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Pooled expertise*

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*Bontaz Centre:
an automotive
supplier known
for cutting-edge
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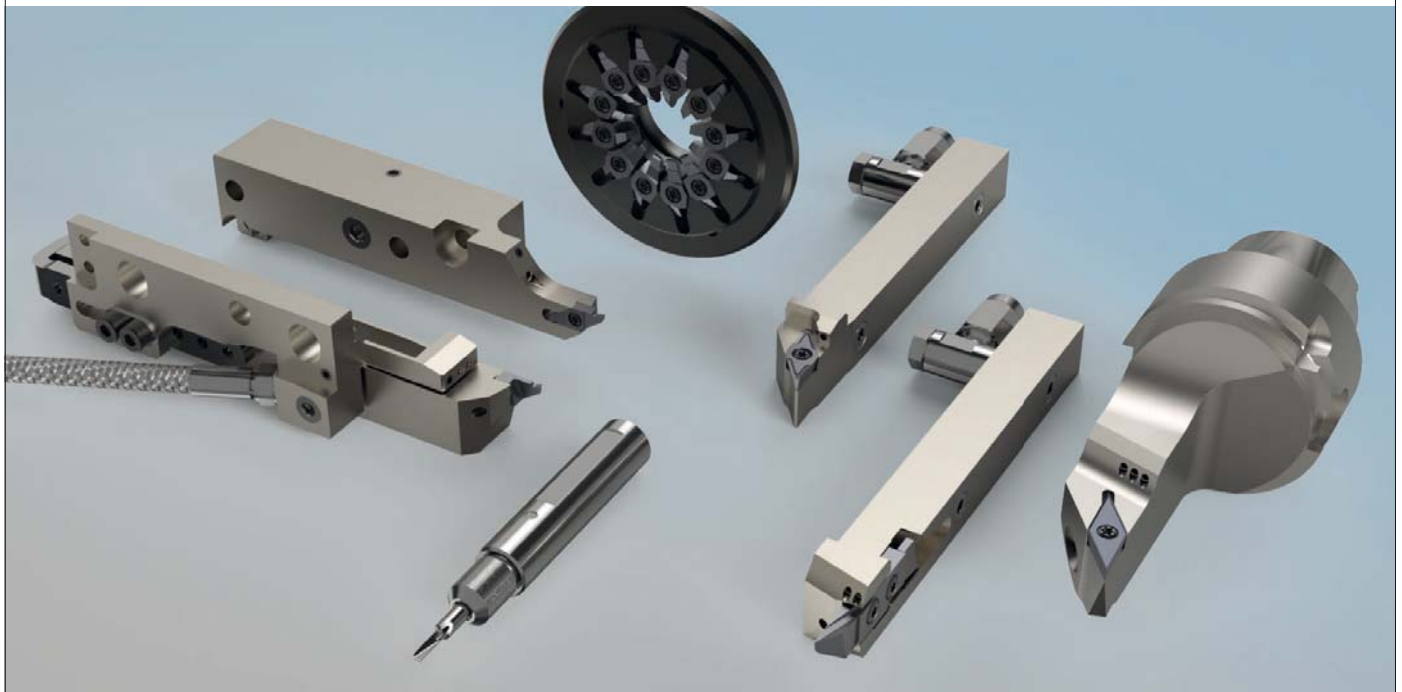
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diversification
into watch
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*Orif: vocational
integration and
training of
the highest level*

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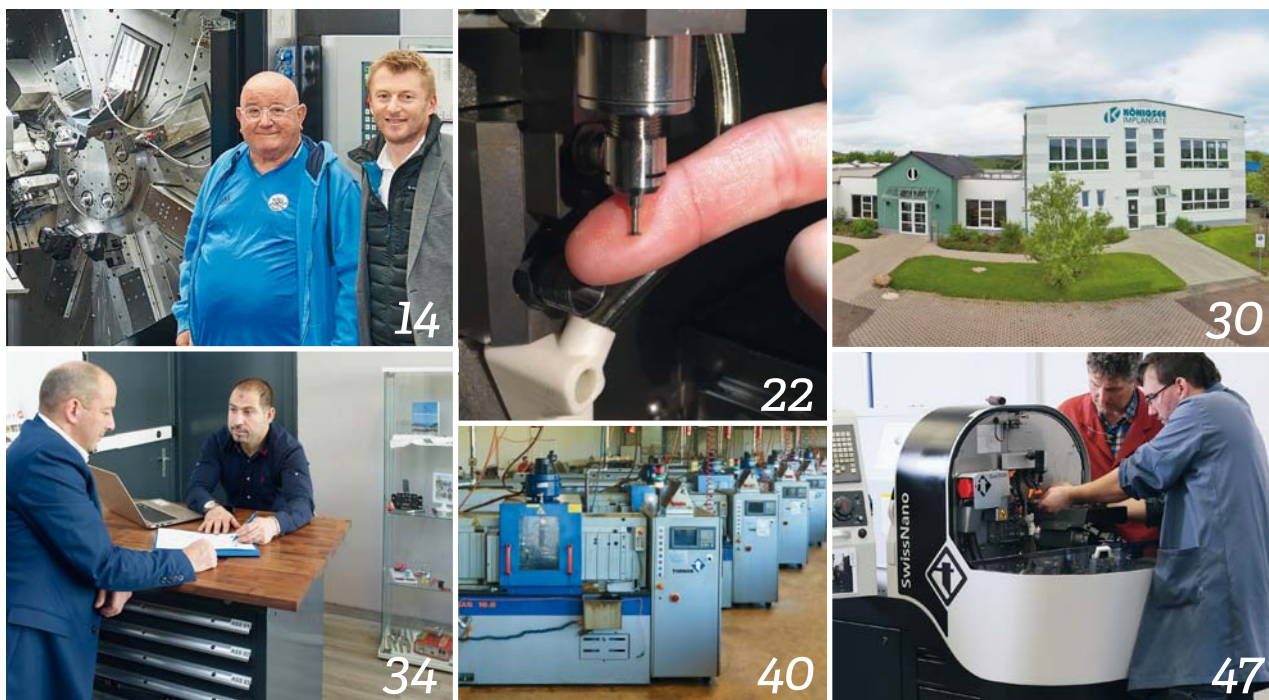


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A new year full of innovations

Overview of the Tornos Swiss-type range

Philippe Charles Head of Product Management
Swiss-type/Market Segment Manager Medtec

For Tornos, 2018 looks set to become an outstanding year with regard to single-spindle lathes! While already being capable of offering our customers a vast range of products, we will even expand it in 2018, especially with the SwissDeco platform.

CT – the entry-level machines

Not long ago, we upgraded our CT 20. This entry-level machine with five axes is intended to machine simple to medium-complexity components. It is highly appreciated in the market due to its excellent cost/performance ratio. The enhancements implemented are based on the market demands and it comprises a main spindle boasting a speed of 10,000rpm, the capability of operation without guide bush and the addition of a fifth back machining tool block both for stationary and driven tools. Furthermore, the axis feed-rates have been increased to be able to offer an even higher productivity.

Swiss DT – absolute "bestsellers"

Our higher-level machines Swiss DT 13 and Swiss DT 26 are also equipped with 5 linear axes. They have been very well received and have become absolute bestsellers. The Swiss DT 13 model is offered with 2 motors for the driven tools used for main machining operations. By default, the machine is equipped with a tool block comprising 3 driven tools, while a modular motor system allows you to choose between a slotting unit, a gear hobbing unit and a polygon cutter that is offered as an option. With this solution, the machine can be even better adapted to the market requirements of electronics and micro-mechanics. Given its modular kinematics featuring a wide range of options and peripherals and its vast machining area that allows excellent chip removal,

the Swiss DT 26 machine is popular in the subcontracting sector and in the automotive industry. The powerful motors and the machine structure allow high chip removal rates, enabling excellent productivity both for small and large-series production.

Featuring a modular machining area and interchangeability of tools and attachments, the products of the Swiss GT family with their 6 linear axes and their two independent tool systems meet a wide range of market requirements and are able to machine complex workpieces. This is all the more true when the machines are equipped with a B-axis that can be positioned or interpolated in 5 simultaneous axes.

SwissNano – the specialist for micro-technology

Our next machine is SwissNano, a small machine that works wonders on high-precision and small parts. In the beginning, the machine was aimed at watchmaking, but it has found its way into other markets as well where it is highly appreciated for its repeatability and rigidity. Today, SwissNano machines can be found all over the world and they are being used for applications in the medical, dental, connector and automobile industries.

EvoDeco – for more complex parts

Our top-of-the-range models certainly are the EvoDeco machines with their four ultra-modular tool systems. These machines are available for four machining diameters: 10 mm, 16 mm, 20 mm, and 32 mm. With their unequalled flexibility, they are able to efficiently machine even the most complex workpieces while boasting shorter set-up times. More than 10,000 lathes delivered so far enable our clients to reach productivity second to none.



