep the business up and running: It allowed Wallace and his business partner to move forward with expansion plans that ultimately more than doubled the shop's footprint.

"With Covid-19, we were just getting busier and busier, so in September 2020, we started expanding our building from 12,000 square feet [1,115 square meters] to about 32,000 square feet [2,973 square meters]," Wallace noted.

That extra space will come in handy, given Wallace's focus on customer service and technological advancement.

"We try to be the most technologically advanced shop and that means taking on the equipment that no one else has," said Wallace.

That's where Ace Machining's Tornos' Swiss GT 32—the only Tornos Swiss-type lathe in eastern Canada—comes into play.

Swiss GT 32 enters the picture

The company's 2022 purchase of the Swiss GT 32 Swiss-type—sliding headstock—automatic lathe took the company's tech focus to the next level.

"We picked up a new customer who needed us to make this 5 mm pin, but it was taking us about seven minutes to machine each pin. One day I was visiting a machine shop that had Swiss-type machines and it was just spitting the parts out so fast," Wallace recalled. "So, I said to the owner, 'I've got this tiny little pin to make. Would you make it for me?' He told me that he didn't take outside work."

Ever persistent, Wallace pressed on in his quest to find a job shop to make the pin in question, finally connecting with a Swiss-type machine shop in Ontario that agreed to manufacture the part. Twelve weeks and countless unanswered e-mails and phone calls later, he was still waiting.



With his crew back to making those tiny pins in-house, with seven minutes of cycle time for each one, Wallace was frustrated—but he was doing his homework.

“I had started doing my research about Swiss-type automatic lathes, looking into various brands. I said, ‘Okay, we’re buying a Swiss-type machine, and as soon as I buy one, we’re going to start making parts for people,” he said.

At that point, machine dealer Elliott Matsuura came on the scene and recommended the Tornos Swiss GT 32. Eastern Canada’s remoteness and Elliott Matsuura’s responsiveness were also key factor in his decision to invest in a Tornos solution.

“Understand that even ‘overnight’ mail takes two days here,” he said, laughing. “The support we got from Elliott Matsuura is what really won this deal for Tornos.”

Job-shop-friendly TISIS

Wallace and Ace Machining CNC Manager Jonathan Blinder were also immediately smitten with both the machine’s capabilities and Tornos’ TISIS programming software.

“The Swiss GT 32 is our first Swiss-type machine. We’re from the world of Mastercam so the TISIS software really flattened the learning curve for us,” Wallace explained. “We took delivery of our Swiss GT 32 in December 2022, and we just used it to make our own parts while we were figuring out how we could use the machine. Swiss-type machining was an entirely new process for our employees. The Swiss GT 32 with TISIS is very job-shop friendly.”

Icing on the cake

Icing on the cake is Tornos’ partnership with CNC machining powerhouse TITANS of CNC, which is revolutionizing technical education with its free, online-based TITANS of CNC Academy and today—with Swiss automatic lathe pioneer Tornos at its side—is paving the way to the future of turning by lifting up





the manufacturing workforce. Wallace and Blinder are big fans of fans of TITANS of CNC's YouTube channel.

"Every problem we encountered, TITANS of CNC Swiss-type machining supervisor Donnie Hinske had it covered," said Wallace. "His Tornos videos have helped us enormously."

With the confidence inspired by the Swiss GT 32's capabilities, support from Elliott Matsuura, and knowledge transfer from TITANS of CNC, Ace Machining continues to push boundaries in order to keep customers happy and coming back for more. Wallace bought long part and polygonal turning attachments and is now looking into a gear hobbing attachment.

'Ready to go'

"The Swiss GT 32 makes it possible for Ace Machining to confidently tackle any small part, whether it's a prototype or for serial production", Blinder pointed out.

"Some of our customers bring parts that would be very, very challenging for us to do on a conventional CNC lathe, for example if they're trying to hold a long shaft with the small diameter, or for any other reason," he said. "And if a prototype part becomes a production part, we have the capability, and we already have a program ready to go. We've done runs of as low as five, six pieces up to 1,500 pieces, in 316 stainless steel, aluminum, and exotic plastics, from 5 mm up to 32 mm diameter."

"If we buy another Swiss-type machine, it will be a Tornos. They're just workhorses," Wallace added.

acemachining.ca



Thanks to its hydrostatic technology, which allows for excellent surface finishes, the MultiSwiss machine is particularly well-suited for machining lead-free brass.

TORNOS AND PAUL HORN COMBINE THEIR EXPERTISE

New record *in lead-free machining*

The demand for lead-free materials continues to grow, including efforts to ban lead completely from the material cycle. For this reason, the Tübingen, Germany-based tool specialist Paul Horn GmbH and the Swiss lathe manufacturer Tornos jointly developed a solution for manufacturing a complex cable cylinder from lead-free brass on a MultiSwiss 6x16 at the Horn Technology Days in June.

This was previously manufactured on Swiss-type sliding headstock lathes and this new technological approach significantly increased productivity. This process was further optimized for the EMO and the cycle time was reduced from 15 to less than 10 seconds.

The machining of lead-free, non-ferrous metals is still the exception rather than the rule, but the machining of lead-free materials will increase. Legal requirements worldwide restrict the use of lead in electronic devices and components. In addition, car manufacturers are having to machine more lead-free or low-lead copper due to the increase in electromobility. Copper alloys are characterized by high thermal and electrical conductivity as well as excellent antibacterial properties. However, the significant reduction or elimination of lead makes the machinability of these alloys much more difficult.

The lead in the copper alloys ensures good chip breaking and has a slight lubricating effect. This reduces friction, which results in less heat being generated at

“The Tornos MultiSwiss has several technical advantages that no competitor machine can offer.”

the cutting edge. Some lead-free material substitutes increase tool wear due to material lubrication, generate long winding chips and thus prevent a reliable process. The machining process changes completely. If the lead is missing, machinability deteriorates significantly, and process reliability drops rapidly due to long chips. Forward-thinking suppliers of machine tools such as Tornos and precision tools such as Horn have therefore been looking for some time for solutions that improve these machining processes and avoid high tool costs.

Conversion to lead-free brass as a challenge

At the Horn Technology Days, the project team led by Hermann Reinhardt from Horn and Patrick Schneider from Tornos developed a solution to produce a complex cable cylinder from lead-free brass in record time, which caused quite a stir. This aroused the team's ambition and together they optimized the process. This showed how important the close exchange between machine and tool manufacturers is. The Tornos MultiSwiss has several technical advantages that no competitor machine can offer. Thanks to the hydrostatic spindle bearing, it impresses with extremely smooth running, even at high speeds. Even with wide grooves, no chatter marks are visible, and the surface quality is extremely high.

The project team adjusted the process parameters to optimize the cycle time. The sequence from position one to six was optimized again and the corresponding tools were replaced. The MultiSwiss can switch the drum forwards and backwards. This function was still used in the process developed for the Horn Technology Days but was no longer used as part of the time optimization. The short loading times thanks to the special bar guide have also contributed to the time savings. The machine is also equipped with the Active Chip Breaker Plus (ACB Plus) system, which ensures better chip management. The patented ACB Plus system from Tornos is unique in the world. Using low-frequency technology, ACB Plus causes the linear axes and machine spindles to oscillate synchronously. This results in minimal interruption of the cutting process, during which the chip is ejected in a controlled manner. This avoids chip entanglement or chips sticking to the workpiece or tools, reduces the need for high-pressure cooling lubricant and increases overall productivity. The working area of the MultiSwiss is designed for a trouble-free chip fall and is extremely setup-friendly. Of course, the machine's control system also plays a decisive role in cycle and part time optimization. It is very easy to operate and offers a range of helpful features. For example, the drilling operation, which determines the cycle time, is displayed. The subsequent work steps could be aligned with this, and the cycle time further reduced.