"Today, SwissNano machines can be found all over the world and they are being used for applications in the medical, dental, connector and automobile industries"

Philippe Charles Head of Product Management Swiss-type/Market Segment Manager Medtec

The fact that these products have been marketed for more than 20 years and have experienced a great many technological advancements is proving perfectly that the machine concept is still state-of-the-art and extremely competitive, not to mention the fact that it is highly appreciated by the market. EvoDeco machines are offered with two programming options: the standard TB-Deco programming software or standard ISO programming combined with the highly popular CNC TISIS editor.

SwissDeco – a new platform

To strengthen our presence in the high-end sector, we have developed a new platform, the SwissDeco. Today, we would like to present machine models for two different diameters: 25.4 mm and 36 mm. These machines have the same modular base and can thus be configured to suit your needs at the time of purchase. The machines have three independent tool systems and are offered in four versions: 1) with dual gang tool post 2) with dual gang tool post and A-axis 3) with gang tool post and turret and 4) with gang tool post and turret combined with B-axis.

Thanks to the modular concept of the tool systems, each kinematic system can be equipped with a large variety of attachments and tool holders; so workpieces of various complexities can be machined. The kinematic options offered perfectly match the various market requirements and the complexity of the parts to be produced.

Being equipped with B-axis, multi-position turret and a bar capacity of up to 36 mm, these products are able to equally exhibit their performance during milling tasks, so we can now address new markets and new users. It can also achieve an even higher efficiency and productivity rate with current applications. The first presentation of this product at EMO 2017 has shown that the concept has a bright future. Numerous potential new customers have already

praised the new concept and there obviously is a high demand. All machine versions offered can also be used for the operation without guide bush when short workpieces are to be machined.

SwissDeco incorporates our pooled expertise. Striving for the ideal machine, we have consulted various machine operators during the design stage to make sure our engineers are really developing a product meeting the requirements. Just as on our MultiSwiss machines, the peripherals are housed in a common container on the left side of the machine. Most welcome, this system gains space, but above all, it guarantees perfect cutting oil management with fine filtration and excellent chip discharge and chip management outside the machine. This feature is intended to minimize maintenance which often is expensive and involves loss in productivity. SwissDeco thus is a real turnkey machining solution.

You are invited to discover more details about SwissDeco on page 6 and also at the SIMODEC, SIAMS, IMTS or AMB exhibitions. If you want to get detailed information, do not hesitate to contact us.



With SwissDeco, Tornos wanted to design the ideal machine that is subject to minimum stress. They wanted it to be profitable for simple parts while enabling its users as well to produce even their most complex parts at ease.

TORNOS SWISSDECO –

Pooled expertise

This year, Tornos launches a new range of exclusive products: the SwissDeco range.

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In the autumn of 2017, the machine made its debut at the EMO in Hanover where it was presented in the 36-mm version equipped with a turret. From now on, the machine will be available in various versions to efficiently meet market requirements. The SwissDeco has been designed to tackle the most demanding tasks in any application field. With the SwissDeco, Tornos wanted to design the ideal machine that is subject to minimum stress. They wanted it to be profitable for simple parts while enabling its users to also produce their most complex parts with ease.

Two spindle options: 25.4 mm and 36 mm

SwissDeco machines are offered for different diameters. The SwissDeco 26 has been designed for a maximum bar diameter of 25.4 mm while the SwissDeco 36 model has a maximum bar capacity of 36 mm. Even if both machines have the same machine base, each spindle type has its unique characteristics. In fact, SwissDeco 26 machines can reach a speed of 10,000rpm in a few tenths of a second. Its spindles for main and back machining operations are identical and thus have the same features. Featuring a clamping force of 14,000 N, the spindles benefit from a torque of 27 Nm. Besides their high output, these spindles exhibit a great vigor.



The version with dual gang tool post is available with or without A axis.

SwissDeco 36: 36 mm and a simply titanic power

Even if, for more than 100 years, Tornos has gained a reputation with small-diameter machines, the company has also demonstrated its expertise in the machining of larger diameters with the Sigma 32, EvoDeco 32, Swiss GT 26, and Swiss GT 32 machines. A recent test in our test center in Moutier revealed that EvoDeco 32 was able to machine 33 mm bars made of stainless steel faster and more efficiently than a machine designed for a bar capacity of 42 mm. Based on these experiences, SwissDeco 36 proves to be an ultimate-performance machine that exceeds the performance of any other machine of its class available in the market today.

SwissDeco 36 is equipped with brand new 36 mm spindles, and just like on the 26 mm model, the spindles for main and back machining operations are identical and feature liquid cooling. The clamping force can reach 25,000 N and the maximum spindle speed is 8,000 rpm. These new spindles benefit from

state-of-the-art motor technologies that enable them to reach a maximum torque of 53Nm. With this impressive torque, extraordinary chip removal rates can be achieved.

Advanced characteristics

Both SwissDeco models come equipped with a guide bush with integrated synchronous motor and ceramic bearings. Based on this design, the full potential can be tapped from SwissDeco's spindles. In addition, the direct drive enables a better final surface finish of the workpiece. For guide bush-less operation, it is quite easy to dismantle the guide bush and "park" it on an appropriate support. To do so, there is no need to disconnect any cables or pipes. This conversion is very convenient and takes less than 15 minutes.

Optionally, SwissDeco can be furnished with a new guide bush with three positions. When using this three-position guide bush, bars with an h9 to h11



The version with gang tool post and turret is available with or without B axis

tolerance can be used since the guide bush automatically adjusts itself in case of bar irregularities. Thanks to the long chucking length, bar marking issues can be efficiently eliminated and, what's more, this system provides a clear benefit for milling operations by drastically reducing vibration problems.

Four machine versions adapted to the specific needs

Four SwissDeco machine versions are available, so you can select the optimum kinematics according to the specific requirements. All of these machine configurations have three entirely independent tool systems, the same spindle block for back machining operations and a gang tool post to the right of the guide bush. For back machining operations, SwissDeco offers a bunch of equipment options: in fact, the spindle block for back machining operations is simply the best equipped in the market. The machine can be equipped with up to 16 tools of which

12 can be driven tools. To get a consistent assembly, the spindle block for back machining operations has been provided with a very high motor output. The tool motor alone delivers a torque of 8.2 Nm while reaching a maximum speed of 10,000 rpm! The machine's left-hand gang tool post is fully modular and can adapt to the requirements of the workpiece. Tool holder plates, radial drills/milling cutters, an angle tool post or even special attachments can be mounted. The gang tool post can move independently in X and Y directions and rests in solid high-precision guides that provide the whole assembly with excellent rigidity. The gang tool post is able to reach very short chip-to-chip times between the operations.

The SwissDeco versions mainly differ in the rearmost tool system that may be either a turret or a gang tool post. Both of them can be moved in X and Y-axis directions and are equipped with an additional Z axis that enables them to operate in differential mode and to track the operations.

Version with gang tool post and 12-position turret

When being equipped with an additional turret, SwissDeco can accommodate up to 36 additional tools. The turret has 12 positions and can be equipped with up to 3 tools per position; each position is suited for driven tools. With this device, SwissDeco has a total of 49 tool positions, including 28 positions for driven tools. The torque motor makes turret indexing very fast and smooth. Thanks to the swift indexing and locking response of the turret, short chip-to-chip times are achieved. Optionally, the turret is offered with an additional B axis that is available both as a positioning axis and as an axis for simultaneous 5-axis operation to be able to machine most complex shapes. In view of the importance of shortening the set-up times, SwissDeco's turret can be complemented by a quick-clamping system. The tool holder is released from the turret using a single screw and it is locked in the same way. Not only does this system save considerable time but it also guarantees an excellent repeatability and optimum concentricity.

Version with dual gang tool post

The machine can also be equipped with a second gang tool post; even if the latter has less tool positions than the turret, it has the advantage of even shorter chip-to-chip times. In the dual gang tool post configuration, the machine can accommodate up to 34 tools, including 28 driven tools. Just as the turret, the gang tool post is equipped with a Z axis.

You can even go further and add a rotary axis: in this case, the machine version with dual gang tool post is equipped with an A axis with 2 x 3 driven tools. This device can be rotated by 360° and each tool can thus be used both for guide bush-less operation and back machining.

An all-in-one concept

Like MultiSwiss, the basic version of SwissDeco is equipped with a container comprising the various peripherals required for correct operation. This concept requires less floor space and at the same time considerably facilitates the use and especially the autonomy of the machine. This configuration is intended to minimize maintenance. Based on the specific needs, SwissDeco can be optionally provided with a chip conveyor, a heat exchanger, a paper filter unit, various high-pressure pump variants or even with oil mist separators all of which will be housed in the machine's container.

New human-machine interface (HMI)

SwissDeco also features a new HMI console that substantially facilitates machine operation and programming for the machine operator. SwissDeco machines boast ISO code programming by means of the TISIS software that has been specifically adapted to enable efficient management of the 3 tool systems. Together with SwissDeco, TISIS "fast motion" is introduced; this system allows the pre-calculation of the ideal tool path in order to optimize the cycle times. TISIS "fast motion" has a bunch of further advantages which will be unveiled soon.

Starting this spring, SwissDeco will be presented on the occasion of various exhibitions:

SIMODEC in La Roche-sur-Foron,
from 6th to 9th March 2018

SIAMS in Moutier, from 17th to 20th April 2018

IMTS in Chicago, from 10th to 15th September 2018

AMB in Stuttgart, from 18th to 22nd September 2018

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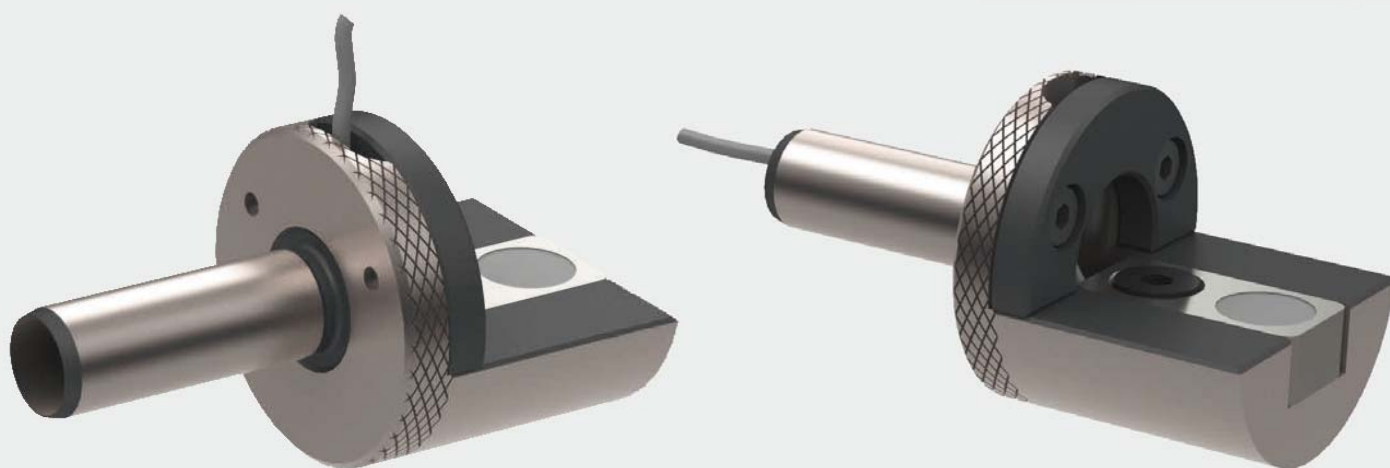
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Laurence Gygax – Customer Manager

8,5 GOOD REASONS TO VISIT SIAMS

MOUTIER APRIL 17-20, 2018



Pierre-Yves Kohler – CEO

The love of a job well done and of quality, precision, and meticulousness are well known and recognized characteristics of SMEs in the Swiss Jura of microtechnology ... just like the culture of confidentiality and modesty. Our region is home to a plethora of small businesses that offer extraordinary products and solutions, though they often lack recognition. With SIAMS, Moutier offers them an extraordinary tool to present themselves.

Over the years, SIAMS has established itself as a fair for the entire microtechnology production chain, but also as a “down-to-earth” event that allows companies active in this field to present themselves and do business “without stress”, in a friendly and convivial atmosphere. Vincent Schaller, director of Applitec, a manufacturer of turning tools, explains: “Every two years, our agents from around the world visit SIAMS and each time they discover and learn something new. They are always surprised at the quality and quantity of the “wonders” they can find there.

A Pool of Competence Like No Other

Pierre-André Bühler, President of ETA and member of the Executive Board of Swatch Group, whom we recently met, told us: “I encourage my teams to visit SIAMS before any other event on the planet as they are apt to find there a quite unique concentration of innovations and solutions.” He added: “The great strength of SIAMS is that the fair perfectly matches our DNA. In addition, even a very small company can exhibit without being lost or crushed by other, huge stands. You absolutely must preserve and strengthen this aspect.”

According to the organizers, there are 8.5 good reasons to plan a visit to SIAMS from April 17th till April 20th.

1 The trade fair of microtechnology
An exceptional event: the Swiss Jura region is the cradle of watchmaking, machine tools and an entire microsystem based on high quality and precision. With SIAMS, this region has an unparalleled promotional tool at its disposal.

2 The entire production chain will be on site.
Machine tools and robots in action! Suitable accessories and peripherals! Customized tooling, accessories, and consumables! Targeted test, cleaning, and processing equipment! Specialized subcontractors... Discover the innovations of more than 430 exhibitors from the world of microtechnology.

3 Visit feasible in a single day!
Located in Moutier, SIAMS is ideally located in the centre of European microtechnology, near the language divide of the country and less than two hours from most important Swiss towns (Geneva can be reached by train in a mere two hours).

4 People come here to find solutions and do business!
SIAMS is packed with innovations that directly affect all aspects of commercial microtechnology. It is a trade fair for visitors to find the right contacts; in fact, it is not uncommon to see them arrive with concrete problems, drawings, or specific requirements... and see them solved here.

5 Convivial and pleasant ambiance!
Far from any glitz and extraneous offers, the exhibitors are on site to provide visitors with specific information and help them find solutions.

6 A stimulating programme!
We must all prepare for the future, as the now so famous concept of Industry 4.0 constantly reminds us. The solutions proposed by the exhibitors at SIAMS support visitors to the fair in this process. At the get-together on Tuesday, April 17th, a panel of experts and representatives of the industry (from large European groups to specialized SMEs) will share their thoughts, actions, and experience regarding the industry of the future.

7 The best tool to monitor innovations and get information!
Economic conditions do seem to improve. It is time to find more efficient solutions, supply its technological relaunch and get out of one's own company to meet new contacts and new suppliers. This trade fair offers the best and quickest focus of all these ingredients to prepare for the future.

8 Download your free ticket!
A single click and it's free, too. We offer free admission to the fair so you can organize your visit already now. You will save time at the entrance to the fair to allow for a more effective visit. (Tickets acquired on site will have to be paid for.) www.siams.ch/tickets

8.5 Moutier has never been so close to the rest of Switzerland!
SIAMS is an event of national scope, and with the completion of the Transjuranne, the journey to reach the “capital of microtechnology” has become even shorter.

Visiting SIAMS Can Change Everything

During a trip to Europe, the CEO of a Bronx SME was given the opportunity of a visit that was to change everything! The visit? To the city of Moutier and SIAMS! As a matter of fact, this specialist visited the fair, met professionals in the field of machinery and the feeding and removal of parts, tools, lubrication, programming, and much more... And when he left for New York, he was sure that he would soon be able to produce his own pieces with a perfectly adapted “Swiss made” solution but even more so, a complete “Swiss Jura” solution labelled “Moutier – capital of microtechnology”. And this example can be infinitely multiplied.

The next opportunity to visit SIAMS, this true concentration of know-how, technologies and innovations? From April 17th till April 20th, 2018. As in 2016, access to the event is free of charge for those who will download their ticket from www.siams.ch/tickets.



Yves Bontaz and Patrice Armeni (Tornos) in front of their brand new MultiSwiss 8x26.

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Bontaz has more than 4,000 employees in 10 countries and to sustain its growth, Bontaz decided to trust Tornos. This is particularly the case for the expansion of the company's fleet of NC multi-spindle lathes and Swiss-type machines.

A little bit of history

The history of Bontaz Centre is closely linked to that of its founder Mr. Yves Bontaz, a man that formed his company according to his own ideas of an innovative, dynamic and fully future-driven enterprise.

A deep passion

Born in 1938 in Cluses, a town in the Arve valley, France, Yves Bontaz has been interested in mechanics and watchmaking from his earliest years. As a born entrepreneur, Yves Bontaz decided together with his twin brother Florent to join the prestigious National Clock making School in Cluses. They both applied as free applicants. Both lacked the patience to follow the normal path and to wait for the end of their school days to obtain their certificate for the application to this famous school.

Showing zeal and competitive spirit, the two brothers were accepted despite their young age. After his studies, Yves Bontaz worked in various small enterprises. In 1958, Yves and Florent Bontaz were conscripted to maintain aircraft for the French army. After 30 months of military service, Yves realized that he wanted to go into business for himself. To purchase his first machine, his parents helped him and decided to sell their horse to finance it. He canvassed his first customers and soon began to expand his machine inventory which rapidly increased from 5 to 30 machines.

Growth driven by quality and productivity

For 10 years, he subcontract manufactured for the big names of the Arve valley. This kind of bar turning, however, is poorly paid, so productivity became a keynote for Yves Bontaz. Another focus was quality. In view of the fierce competition, he wanted to stand out by supplying parts of impeccable quality. Even today, these two aspects are still forming the basis of the Bontaz Group. After 10 years of contract manufacture, Yves Bontaz bought his first 3 multi-spindle lathes. Bontaz became a supplier to Peugeot and

Renault, two major car brands in France. The margins were higher and what's more, the two customers ordered large volumes.