Optimization of the tool geometry

Of course, the tools were at least as important for the success of the project. And this is where the experts at Horn went to town. “We had already seen during the first tests with standard tools that they reach their limits when machining lead-free materials. The formation of long ribbon and tangled chips, the high tool wear from extreme material lubrication to chipping on the cutting edges and even complete breakage presented us with major challenges,” says Hermann Reinhardt. “As our standard tools are designed for high-performance machining, we got the chip breakage under control by changing the cutting parameters and the ABC Plus system, but we didn't want to stop there.”

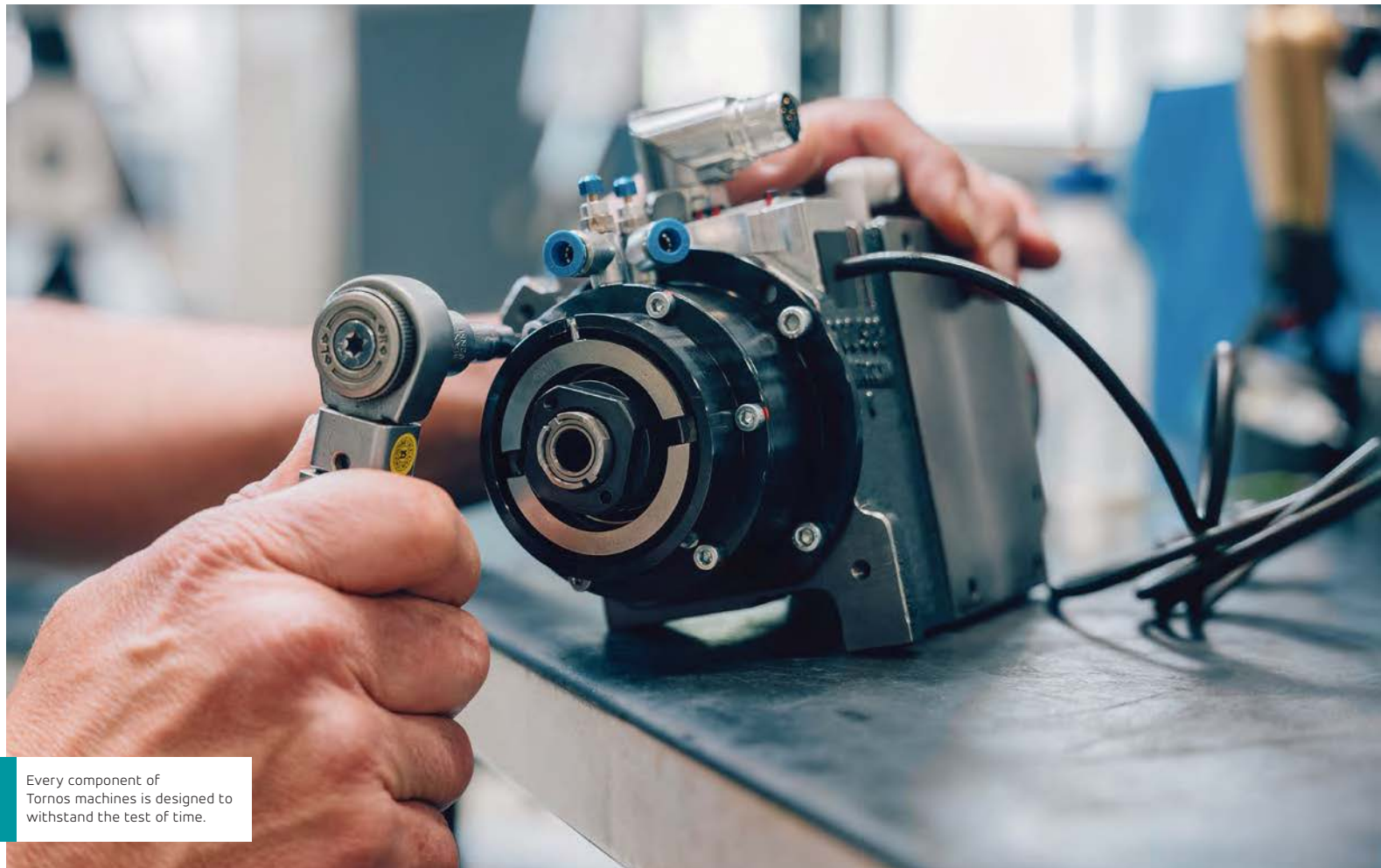
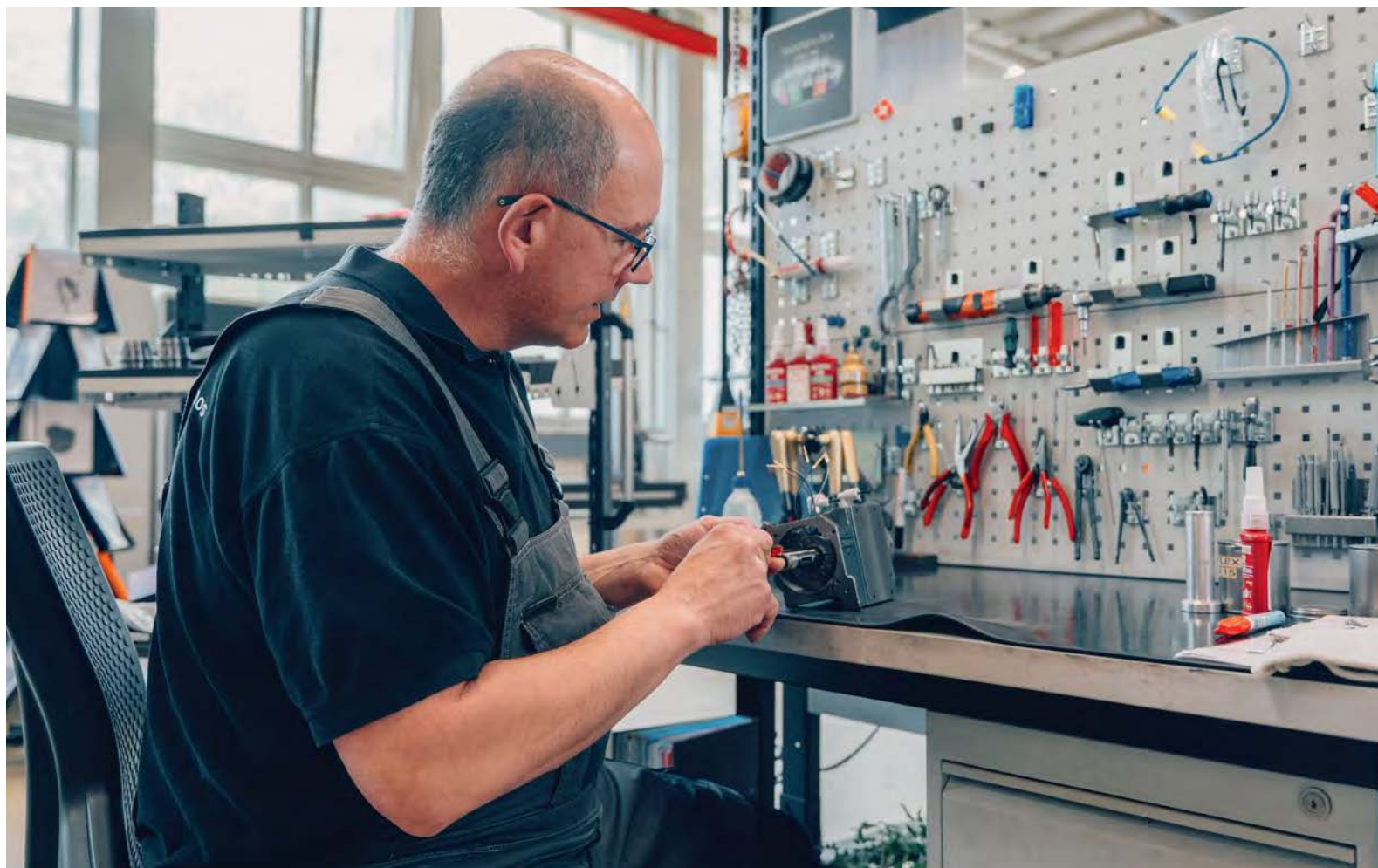
Optimizing the tool geometry seemed to us to be the most promising way of reducing cycle times and achieving a long tool life in conjunction with

short chips and high efficiency. For this reason, the experts at Horn designed special tool geometries with chip flutes and lasered these onto the cutting edges. The tools were then coated in-house with a special coating that prevents the formation of built-up edges or adhesions, ensures high process reliability and extends tool life by up to 20 %. In the production of the lead-free cable cylinder, 13 tools developed specifically for the process are now used, for example forming plates with a larger wrap, which saves even more time. First, a form drill is used for drilling, internal and external turning, pre-piercing, grooving, mirror-finishing of the outer surface, thread chasing and finally planar turning with μ -precision. For mass production, Horn could even provide the tools with a polycrystalline diamond (PCD) coating to further increase performance.