Being very systematic, Yves Bontaz managed his production skillfully and continued to acquire customers in order to expand his business. One day, the purchasing agent of a major car manufacturer gave him a part no other bar-turning company wanted to produce. This part was a cooling nozzle entirely made of aluminum and was the main component of the engine cooling system.

A new development

This component marked the beginning of sustained growth for Bontaz. In addition, environmental protection became a central issue in the 1990s. The better the engine cooling and the less polluting the engine, the more demand for cooling nozzles increased twenty-fold. This was the beginning of globalization of the Bontaz Group. In response to the constant pressure on pricing exerted by the purchasers, Bontaz established its first subsidiary in Eastern Europe.

Swiss DT 13 machines running at Bontaz.



Moreover, his audacious and sometimes even rebellious character rapidly lead Yves Bontaz to open a subsidiary in Shanghai. During his very first trip to Shanghai, he already opened an office there and his audacity paid off. Today, 400,000 new cars comprising a component fully made by Bontaz will roll off a production line each month.

After China, Bontaz also gained foothold in the American market with subsidiaries in South America and then in North America. Today, the company has almost 4,000 employees and branches in 9 countries, among others in Tunisia (4 sites), Morocco, China (4 sites) and in the Czech Republic. Bontaz has production facilities that employ staffs of 1,209, 682, 384 and 294 respectively. In India, Brazil, the United States, Japan and South Korea, Bontaz operates smaller facilities having between 2 and 24 employees. The company's headquarters has always been located in Marnaz. In France, the company employs 350 staff, 45 of them working on research and development. To further sustain this growth, a new production and assembly plant covering an area of 50,000sq/m has just been opened in Portugal.

Partner of choice for the automobile industry

Bontaz has become a tier 1 supplier that plays a key role in the value chain of the automobile industry. Apart from the famous cooling nozzle, Bontaz has specialized in the assembly of various sub-assemblies such as electro-magnetic hand brakes as well as all types of fluid control systems. The company collaborates with all big automobile manufacturers as well as with most of the OEMs to enhance the engine efficiency day by day and kilometer by kilometer. So, Bontaz is now actively involved in energy consumption reduction in cars.

bontaz-centre.com

The 4 MultiSwiss 6x16 that soon will be complemented by a 5th machine.



Michel Sansalone (Tornos), Yannick Bontaz, Patrice Armeni (Tornos).



Bontaz and Tornos

In Bontaz' workshops, you can see a large number of Tornos cam-type multi-spindle lathes. Just recently, various Tornos machines of different types have found their way into the workshops – thanks to the efforts of Tornos Technologies France in partnership with Bontaz. These machines include Swiss DT 13 machines.

Swiss DT 13: flexible and productive

With these five 5-axis machines, Bontaz has remarkable production capabilities. "The Swiss DT 13 was chosen due to its competitive price, its productivity and its quality", Yannick Bontaz, nephew of Yves Bontaz, emphasizes. The Swiss DT 13 machines are a valuable alternative to cam-type lathes as they boast the flexibility of numerical control while being ultra-productive. Thanks to their L-type kinematic system, the machines can reach most favorable cycle times.

"Tornos finally displays the same conscientiousness in everyday work as I do"

Swiss GT 32 B: for the most complex parts

"Just recently, we purchased two Swiss GT 32 with B-axis in order to manufacture highly complex workpieces and we were pleasantly surprised by the machine. With its rigid structure that includes the B-axis, its high performance and its driven tools that can reach speeds of up to 9,000 rpm, the Swiss GT 32 is able to tackle machining tasks of high complexity. The machine really offers excellent cost effectiveness," Yannick Bontaz explains.

The MultiSwiss family fully represented at Bontaz

Bontaz has four MultiSwiss 6x16 machines. "Even if we trusted Tornos and their cam-type multi-spindle lathes for a great many years, we still decided to contact another manufacturer for NC multi-spindle machines," Yannick Bontaz reveals to us. "We were very satisfied with these machines. Over time, we realized that MultiSwiss offered a very high performance. First of all, we were appealed by its ergonomic features that perfectly matched our needs; its technology and its technical features. We decided to take the plunge and purchase our first Tornos NC multi-spindle lathe. The machine is very easy to operate and to set up. Set-up changes can be realized in no time and this is a major advantage. Furthermore, MultiSwiss provides us with an exceptional responsiveness. The quality of the parts and of the series produced is excellent as well. That's why we have already installed 4 machines and ordered a 5th machine."

The latest member of the Tornos family: the MultiSwiss 8x26

"Given the success of the MultiSwiss 6x16, we did not hesitate when Tornos presented us with the MultiSwiss 8x26. We soon decided to purchase this product. And we have to admit that the machine has already fulfilled its promises. The machine has been perfectly designed and boasts outstanding machining features such as unrivalled dimensional accuracy, exemplary thermal stability and first-class surface finish. We owe the success of our company also to Tornos' expertise and their sophisticated machines, so we are looking forward to the two new machines that will complement our MultiSwiss 8x26 fleet," Yannick Bontaz tells us. The entrepreneur from the Savoy region, a colorful personality, concludes: "Tornos finally displays the same conscientiousness in everyday work as I do."

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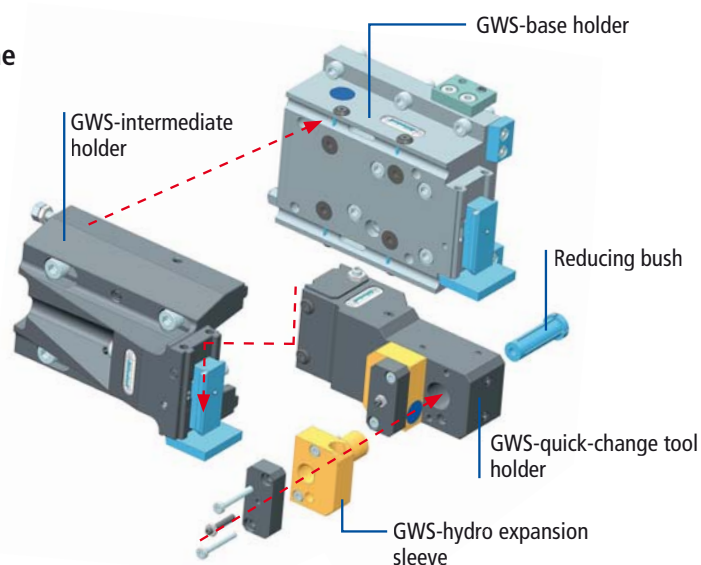
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Cameron Weiss: "Just like a car, what's 'under the hood' of a mechanical watch really does matter."

WEISS WATCH COMPANY:

Restoring prestige

to American watchmaking

Two watchmaking industry trailblazers celebrate their fifth birthdays this year: Weiss Watch Company, founded and owned by California native Cameron Weiss, was started in Los Angeles in June 2013 and today is restoring prestige to the American watchmaking industry. The same year, in Moutier, Switzerland, Tornos' SwissNano Swiss-type lathe — engineered to enable production of smallest workpieces requiring highest precision — made its debut. Today, as Watch Weiss Company cements its place in watchmaking history, Tornos helps keep the company turning.



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weisswatchcompany.com
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Born in Cameron Weiss's Los Angeles-area apartment, Weiss Watch Company has evolved as a testament to one man's obsession with fine timepieces. Employing a meticulously modern process, the company designs and engineers each of its timepieces. Every Weiss watch begins with a hand-drawn sketch and is then engineered, prototyped, inspected, measured and tested; only then does a watch enter a complex production phase. Each sketch is translated into parts to be machined according to Weiss Watch Company's own engineering documents. Components — and the company manufactures all but two of the more than 150 components comprising its watches — are first manufactured as prototypes to ensure perfect fit and tolerances. Prior to assembly, each component is inspected with equipment capable of measuring to one-tenth of a micron; thus, proper fit and functionality are ensured prior to assembly.

Such attention to detail is a given for Weiss, who became fascinated with watches when, as a pre-schooler, he was given a Swatch watch as a gift. It wasn't long before he discovered mechanical watches.

“Any turned part under 4 mm that goes into one of our watches is made on the SwissNano. We would like to have 50 of these machines on our shop floor one day”

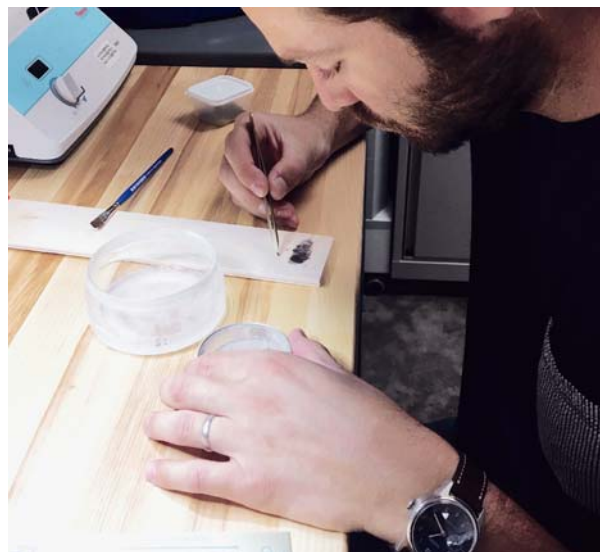
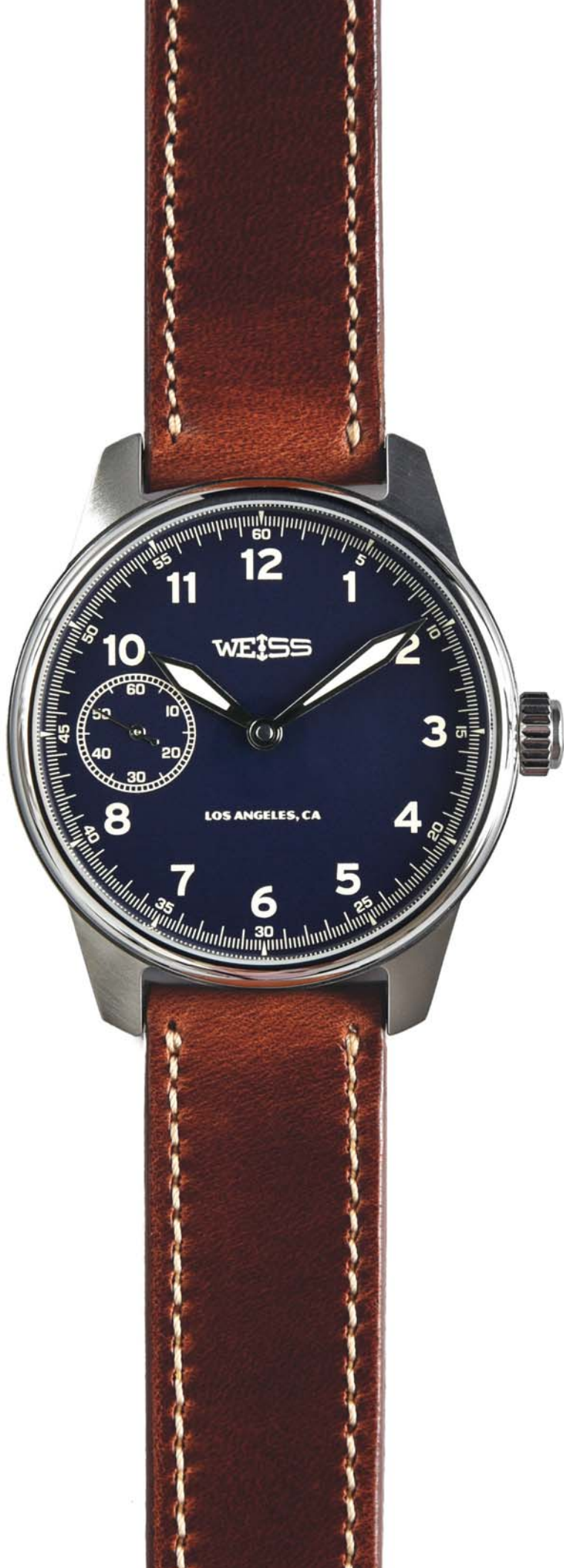
“A mechanical watch uses no electronics. All components — from the barrel to the pinions to the escape-ment — are machined from solid metals,” said Weiss. “There is something fascinating about them when you dive into the internal mechanisms. Just like a car, what’s ‘under the hood’ of a mechanical watch really does matter.”

That early interest eventually led him to the prestigious Nicolas G. Hayek Watchmaking School in Miami, Florida (US), named after the founder and former CEO of the Swatch Group.

After completing that program and earning WOSTEP certification, Weiss continued his watchmaking education — and received additional certifications — as an employee of Swiss watchmakers Audemars Piguet and Vacheron Constantin in the US and Switzerland.

All the while, he was fine-tuning his own goals and watch designs, with the vision of starting his own company. And that’s just what he did in June 2013. Since then, Weiss Watch Company has flourished, beginning with 10 pieces of a single model — a black dial, manual-wind watch on a green canvas strap — in 2013. Today, the company sells 2,000 watches per year, representing 20 different models, and has its own premises — including a machine shop — as well as five employees, including Weiss himself.





Along the way, Weiss Watch Company has broken through a great many barriers, including a dearth of US-based watchmaking expertise and availability of US-made components, to not only meet a market demand but actually resurrect the American watchmaking industry.

“Our biggest challenges have been growing enough to support wholesale and training,” said Weiss. “Everything we do here is outside of any existing manufacturing realm in the US, so we have to train the people we hire and the contractors we work with. That is important because we uphold the very exacting standards expected of Swiss watchmakers.”

The SwissNano enters the picture

When Weiss Watch Company began, it relied on an external partner to machine its cases and dials, and Weiss himself assembled the timepieces in his apartment. Today, though — in a 2,100-square-foot facility boasting turning and milling technologies and finishing and non-contact inspection of all components, as well as complete clean-room assembly — the company manufactures all but two of its own watch components. The hairspring and mainspring are sourced from Switzerland.

In keeping with the company’s goal of manufacturing as many of its own watch movements components as possible — from screws and pinions to



arbors — Weiss Watch Company in 2016 invested in a new Tornos SwissNano, purchased through Tornos' distributor, Protek CNC Sales Corp., in Simi Valley, California.

"Any turned part under 4 mm that goes into one of our watches is made on the SwissNano," Weiss explained. "We also do gear hobbing on the machine. Two thousand watches a year is not a lot of watches. The SwissNano can make 2,000 pinions in a couple of hours. But once we have all of our components set up on one machine for low quantity manufacturing, we can purchase additional machines as needed to keep pace with demand. We would like to have 50 of these machines on our shop floor one day."

A sliding pinion — the component that interacts with the setting wheels of the watch to enable the crown to be turned to move the hands on the watch — is just one example of a component perfectly executed with the SwissNano. The sliding pinion has face

gears on one side and castle gears on the other side, and its manufacture requires internal broaching and external turning. In a single setup, Weiss Watch Company's SwissNano flawlessly produces 2-mm-diameter, 4-mm-long sliding pinions made of AP 20 soft steel, respecting tolerances from -0 to +3-5 microns and yielding surface quality of Ra 16 or less.

A former Sandvik Coromant applications engineer, Weiss Watch Company manufacturing engineer Grant Hughson knows the ins and outs of machine tools, so his expertise carried a lot of weight when Weiss read about the SwissNano and wondered whether it might meet his company's needs.

"Factors in our buying decision were the fact that the SwissNano was actually engineered with watchmaking in mind and is successfully used by large watchmakers," Hughson said. "I knew it was a newer machine and I'm hesitant to purchase a really new machine. But the SwissNano has proven its value in watchmaking."

"For its size and setup, the SwissNano is unique. As far as the SwissNano's layout and configuration, there aren't many competitors that can do what it can do. Most SwissNano users are running tens of thousands of parts successfully. We are doing short runs a couple of hundred parts, so we have a lot of changeovers," he said, adding that Tornos' TISIS programming software saves him time by ensuring there are no errors in the code.

Today, the SwissNano does more than keep Weiss Watch Company turning. It also serves Pinion Precision Technology, co-founded by Weiss and Hughson to provide precision manufacturing of finished products as well as consulting, engineering, development, production and assembly for fine timepieces and more. Like Weiss Watch Company, Pinion Precision Technology's products carry the "made in America" country of origin label and comply with the Federal Trade Commission's "made in America" standards.