The starting signal for further projects

In order to develop new technologies and achieve economic and successful results for customers when machining new types of lead-free materials, close coordination between machine and tool manufacturers will be essential in the future. The closer they work together in partnership, the better the solutions that will enable users to compete successfully. The jointly implemented project has shown that a high-performance machine and a specific geometry and high-performance coating for the tools tailored to it make it possible to machine difficult-to-cut materials very economically. The positive experiences from this project are a good basis for further close cooperation. After all, both Tornos and Horn place top priority on cost-effective machining with maximum precision and the best surface finish.





Every component of
Tornos machines is designed to
withstand the test of time.

RECONDITIONING TORNOS MACHINES:

a sustainable commitment

to the circular economy

In an industrial world where sustainability is now crucial, Tornos is redefining standards with its DECO 10 Plus and SAS 16 Plus machines. These jewels of technology, embodying a perfect fusion between traditional robustness and modern innovation, are not simply production tools; they are symbols of Tornos' commitment to the circular economy.

TORNOS

Tornos SA
Industrielle 111
CH-2740 Moutier
Switzerland
Tel. +41 32 494 44 44
tornos.com

Eco-design through the overhauling of technology

At Tornos, the reconditioning of DECO 10 and SAS 16 Plus machines demonstrates a clear strategy: to extend the lifetime of the machines whilst boosting their efficiency and reducing their environmental footprint. With a history dating back 25 years, the DECO 10 is transformed into a DECO 10 Plus, to offer performance comparable to brand new machines thanks to the upgrades to its technologies, including the latest generation numerical controls and improved lubrication systems.

The SAS 16 Plus receives a similar boost. This machine is completely transformed, ensuring a significant reduction in energy consumption and minimal maintenance, thanks to its optimized design and improved heat management.



Technical machine transformations

DECO 10 Plus

The DECO 10 Plus is equipped with a latest generation numerical control, the FANUC 31i-B5, which offers an advanced user interface with a colour screen mounted on an articulated arm and a USB port for improved connectivity. This upgrade facilitates the integration of the machine into modern, connected production environments, aligning the DECO 10 Plus with Industry 4.0 standards.

In addition to enabling the use of PTO technology, replacing the traditional PNC, the new numerical control offers effective management of all the machine's functions, including the C axes for main operations (C1) and counter-operations (C4). This

major change simplifies the reuse and conversion of programs between different machines, making the process more fluid for operators.

The programming takes place via TB-DECO, and the updated computer numerical control (CNC) allows the machine's advanced technological capacities to be exploited. This upgrade not only makes the machine faster, it also guarantees the availability of the FANUC spare parts for the next 25 years, thereby extending longevity and enhancing reliability.

In terms of additional options, the DECO 10 Plus can be equipped with innovative systems such as the ACB and ACB Plus chip breaker, and the TISIS programming solution, optimizing chip management and programming efficiency.

Lastly, the machine also benefits from a centralized lubrication cycle unit which ensures optimal lubrication of the guide components, thereby reducing the need for frequent maintenance interventions. A new LED improves illumination of the machining area, allowing operators to work with increased visibility and better precision.

SAS 16 Plus

The renovation of the SAS 16 Plus is undertaken with meticulous attention being paid to details, guaranteeing that each mechanical component, from the barrel to the locking zones and slides, can be removed, cleaned and replaced as needed. This rigorous process ensures that all parts of the machine can function in optimal condition, restoring the machine to nearly-new condition.

More than the subject of simple mechanical reconditioning, the SAS 16 Plus benefits from major technological improvements. The numerical control is completely overhauled with the introduction of a FANUC oi Model F control, which offers unrivaled precision and flexibility during operation. The spindle motor and the camshaft, key to the smooth running of the machine, is also reconditioned, thereby contributing to reliable, durable performance.

To increase the efficiency of production, the chip tray has been enlarged, facilitating continuous evacuation of chips and enabling production without interruptions. The sealing of the machine and the housing are improved to maintain a clean, secure working environment.

Watch our time-lapse video to witness the transformation of a DECO 10.





The SAS 16 Plus is now equipped with new functions to maximize usability. A new coolant pump with an improved flow rate guarantees effective cooling during cutting operations, while the compressed

air distribution plate has been redesigned to make it more ergonomic and simplify interventions. The central lubrication system has also been redesigned to minimize the maintenance needed, enabling operators to devote all their energies to production.



Flexibility is a key advantage of the SAS 16 Plus, with the option to add up to two numerical cross slides. This option extends the capacities of the machine and improves the precision of operations. Furthermore, with the optional addition of a spindle encoder, the machine can perform thread whirling operations with exceptional precision, to meet the needs of the most exacting applications.



Economic and operational advantages for customers

The benefits for Tornos customers are not limited to the improvements to the technical performance of their machines. By opting to modernize their equipment, they also benefit from reduced initial costs, avoiding the expenses often associated with the purchase of new machines. Furthermore, guaranteed genuine parts and expert technical support ensure flawless production quality and reliability, while allowing continued compliance with the most stringent industrial standards.



MISSION PRODUCTIVITY

Take the step into a new world of efficiency.



The GWS-Tooling System for TORNOS Multiswiss!

Göltenbodt driven units for cross and front machining
as well as sawing operations:

- Quick-change and pre-settable standard HSK interface in sizes HSK-C25 and HSK-C32
- Rev. up to max. 14,000 rpm
- Internal cooling max. 80 bar provided by the tool
- Highest repeatability
- Extremely high flexibility
- Additional GWS-interface for the use of static tool holders (more tools per station)



Other custom overhaul services

At Tornos, the overhaul service for all types of machine is designed to meet the specific needs of each customer thanks to Tornos' expertise and genuine parts. The technicians, Tornos machine experts, work closely with the customers to draw up custom offers which are both transparent and detailed. These offers include complete disassembly, cleaning, replacement of essential components such as the guides and ball screws, and the reconditioning of the motors and wiring. The machines are reassembled, including a geometric check and a full test of the axes to ensure optimal operation. They can also be repainted on request. If needed, a partial overhaul can even be undertaken directly on-site.