weisswatchcompany.com

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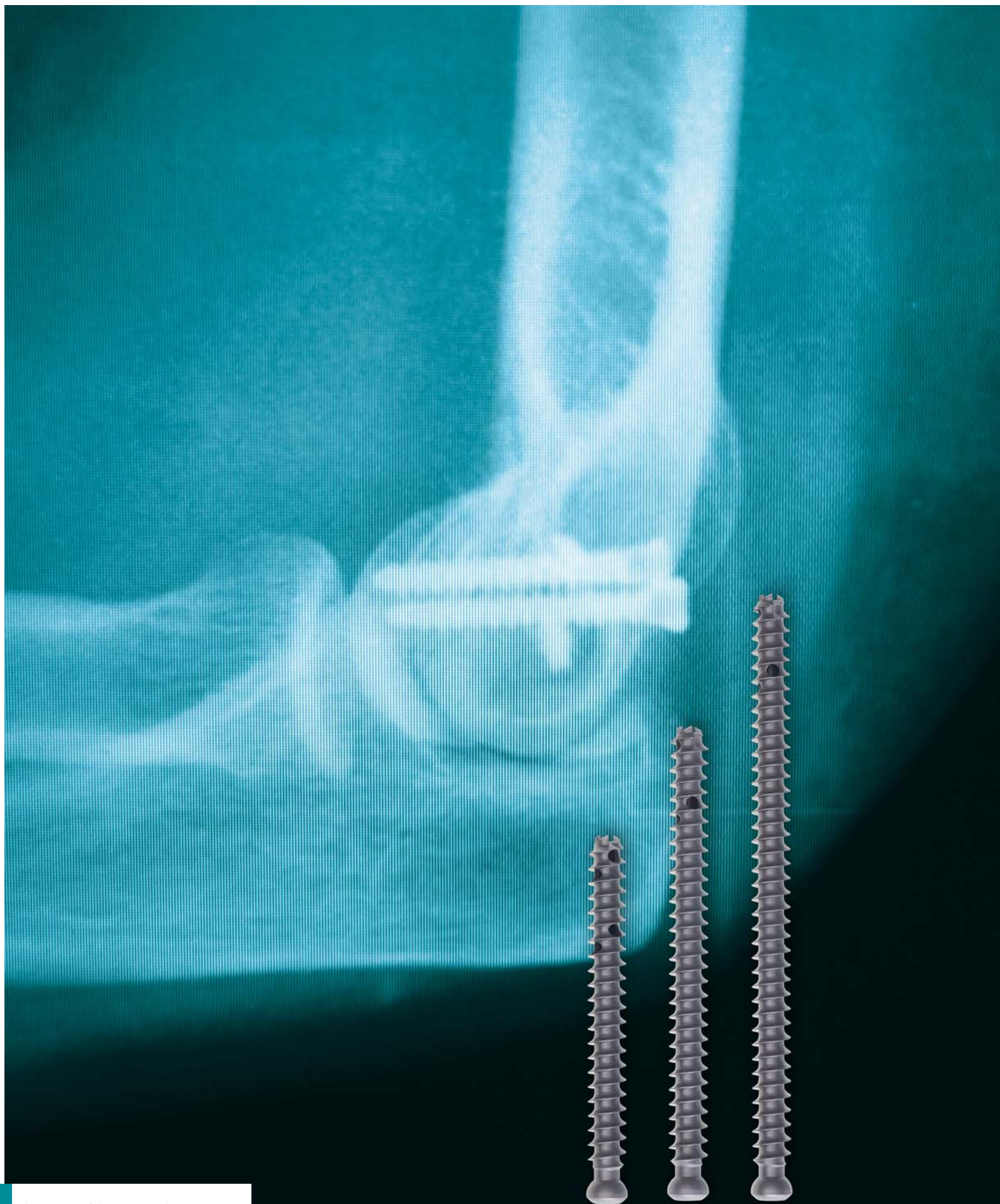
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*Königsee Implantate installs
two new Tornos machines*

Precision to the bone

For more than 20 years, Königsee Implantate in Königsee, deep of the Thuringian Forest has been developing and producing implants and instruments for traumatology, orthopedics and spinal surgery with enormous success. In the course of continuous process improvements, two new Tornos EvoDeco 16 machines were purchased in 2017 and they have already passed the test brilliantly.



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koenigsee-implantate.de

In the medical industry, Königsee is one of the top addresses with a long tradition. The roots of Königsee Implantate go back to the end of World War I. In 1919, the orthopedic technician Otto Bock founded a company in Berlin to provide disabled war veterans with prostheses and other orthopedic products. Shortly afterwards, the company moved to Königsee, in Thuringia. This company was the origin for Königsee Implantate GmbH, which was founded by Erich Orschler in 1993.

The success story of this company started with a small machine inventory and the strong determination of its employees. Initially, the company focused exclusively on the development and manufacturing of osteosynthesis systems for traumatology and orthopedics. For more than 10 years now, it has also been offering solutions for spinal surgery. The products for almost all bone sections, from the collarbone to the toes, drastically speed up the healing process

“The new EvoDeco’s have again reduced the production times by up to 30 percent”

of fractures compared to conventional methods of treatment. New solutions constantly arise from the close collaboration with physicians and surgical teams. The development projects comprise the complete path of the value chain, from the idea and development of a prototype to the manufacture of the product. During this process, painstaking attention is paid to quality, since it is the basic requirement for the long service life and safe use of implants. This is why they purchased two new EvoDeco 16 machines from Tornos.

Perfectly harmonized systems

In layman’s terms, an osteosynthesis system consists of a plate that is matched with the anatomy and screwed onto the bones with a variable number of screws of different lengths and diameters. This is done using special tools to stabilize fractures and help bones grow together. Königsee comprises the entire manufacturing process from purchase and planning to the milling, turning, grinding and galvanization to the final inspection and warehousing. Design concepts are translated into series production. Here, the materials used, the tight tolerances, the process stability, traceability and manufacturing costs are all considered. The pricing pressure has reached the medical industry and this means that top quality produce from Germany can only be competitive by applying a sophisticated manufacturing strategy. For this reason, Königsee has invested in Tornos.

The fine art of turning

All the screws are produced in the turning shop. Fractures require screws of different lengths and diameters, as well as with different properties. Depending on their use, the screw types produced are self-tapping, self-drilling or reverse-tapping. The threads are either full threads up to the head or partial threads. The threads are whirled with various pitches while heeding the tightest shape tolerances. The head faces usually have a hexagon or hexalobular (Torx) socket. Most of the screws are cannulated, featuring a channel to drain the tissue fluid. The material used is usually titanium or implant steel. Even if it is not difficult to machine titanium, it features two special characteristics, low thermal conductivity and the difficulty to break the chips, which requires special cooling strategies. Tool wear is very high due to the extreme toughness of the material. The varying lot sizes are between 25 and 150 pieces. All screws manufactured must be as burr-free as possible in order to minimize rework. The high expectations the company is making on itself are a constant motivation to strive for optimization of products and manufacturing processes. Although Königsee had already been well positioned with seven Tornos machines, they decided to purchase two new EvoDeco 16 machines. Why exactly these machines?





A tuned up all-rounder

Thanks to their kinematics and tooling, Tornos EvoDeco's are predestined for manufacturing complex workpieces with high quality. Christian Hedwig, manufacturing engineer for turning operations at Königsee, gives us more reasons that were decisive for the purchase of these machines: "Up to then, we had been using Deco 13 and Deco 20. On the two new machines, we can produce a larger diversity of parts, which makes us much more flexible."

"On the other hand, the large number of tools opens up new possibilities in terms of machining even more complex workpieces in one set-up. This purchase has enabled us to improve our processes." To do so, the machine has been further optimized by Königsee. A high-pressure system by Müller Hydraulik has been installed with a pressure of up to 150 bar can be fed directly to the individual tool blocks through a manifold block. This significantly improves chip breakage

and evacuation. As a consequence, the tool life and process stability are extended. Stability is a major advantage of the Tornos machines.

They operate with high reliability and produce parts with absolute dimensional accuracy over a long period of time. Another interesting point is that the new EvoDeco's have again reduced the production times by up to 30 percent. The employees of Königsee are full of praise after having started series production. They soon became familiar with the machine, since the TB-Deco control functions are extremely user-friendly and were already known in the company. At present, the machines are running in three shifts and help to further improve the already high standards of the Königsee Implantate GmbH.

koenigsee-implantate.de





Stéphane Menoni: "From the very beginning, the customers have placed their trust in us, so we could start our production in optimum conditions."

Diversification into watch components

The company Geneva Prod Sàrl, founded in 2016 and based in the premises of Badeco SA downtown Geneva, manufactures high-precision components for watchmaking such as crowns, push-pieces, tubes, pinions, arbors, watch hands and also components for the connecting industry.



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In the La Jonction quarter in Geneva, the Palladium with its concerts, festivals and other evening festivities unquestionably is the mecca of Genevan nightlife. Change of scenery in the immediate vicinity of this highly symbolic place is a large, much more austere building at the bank of the Rhône river that accommodates several companies active in the industry and crafts sectors. These companies include Badeco SA and its latest spin-off Geneva Prod Sàrl.

Hand-held electric power tools for watchmaking and jewelry industries

Badeco SA was founded in 1945 with an initial focus on the manufacture of dental instruments. Since 1960, the company has been designing and manufacturing high-precision machines and equipment primarily for the watchmaking and jewelry industries, especially hand-held power tools to perform machining operations such as drilling, polishing, grinding, chamfering, smoothing, deburring, filing and various other decoration tasks.

The components are designed, manufactured and also assembled in-house. The company had been the property of the family Badel, before it was taken over by Amir Hoveyda in 2009. Right away, this industry

professional established an R&D department that marked the beginning of the release of new electronically controlled devices equipped with a micromotor that can achieve speeds of 5000 rpm.