Towards an innovative and sustainable future

This Tornos initiative to recondition DECO 10 Plus and SAS 16 Plus machines is an excellent example of the practical application of the circular economy in the manufacturing industry. By optimising the use of resources and minimising waste, Tornos is not settling for simply meeting current environmental expectations; the company is preparing the ground for the future innovations that will continue to revolutionise the industry. This commitment to sustainable innovation and environmental responsibility not only ensures improved performance, it also gives customers peace of mind, in knowing that their investment will be repaid, whilst respecting the planet.

tornos.com

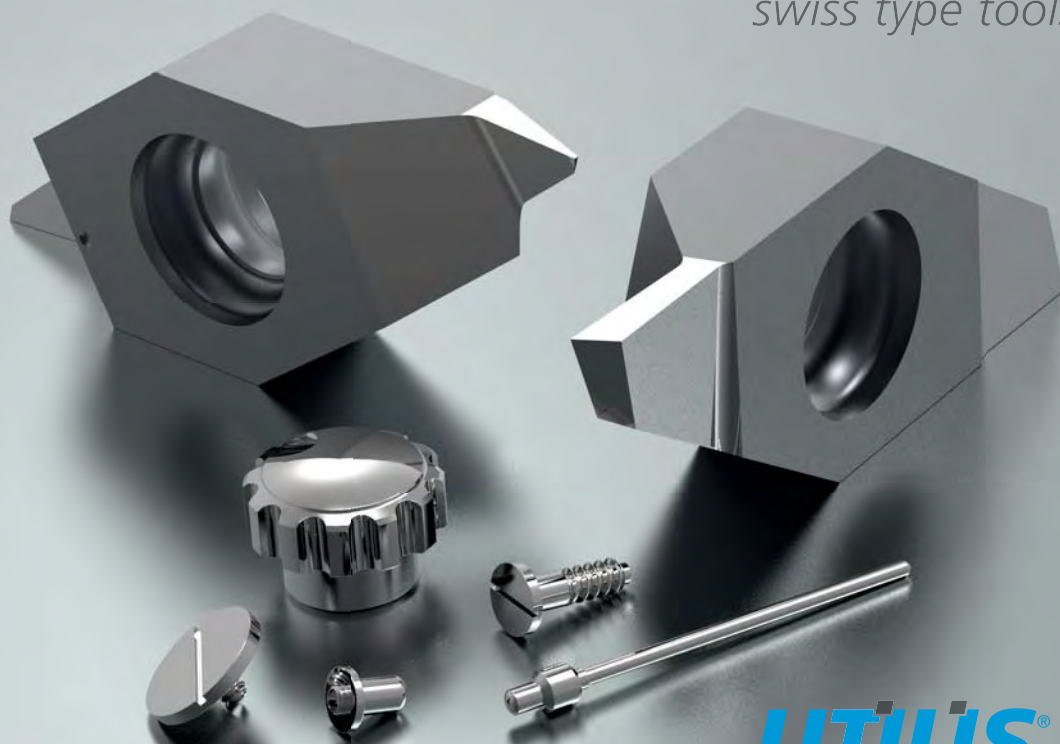
UTILIS
watch-line



SCAN ME!

And find out more about
multidec®-CUT, WATCH-LINE.

UTILIS
multidec[®]
swiss type tools



■ Utilis AG, Precision Tools

Kreuzlingerstrasse 22, CH-8555 Müllheim, Switzerland
Phone +41 52 762 62 62, Fax +41 52 762 62 00
info@utilis.com, www.utilis.com

UTILIS[®]
Tooling for High Technology



From left to right: Jens Thing (CEO of Tornos), Joffrey De Reu (CEO of De Reu), Emmanuel Pouly (machining technician at De Reu), and Patrice Armeni (Director of Tornos France) in front of the SwissDECO 36, a symbol of the successful collaboration between Tornos and DE REU Décolletage.

DE REU DÉCOLLETAGE:

a tradition of excellence and innovation

in precision screw machining

Since 1929, DE REU Décolletage has perpetuated a tradition of excellence in precision screw machining. Now run by fourth-generation entrepreneur Joffrey De Reu, the company stands out for its commitment to innovation, state-of-the-art technology and exceptional customer service.



De Reu Décolletage
1, Rue de l'Égalité
62121 Achiet-Le-Grand
France
+33 3 21 07 15 33
contact@decolletage-de-reu.com
decolletage-de-reu.com

As for the family history, the company was founded by Joffrey De Reu's great-grandfather in 1929. The company has grown steadily over the generations. Today, with over 65 machines that include the Tornos MICRO 7, DELTA 20, DECO 2000, Swiss GT 13, Swiss GT 26, EvoDECO 16 and SwissDECO 36, DE REU Décolletage remains at the forefront of innovation in precision turning. The company has three distinct activities. It undertakes bar turning with a sliding headstock, precision turning with larger diameters up to 80 mm with fixed headstock and milling with machining centers. These activities serve diverse sectors such as rail, medical, food, aerospace, defense, naval communications, nuclear, energy, and more. "As a

“The partnership with Tornos is exciting, with the arrival of the SwissDECO.”

subcontractor, we try to remain eclectic to balance our business,” explains Joffrey De Reu. Joffrey De Reu, Chairman and CEO, shares his journey with the company and the significant developments since he took the reins 13 years ago. Under his leadership, the company has undergone a veritable renaissance, with strategic investments, reinforced certifications such as ISO:9001 and EN:9100, and infrastructure modernization. He himself embodies a new model. “Our hallmark is the construction of the company into three micro-businesses. Each island is independent and complementary, enabling our employees to be more versatile, autonomous and responsible for manufacturing. This improves the company’s efficiency and performance.”

The credo “anticipate, act, rebound” guides every aspect of the business, from customer communication to efficient workshop coordination. This philosophy translates into a constant quest for innovation and adaptation to changing market needs. Positive feedback from customers underlines the importance of this approach in building loyalty.





In addition to bar turning, the company offers a wide range of services, including bead blasting, laser marking and FUNMAT HT 3D printing. This diversification demonstrates DE REU Décolletage's commitment to meeting the varied needs of its customers, while offering a complete solution.



In particular, Joffrey De Reu explains how the digitization of processes is at the heart of the company's strategy, simplifying production and administrative operations. In addition, the company is committed to the ongoing training of its employees, regularly collaborating with Tornos to update knowledge and develop new skills. Collaboration with Tornos extends to the acquisition of new machines, ensuring seamless integration into operations.

Bright prospects for the future

Joffrey De Reu shares the ambitious plans for 2024 and 2025, with anticipated growth in business. The partnership with Tornos is exciting, with the arrival of the SwissDECO. This masterpiece of technology



and innovation is distinguished by its revolutionary B-axis turret, offering unrivalled precision and flexibility when machining complex parts. Thanks to its ability to manage parts with extreme complexity and precision, the SwissDECO 36 has played a key role in transforming DE REU's production, taking it to a new level in terms of quality and efficiency. This strategic acquisition not only strengthened DE REU's



market position, but also marked a decisive turning point in their quest for excellence in the manufacture of high-precision parts. One month after its arrival, the machine is already full for several weeks, comments Joffrey De Reu.

In addition to increasing sales and staff numbers, the company is expanding its horizons with the acquisition of sheet metal specialist Bouillet, based in Wavrin in the Hauts-de-France region. This acquisition will add to the company's already extensive range of services, enabling it to anticipate and respond even more effectively to the varied needs of its customers.

decolletage-de-reu.com



Meet the future of automation

with the Custom Development Department at Tornos

At the heart of innovation at Tornos lies our Custom Development Department, a team of engineers dedicated to tailoring our solutions to precisely meet the needs of our customers. Today, we are delighted to be able to present our latest innovation to you: a robotic cell with a collaborative robot, designed to optimize our MultiSwiss 8x26 machines and increase their flexibility.

TORNOS

Tornos SA
Industrielle 111
CH-2740 Moutier
Switzerland
Tel. +41 32 494 44 44
tornos.com

A versatile integrated robotic system

The key feature of our new robotic solution is its ability to adapt to diverse tasks and production environments. The robot, mounted on a carriage or directly on the machine, can be easily moved and configured to serve several machines. After machining, the robot takes charge of the parts, performing post-treatment operations such as cleaning, measuring and alignment, with no human intervention required.

Automated measurements and corrections

Our innovation does not end with the automation of tasks. Our system also includes advanced automatic measuring and correction functionalities. Thanks to a dedicated measurement system, the robot is able to measure the parts (according to different statistical control criteria) and to feed this back to the machine



DIXI
polytool

TUNGSTEN CARBIDE AND DIAMOND PRECISION TOOLS

DIXI POLYTOOL SA Av. du Technicum 37 / CH-2400 Le Locle / T +41 (0)32 933 54 44 / dixipoly@dixi.ch / www.dixipolytool.com

serge meister ⁺sa



www.meister-sa.ch

so that the various parameters can be adjusted automatically. This functionality ensures constant quality and reduces the need for manual controls.

Availability and adaptation

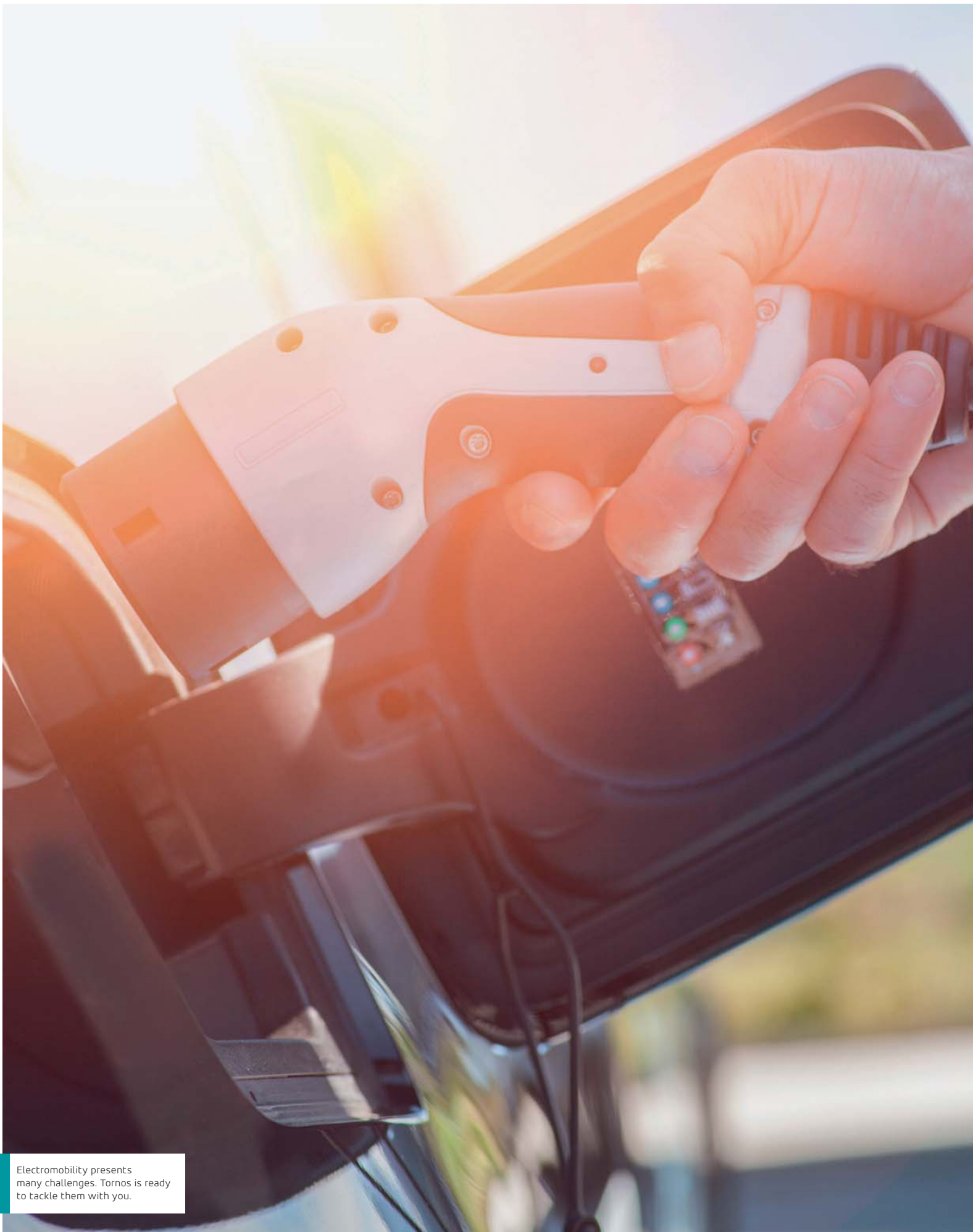
This option is available immediately and can be integrated into existing products, thereby bringing instant added value to your current production process. Tornos' team is ready to adapt this solution to the specific requirements of each working environment, ensuring effective, seamless integration.

With this new robotic cell, Tornos is strengthening its commitment to providing innovative, customized solutions which not only meet the current expectations of its customers, but will anticipate their future needs. Tornos invites customers to discover how this solution can transform their production, increase their efficiency and maintain their competitiveness in a constantly evolving market.

For more information on this solution, and to discuss your specific requirements, please contact your nearest Tornos representative.

tornos.com





Electromobility presents many challenges. Tornos is ready to tackle them with you.

Harnessing precision in electromobility: Tornos' MultiSwiss 8x26

As the demand for electric vehicles (EVs) continues to surge globally, the need for advanced manufacturing solutions to support the electrification infrastructure grows parallelly. Tornos, with its MultiSwiss 8x26 machine, is at the forefront of producing high-quality components essential for robust EV charging systems.

TORNOS

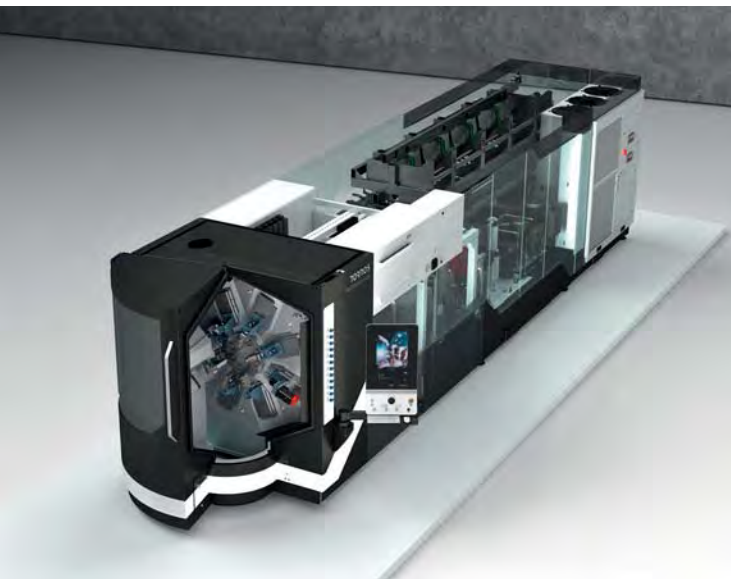
Tornos SA
Industrielle 111
CH-2740 Moutier
Switzerland
Tel. +41 32494 44 44
tornos.com

Advanced manufacturing with MultiSwiss 8x26

The Tornos MultiSwiss 8x26 is designed to enhance production efficiency while maintaining the highest standards of precision. This multispindle machine is a powerhouse in manufacturing complex parts such as solid split brass contact sleeves, which are crucial for the connectivity of EV charging stations.

Precision and efficiency: *The MultiSwiss 8x26 leverages hydrostatic bearings that significantly improve the surface finish of machined parts while reducing tool wear by over 30% compared to traditional lathes. This capability ensures that components manufactured are not only of high quality but also meet the rigorous demands of EV charging applications.*

Productivity gains: *With its eight spindles, the MultiSwiss 8x26 can boost productivity by up to eight times depending on the parts produced. This increase is vital for keeping pace with the growing needs of the EV market, allowing manufacturers to scale production without compromising on quality.*



As the demand for electric vehicles continues to grow, supported by macroeconomic trends such as urbanization and rising energy needs, Tornos is committed to advancing its technology to meet these challenges. The success of the MultiSwiss 8x26 in producing EV charging components is just one example of how Tornos is adapting its expertise to new market demands and contributing to a sustainable future.

tornos.com

Real-world application: precision parts for EV charging

In a recent application, the MultiSwiss 8x26 was used to produce two critical components for EV charging stations:

- **16A socket connector:** Machined from brass, this smaller connector has a diameter of 7.9 mm and a length of 35 mm. The machine achieves a production rate of 9.68 parts per minute, demonstrating exceptional speed and efficiency.
- **32A socket connector:** This larger connector is also made from brass, with a diameter of 11.5 mm and a length of 68 mm. It is produced at a rate of 6.52 parts per minute, showcasing the machine's capability to handle different sizes and complexities with ease.