Booming diversification

At the beginning of 2016, the management decided to diversify and establish a new business for the production of watch components in the same premises. That's how Geneva Prod Sàrl started operations in August of the same year, which went hand in

hand with the appointment of Stéphane Menoni as Managing Director of the newly founded company. The latter exhibited profound skills in high-precision bar turning and had already made his career as a technical sales manager in a well-established company manufacturing watch components. He resolutely tackled the challenge and with eight employees, Geneva Prod certainly develops and manufactures Badeco products. However, the new production department for watch parts has been rapidly growing. To face the challenges of production, the young company acquired two SwissNano CNC automatic lathes from Tornos.



When the available space is restricted

"We already purchased these machines at the beginning of our activities. Right from the start, they have proved to be particularly flexible and precise while requiring minimum floor space," Stéphane Menoni declares. What was decisive, apart from the small footprint, was the flexibility of use of the SwissNano machines. "Some high-precision components are manufactured in large-scale production with lots ranging up to 25,000 parts, but it is also common



“Just three days after the installation of the machines, the operator was fully familiarized with machine set-up and operation”

practice to produce in small series or even perform one-off production. e.g. for the manufacture of prototypes or spare parts,” asserts Stéphane Menoni.

He adds: “Since the space in our premises is restricted, we have installed the machines inverted to gain additional space; this arrangement enables full access to the machining cell from the front.” The machines are equipped with bar feeders and can be used for back machining as well as gear cutting operations.

Commissioning was quite easy: “Just three days after the installation of the machines, the operator was fully familiarized with machine set-up and operation. On the one hand, this was down to simplicity and on the other; it was the intuitive functions of the TISIS code editor. The latter is simply fantastic, since it allows both program editing or transfer and tool selection and machining process monitoring,” Stéphane Menoni affirms.



Full flexibility in production

Geneva Prod's means of production comprise conventional machine tools for the manufacture of the Badeco devices and accessories and an assembly/measurement department that is equipped with a camera-based dimensional inspection and measurement system. “The whole range of Badeco products is entirely designed, machined and assembled on the spot,” Stéphane Menoni explains.

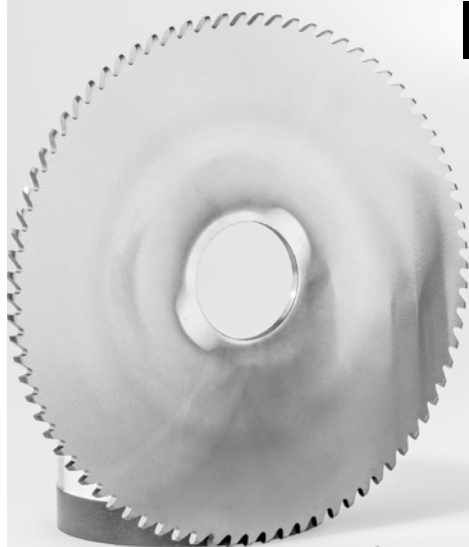
Apart from the two SwissNano machines having a bar capacity of 4 mm, the new production sector comprises two other CNC automatic lathes, one of them being a Tornos Delta 20/5 with five axes and two spindles with a spindle bore of 20 mm. These two machines are used more specifically to machine components of the Badeco range.

“From the very beginning, customers have placed their trust in us, so we could start our production in optimum conditions,” asserts Stéphane Menoni. We have a broad base of customers, be it major watch-making groups or manufacturers of watch cases or independent watchmakers, watch repairers or watch designers. “We offer products such as assembled crowns, push-pieces and tubes, pinions, screws and arbors. All of them are micro parts that feature extreme surface finish and precision and that are made of materials such as stainless steel, titanium, nickel silver or precious metals,” explains Stéphane Menoni.

The connecting business is another area. One of the specialties in this field is the production of parts made of beryllium bronze. A special production department for the manufacture of watch hands is based in Plan-les-Ouates. This field of activity represents almost one third of the turnover. Further diversification is being reviewed.

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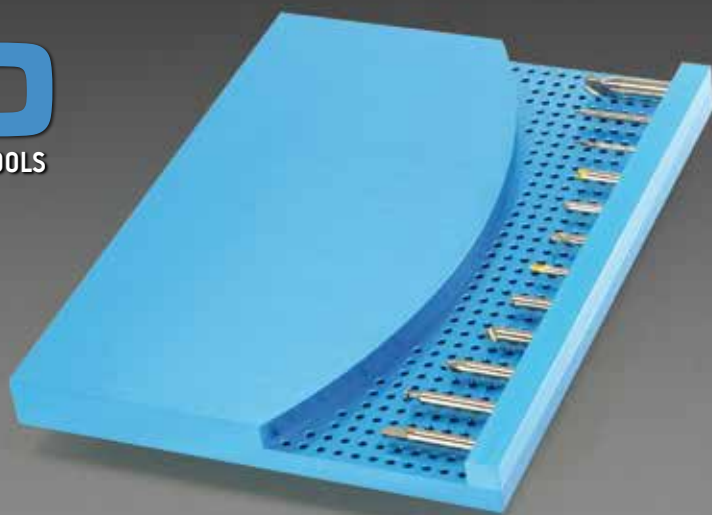
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"The MultiSwiss machines are perfectly designed, easy to use, fast and extremely accurate. This makes us much more flexible to meet customers' demands".
Patrick Schlatter

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Multi-spindle automatic lathes that are mechanically controlled by cams are still nowadays excellent for bar turning of large to very large batches of small mass-produced parts with low to medium demands regarding geometrical complexity. Due to their sturdy mechanical features, they require very low maintenance and rarely experience failures. The use of automatic bar loaders enables long-term unmanned operation, which makes them very profitable. However, they reach their limits when higher demands are placed on the precision and/or complexity of the parts. Complementing these conventional machines with advanced CNC-controlled MultiSwiss automatic lathes will significantly increase the performance range and flexibility of any bar turning shop.

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"We are a typical bar-turning shop specialized in the production of parts made of steel, stainless steel or brass with a diameter between 4 and 16 mm," explains Patrick Schlatter, managing partner at RB-Cema AG in Biberist, Switzerland. Until five years ago, the company only used SAS 16, SAS 16.6 and AS 14 cam-controlled multi-spindle automatic lathes by Tornos. These machines are equipped with six spindles in a barrel head. This barrel head is clock-controlled and indexes from one working station to the next. Specific work processes are executed in each station until the part is cut off after having left the last station. The achievable accuracy lies within the range of 2-3/100 mm. Most of the automatic lathes

are equipped with automatic loading systems, which allow for long operating times without manual intervention. Even more complex tasks can be executed by retrofitting the machines with complementary attachments. The sturdy, low-maintenance mechanic features together with the fact that the multi-spindle principle enables six work processes to be executed simultaneously per cycle ensure a higher efficiency when manufacturing mass-produced turned parts in lot sizes between 100,000 and 50-60 million pieces. The main customers are from the automobile industry, the mechanical engineering and equipment construction sectors, as well as manufacturers of household appliances and hydraulic components.

Decisive factors: quality...

"For our highly demanding customers, a low price is just a prerequisite to be accepted as supplier in the first place," adds Patrick Schlatter. Equally important is the ability to steadily guarantee the quality level

required by these customers, without any interruption. According to him, the decisive factor is the attitude of the employees who should always keep an eye on their working environment to prevent anything that could negatively affect the quality of the products. Quality must be achieved from the very start. Permanent self-monitoring by the employees enable any deviations exceeding the permitted tolerance range to be detected at an early stage, even before production is started. For this purpose, clean and attentively equipped measuring stations with appropriate instruments have been arranged all over the manufacturing area to enable the employees to make sure that their machines operate within the specified tolerance range. For the same reason, when setting up a new part, RB-Cema attaches more importance to diligence than to speed. Accordingly, a machine that has been meticulously set up produces good parts for a significantly longer period of time, which is much more economical than saving one hour of set-up time.

A total of 17 cam-controlled multi-spindle automatic lathes SAS 16.6 and AS 14 by Tornos are used at RB-Cema.



“The MultiSwiss machines are perfectly designed, easy to use, fast and extremely accurate. This makes us much more flexible to meet customers’ demands”

In addition, RB-Cema has also opted for extensive automation to enable 100% quality control in unmanned operation. This is done by implementing a fully-automated optical inspection of all required dimensions using IT-assisted camera systems. As a matter of course, the company has been certified in accordance with ISO 9001.

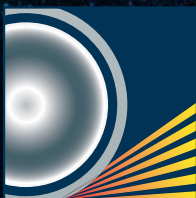
... and innovation partnership

“We see ourselves as our customers’ partner and providing advice to them for the development of new parts is also a very important aspect for us,” reveals P. Schlatter. This involves making use of a comprehensive expertise regarding feasibility and limitations of the manufacturing process. By giving them assistance on how to adapt the design for enhanced production, the customers are able to achieve substantial savings. Unfortunately, the knowledge about the machining process sequences and on how to most usefully allocate the scope of work to the individual stations is not part of the training contents of the customers’ design engineers. The best solutions can only be found on the basis of an effective development partnership between both companies regarding component design.