Both connectors are finished entirely within the machine, including the automatic placement and screwing of components using a sophisticated pneumatic system. This level of automation not only speeds up the manufacturing process but also ensures consistent quality across batches.



Socket 32A
Diameter: 11.5 mm
Length: 68 mm
Parts per minute: 6.52
Seconds per parts: 9.2
Machine: MultiSwiss 8x26



Socket 16A
Diameter: 7.9 mm
Length: 35 mm
Parts per minute: 9.68
Seconds per parts: 6.2
Machine: MultiSwiss 8x26

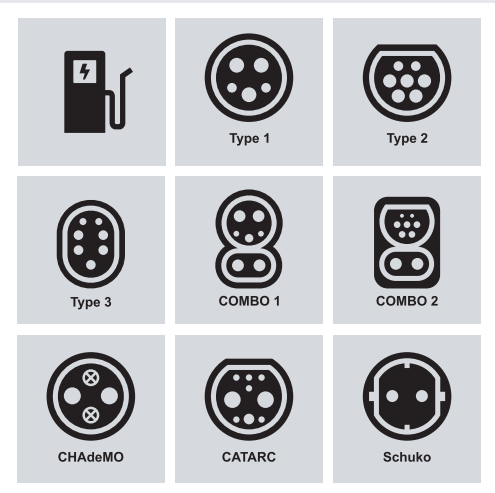
Machining video
youtu.be/J_FswqbnGDI



The electric vehicle (EV) industry continues to grow rapidly, driven by technological innovations and increasing consumer interest in sustainable transportation. In 2023, global electric car sales reached nearly 14 million units, with significant growth observed in China, Europe, and the United States.

EV market trends

In Europe, electric car registrations climbed to 3.2 million in 2023, showing a robust increase despite the phasing out of some purchase subsidies. The United States saw more than 1.4 million new electric car registrations, marking a 40 % increase from the previous year, supported by favorable policies such as the revised clean vehicle tax credit. In China, competitive pricing among leading manufacturers like BYD and Tesla pushed electric car prices down, stimulating further market growth.



Charging network developments

The expansion of the EV charging infrastructure is crucial to support the growing number of electric vehicles. Major advancements include the adoption of Tesla's North American Charging Standard (NACS) by several automakers, which will expand access to Tesla's extensive Supercharger network. This move aims to enhance charging convenience and alleviate range anxiety for EV owners.

Additionally, a collaborative initiative by major automakers plans to establish a new high-powered charging network across North America. This network will feature 30,000 chargers and aims to improve the

accessibility and convenience of EV charging by locating stations in strategic areas like shopping malls and restaurants.

Future outlook

The continued growth in the EV market and enhancements in charging infrastructure are setting the stage for an even more robust adoption of electric vehicles. As these trends evolve, the industry faces challenges such as ensuring adequate charging infrastructure and meeting the diverse needs of consumers in different markets. However, the opportunities for growth and innovation in the EV sector remain significant, promising a dynamic future for electric mobility.

For more detailed statistics and insights on the latest trends in the EV market and charging infrastructure, you can explore the comprehensive reports from the International Energy Agency's Global EV Outlook and other industry analyses.

Sources:

- "Trends in electric cars – Global EV Outlook 2024 – Analysis." IEA.
IEA Global EV Outlook 2024



- "Trends in the electric vehicle industry – Global EV Outlook 2024 – Analysis." IEA.
IEA Global EV Outlook 2024



- "EV Industry Trends In 2024." Greenlancer.
Greenlancer EV Trends 2024



HELI 3MILL
HM390 LINE

Heli Master Miniature Endmill Line

The Smallest Helical Indexable Multi-Toothed Endmill for **90° Shoulder Milling**.



**Large
Diameter
Core**

**HM390 TPKT 05
Helical Cutting Edges**



Miniature Insert for Small
Diameter Endmills Depth
of Cut up to 3.5mm (.14")

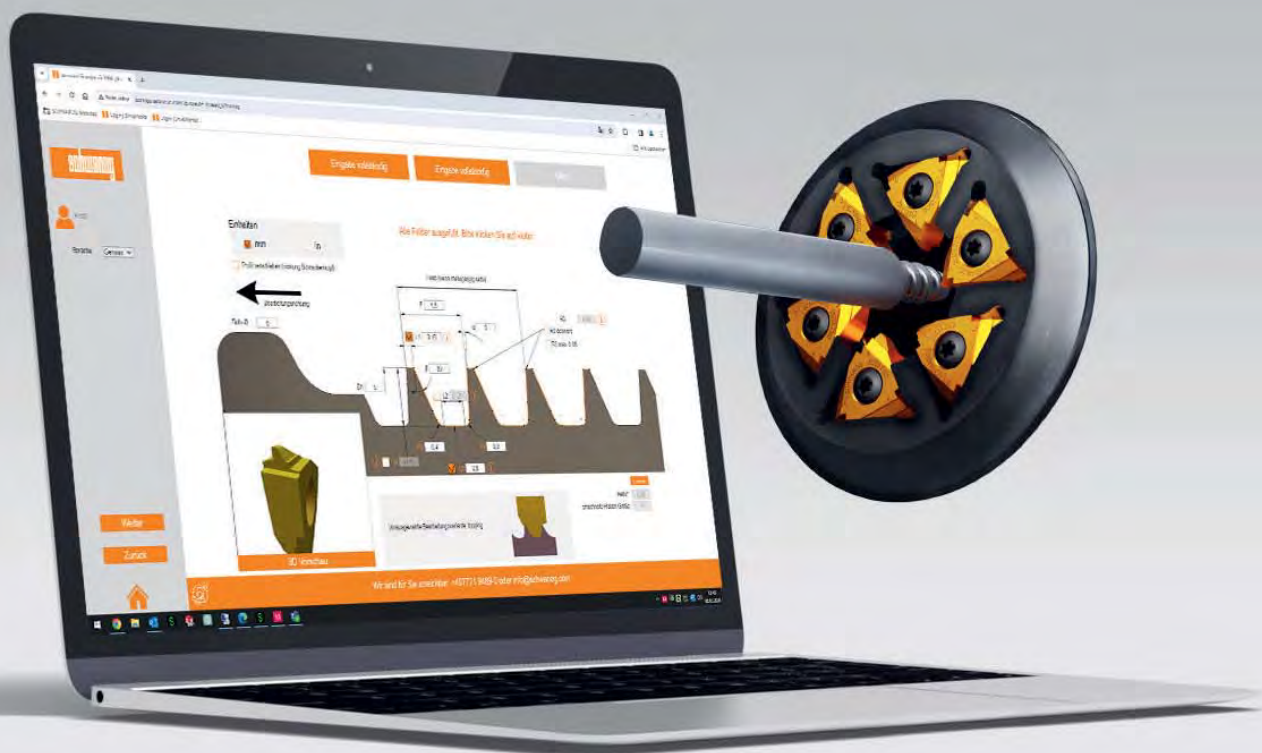
NEOLOGIQ
MACHINING INTELLIGENTLY

Member IMC Group
ISCAR
www.iscar.com

schwanog

SCHWANOG CONFIGURATOR

ONLINE DESIGN TOOL FOR SINGLE-LEAD WHIRLING INSERTS



GET YOUR NEW THREAD WHIRLING TOOLS FASTER:

- Simply register on our website
- Create the required tool drawing for the thread
- Log in with your user data
- Place your order

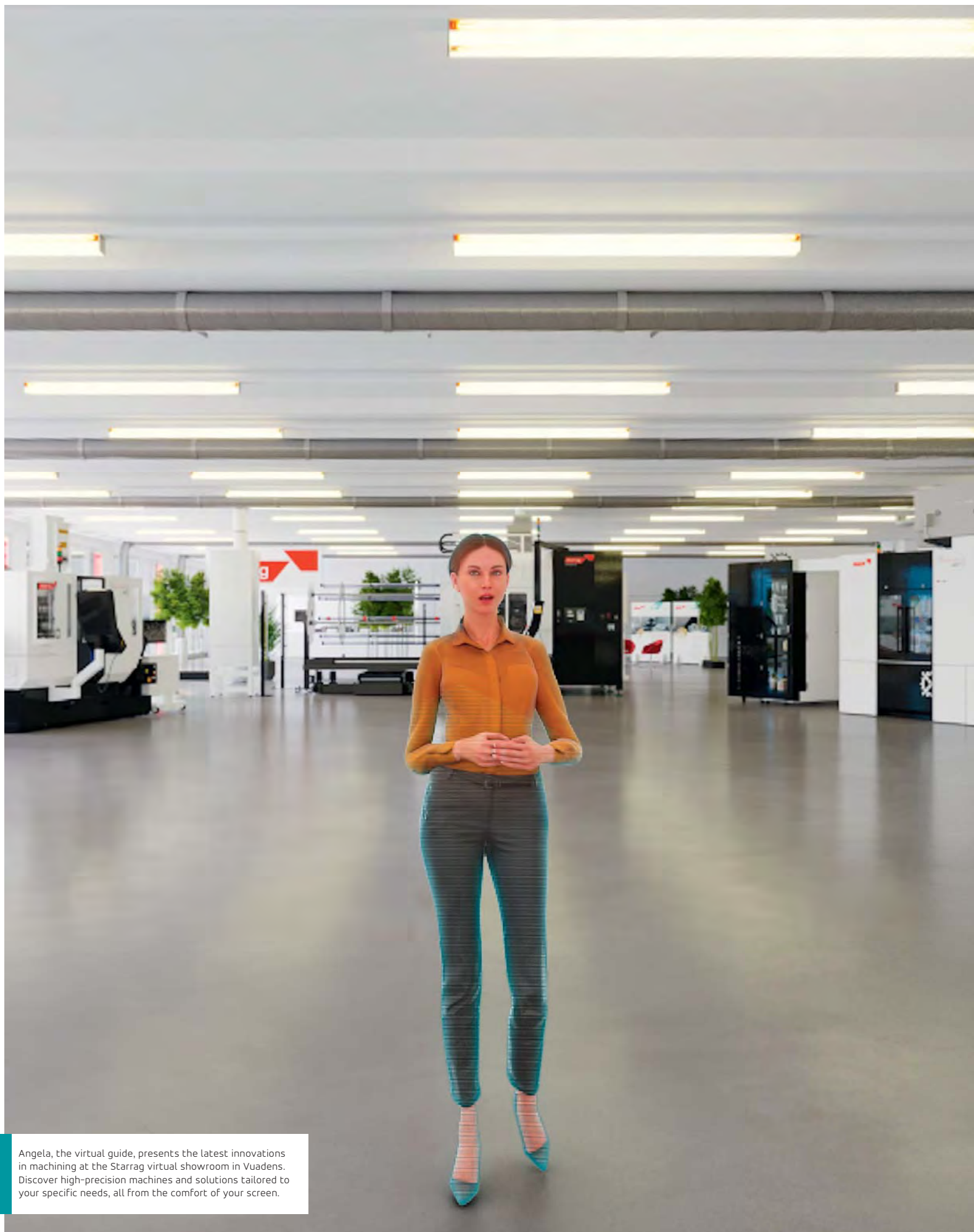
Click here
to register!



Click here for
the movie!



schwanog.com



Angela, the virtual guide, presents the latest innovations in machining at the Starrag virtual showroom in Vuadens. Discover high-precision machines and solutions tailored to your specific needs, all from the comfort of your screen.

BEYOND THE VIRTUAL:

the immersive

experience

of the Starrag showroom in Vuadens

Digitalization, scanning, and simulation remain key terms in today's communication landscape. This evolution began several years ago but was significantly accelerated by the Covid-19 pandemic. Personal networking, business meetings, and product presentations, which largely transitioned to online formats during the pandemic, have now permanently adopted these new methods. The exhibitions and other events that were frequently postponed or cancelled are now occurring more regularly, often incorporating virtual elements to extend their reach.



Starrag Vuadens SA
 Section de produits Bumotec / SIP
 Rue du Moléson 41
 1628 Vuadens
 Switzerland
 Tel: +41 26 351 00 00
 vudadmin@starrag.com
 starrag.com

Most businesses have a website, a YouTube channel, an account for LinkedIn, Facebook, Instagram and other social media, but we felt we needed go even further. Starrag wanted to give its trade fair visitors, social media followers and prospective customers in the world of machining, a unique experience, where the sense of discovery and the desire to find out more would enable visitors to discover the solutions best suited to their needs, with a complete overview of its product range and the options available in terms of machining complex parts adapted to their professional context. This is how Starrag's virtual showroom in Vuadens came to be created.

On your arrival, you will be greeted by Angela who knows everything there is to know about all the areas and each of the machines presented in the showroom. If you are already familiar with Starrag's

“By choosing the field of expertise which applies to you, Angela will take you directly to those areas of the showroom which will peak your interest.”

production site in Vuadens, you will recognize its characteristic architecture has been perfectly replicated and you will be surprised to see the number of machines installed in the showroom. If this is your first visit, you will have the opportunity to discover a space dedicated to the production of complex parts, machined with great precision in materials which are at times very difficult to work.

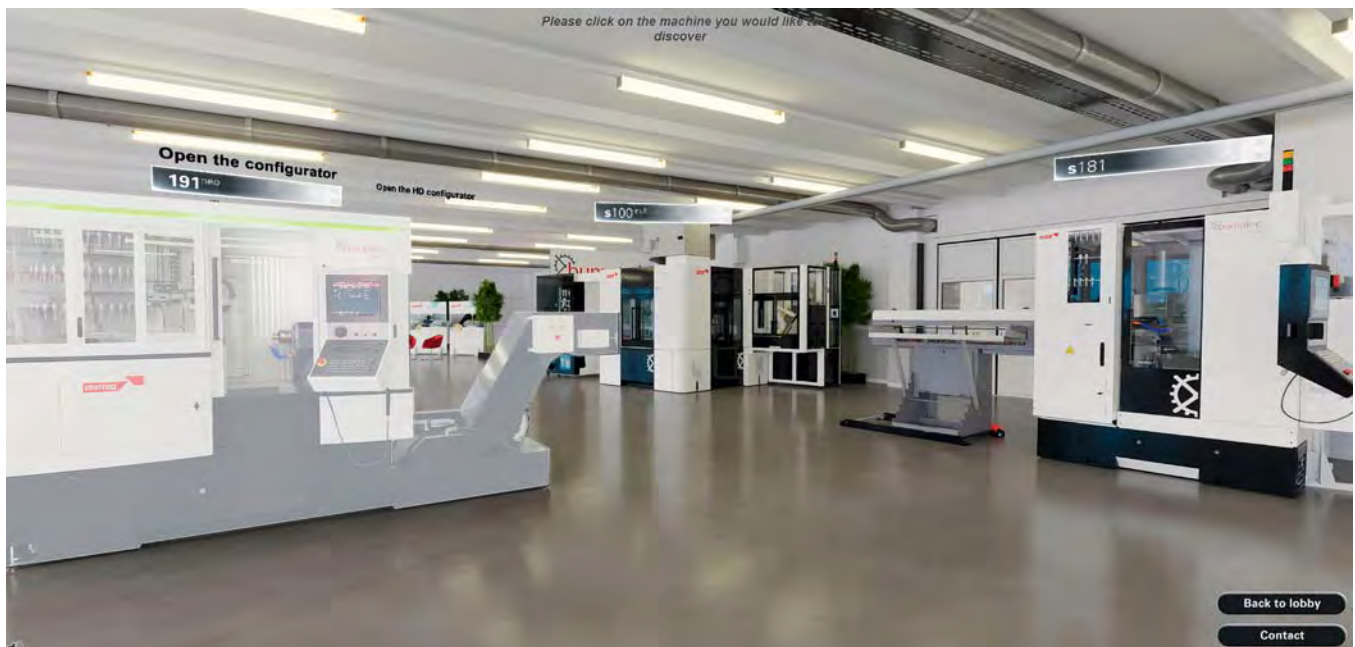
In any event, you will be able to obtain all the information you need concerning our machining centres, watch a large number of applications being demonstrated (up to 31 currently available), in order to help you find the perfect solution to meet your needs. The next step for you is to contact one of Starrag's

experts to move from the virtual showroom to the real world. This will give you the chance to discover over 60 other typical applications of a similar kind, and enable Starrag to customize a solution to take into account your particular needs. Starrag aims to support you as you look for the best solutions in all aspects to ensure stable and efficient production, key factors in success for unrivaled productivity and, consequently, progressive and steady growth of your business market.

By choosing the field of expertise which applies to you, Angela will take you directly to those areas of the showroom which will peak your interest. For experts in the luxury goods sector, Starrag's machine range is particularly well suited to various parts for jewelry and watchmaking. In fact, bracelet links, movement parts, watch dials and gem-set rings, wedding bands, bracelets, pendants, or even clasps for leatherwork hold no secrets for our application engineers.

Thanks to Starrag's experience in the medical technology sector, you will be impressed by the possibilities which its solutions offer for the production of orthopedic implants, surgical instruments, or components for dental techniques, whether for medium- to large-scale runs or for prototyping parts for research and development.

For specialists in aviation and micromechanics in general, precision is essential in this segment where a deviation of even one micron is not acceptable. The





Discover the
virtual showroom.

stability of production tools is therefore the crucial element sought after by all experts in this field of application. Bumotec machining centers offers unbelievable technical options, including all the useful operations in the most complex production processes such as milling, grinding, deep drilling, gear hobbing, deburring or chamfering with great precision and impressive repeatability.

A space dedicated to SIP boring tools has been created to demonstrate the options on offer in terms of unbeatable extreme precision. World renowned for their ability to offer very powerful and durable machining centres, SIP boring tools have demonstrated, over nearly 160 years in business, that precision is a field of expertise based on experience gained over time. If you are interested in finding out how to achieve precision to the nearest micron, visit the SIP space in Starrag's showroom in Vuadens.

But finally, how can Starrag excel in such varied fields and meet such wide-ranging needs? Its engineers have developed a range of machines which can provide the solution to the majority of the needs of different markets. These needs are always based on the cost of production, precision, the quality of the finish, the stability of the production process and autonomy. Starrag's team of around 20 application specialists know how to turn Starrag machining centers to your advantage to fully meet your expectations every day.

So, visit every corner of Starrag's showroom in Vuadens at <https://showroomvud.starrag.com>, listen to explanations given by your showroom guide Angela, choose the applications which interest you on the video and don't hesitate to contact Starrag with your requirements for your current and upcoming projects.

starrag.com



Tornos' new plant in Houli: a state-of-the-art, sustainable space with cutting-edge facilities and relaxing areas for employees.

Tornos inaugurates its new plant in Houli, *establishing a sustainable future of innovation*

On March 20, 2024, Tornos took a major strategic step in its expansion into Asia with the inauguration of its new plant in Houli, Taichung. This inauguration coincides with the 10th anniversary of Tornos Taichung, celebrating a decade of presence and continuous innovation in the region.

TORNOS

Tornos SA
Industrielle 111
CH-2740 Moutier
Switzerland
Tel. +41 32494 44 44
tornos.com

The works spans 12,000 square meters and integrates the very latest technological advances, including environmentally-friendly installations such as solar panels which provide all of the energy that needed to operate. This commitment to innovation and environmental sustainability illustrates Tornos' long-term vision for its international development.

A celebration of advanced technology and precision

The inauguration event brought together 400 guests, including dignitaries, sales partners and distributors from a number of countries, confirming the importance of this new installation not just for Tornos, but for the Asian market which is undergoing rapid expansion. The ultramodern installations are specially designed for the production of Swiss XT

and Swiss GT machines, which represent a solid midrange offering, combining Swiss technology and precision in the field of machining.

Open day and demonstration of capacities

On March 20–21, the Tornos plant opened its doors to the public, transforming into an exceptional showcase of technology and innovation. These open

days allowed visitors to discover its cutting-edge installations and to familiarize themselves with the innovations from Tornos. The SwissNano 7, known for its compact footprint and unrivaled precision, was on show, demonstrating how it can produce a dental implant with remarkable efficiency. The famous MultiSwiss 6x16, prized for its high productivity and flexibility, captivated the visitors' attention, while the Swiss XT 32, unveiled for this first time in



Asia, machined an orthopedic screw. This machine is a perfect illustration of Tornos' commitment to technological advances and its expertise in the precision machining sector, particularly in the medical field.

Alongside these open days, an evening specially for the families of staff members was organized to allow them to take a look around the new premises. This evening included a magic show and other entertainment for the children, ensuring a fun, memorable experience was had by all.

Local and global impact of the strategic expansion

The investment in the new Houli plant not only symbolizes a physical expansion, it also reflects strategic growth in Tornos' capacity to meet complex requests and to constantly evolve alongside its international customers. Furthermore, this plant strengthens Tornos' presence in Taichung, playing a crucial role in the dynamics of the local economy and further integrating this region into the global Tornos production network. This underscores



Tornos' commitment to the Taiwan region, a key market for the company, and illustrates the extent to which local innovation can have an international influence and impact.

Towards a promising future

In summary, the inauguration of the Houli plant and the accompanying events illustrate Tornos' commitment to excellence in manufacturing, to minimizing its environmental impact, and to maintaining close links with its customers. These initiatives demonstrate that Tornos is not content with simply producing high-precision machines; it is actively shaping the

future of the precision machining industry, in line with its "Turning Together" motto, working together to ensure the success of all. Michael Hauser, CEO of the StarragTornos Group, spoke enthusiastically about the event: "Today, we are not simply celebrating the opening of our new plant, but also a decade of continuous growth and innovation in Taichung. Our new installation in Houli is a symbol of our commitment to excellence, and of our faith in the future."

tornos.com



**Integrated
ER taper-shank cutter**



Beyond your expectations

**Better rigidity, quick change,
excellent repeatability,
tool length maintain, and pre-balanced.**

AMB
HALL 3
No.: 3E13



- Milling
- Spotting
- Centering
- Engraving
- Deburring
- Chamfering



APPLITEC

SWISS TOOLING



New brochures / Now available

Discover the new brochures with the latest innovations from Applitec.
SWITCH-Line, **PCD** and **TOP-Watch** are now available.



Learn more

TORNOS



BUILDING THE FUTURE TOGETHER

CNC powerhouse TITANS of CNC has launched a revolution in technical education with its **FREE** online-based TITANS of CNC Academy—and Tornos is a proud partner, providing state-of-the-art automatic lathes to the academy. Together, TITANS of CNC and Tornos are lifting up students, educators, and the manufacturing workforce.

Stay in step with the revolution:
Visit titansofcnc.com today—and be sure to follow
TITANS of CNC on social media.