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"In spite of their advantages, cam-controlled machines are not suitable to produce all the parts required by the customers," declares P. Schlatter. This applies both to the achievable accuracy and the complexity of the geometries to be produced. On the mechanical machines, specific work processes such as drilling lateral holes, milling faces or multiple faces, or slotting involve a considerable amount of additional effort. Quite often, this requires additional work processes on a second machine, which leads to high inaccuracies due to the second clamping operation. If a company cannot offer the complete range of parts required by the customers, it virtually compels them to look for another supplier, which is always a risk. For this reason, RB-Cema decided in 2012 to purchase a cutting-edge CNC-controlled multi-spindle automatic lathe MultiSwiss 6x14 with automatic loading system by Tornos to complement their existing machine inventory. These machines are equipped with a barrel comprising six CNC-controlled spindles which operate independently of each other and successively run past six tool slides moving laterally. These slides can be equipped with a wide range of attachments, e.g. polygon milling unit, cross-drilling unit, HF spindle or milling unit, which enable a large variety of complex processes, such as drilling, milling or thread cutting. Due to its operating principle, these machines work as fast as cam-controlled systems but achieve significantly higher accuracy levels of down to 3-5 µm and thus enable highly demanding geometries to be manufactured. This is a real advantage that, compared to cam-controlled systems, becomes even more important if subsequent work on another machine can thus be omitted. At the same time, this avoids inevitable disadvantages in terms of accuracy caused by a second clamping operation.

Experience with the new technology

"The MultiSwiss machines are perfectly designed, easy to use, fast and, due to their spindles supported by hydrostatic bearings, extremely accurate," comments P. Schlatter. He further explains that the machining area has been designed with its practical use in mind and allows optimum chip flow. In addition, the system is easy to set up and retool. The employees rapidly accepted the new technologies upon complet-

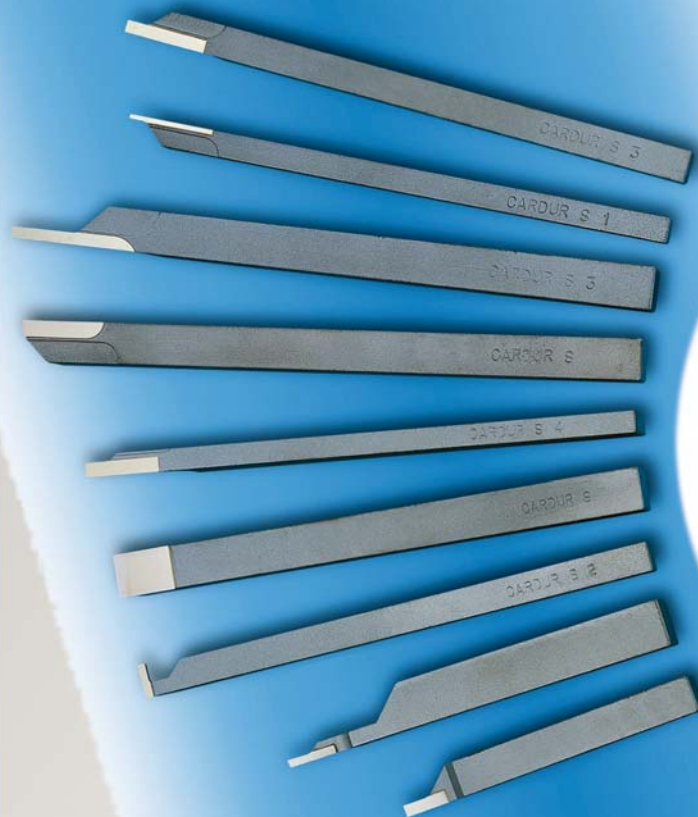
ing appropriate training and can handle it well. The company is also pleased with the reliability, in spite of the higher complexity of the parts produced. The high precision of the spindles and the vibration dampening by the oil cushion in the bearing guarantee less tool wear. Schlatter highlighted the compact design of the system, which unites all the required components in a closed container, thus requiring a smaller footprint than other systems. Another positive factor, according to him, is the thermal stabilization, which automatically turns on by time control prior to the start of the early shift and heats up the system to the adequate operating temperature before work is started.

Schlatter declares that the new systems have made them much more flexible to meet customers' demands. This not only applies to the accuracy and complexity, but also the lot sizes. With the new machines, it is now easier to carry out pilot or test machining runs with small lot sizes or to generate smaller batches within a short period of time in case of supply bottlenecks. At large, the advantages are so important that the first new machine already brought economic advantages. So two more MultiSwiss systems by Tornos have been purchased since then.

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Both MultiSwiss automatic lathes 6x14 by Tornos in use.





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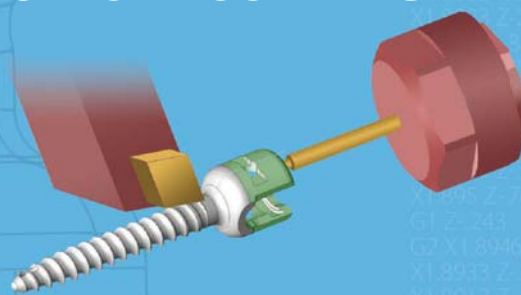
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It establishes and manages suitable structures and develops any measures promoting the socio-occupational integration of their beneficiaries and implements the measures with which it is entrusted by their agents. With 11 sites in the French-speaking part of Switzerland, Orif is striving for the reintegration and integration of the people concerned day after day by offering them individualized vocational rehabilitation measures tailored to their individual personal situation. Orif is mainly mandated by the disability insurance offices of the Swiss cantons (OAI) that confide to it, the insured persons with the aim to build a meaningful and promising professional project for their integration into the free economy. Additionally, it educates the insured persons to provide them with new skills at the end of their vocational training. At its site in the Swiss Jura region – in the industrial area of Delémont, Orif has 7 departments including a mechanical workshop that is extremely well equipped. Amongst others, the workshop comprises two Swiss-type lathes from Tornos. We met an extraordinary team.

Orif – a single aim: integrating humans

Orif is a non-profit organization that was established in 1948 by professor Placide Nicod. It coaches more than 2000 individuals each year and enables them to



Orif has a bar-turning workshop that is extremely well equipped.



Teacher and apprentices: the SwissNano machine on which the apprentices are especially taught in gear hobbing.

realize their rehabilitation plan in compliance with the requirements of the economy and in partnership with the companies. For almost 70 years, the Orif sites have been guiding and training rehabilitated individuals and integrating them into the economy and the job market. Orif has a presence throughout the French-speaking part of Switzerland and employs a highly specialized staff of over 450 professionals. The organization offers more than 60 different certified training courses in the primary, secondary and tertiary sectors of the economy. The success of its apprentices is accomplished when a sustainable integration in the first job market has been achieved.

A center matching the specific requirements of the Swiss Jura Mountains

To fulfill its mission, Orif is relying on high-performance tools and creativity with integration in mind. The organization invests in new technologies and is prepared to tackle new challenges in order to achieve the socio-vocational success of the individuals. The Delémont site was opened in 2001 and today, under the leadership of Mr. Mario Kucman and his executive team, it offers training courses in line with the human resources required by the companies in the Swiss Jura Mountains. To do so, Orif implements individualized services in accordance with the specific needs and capabilities of each person taken care of. André Merz, socio-vocational teacher in charge of the

professional team reveals: "Everyone is different. We always start with a discussion with the person concerned to pinpoint his or her resources, motivations, needs and expectations. It is our aim to realize a real and sustainable reintegration."

After having evaluated the capabilities, Orif is able to provide training in line with the health impairment of each individual. It goes without saying that Orif Delémont has focused on the professional and industrial fields that are typical for this region and are the basis for its reputation in watchmaking and high-precision engineering.

The Delémont site primarily offers certification training in the watchmaking, high-precision engineering, production CNC machining centers, conventional and CNC bar turning, gear hobbing, burnishing and quality control, conventional and CNC polishing (watchmaking), laser (engraving) technology and 3D printing technology sectors. Well established within the economic structure of the region, Orif benefits from excellent relationships with the regional companies and it is able to propose and place the beneficiaries of its services.

According to the site management, the aim and the dual center/company concepts enable Orif to best meet the demand of the employers for qualified staff: "At regular intervals, our experts follow up the

“A successful vocational rehabilitation means guidance and training tailored to the individual competence and to the functional limitations. This is how qualified beneficiaries will find their place back in the free economy”

individual placed in a company and also support the company in question during the internship phase. The SMEs from the Jura region has a partnering relationship and appreciate the fact that we are able to propose trained, qualified and motivated staff,” Mario Kucman explains.

Excellent reintegration rate

Since its establishment, the Delémont site has organized more than 600 internships and practical training programs in almost 300 companies with an excellent reintegration rate for the trained and certified trainees. At the end of their training, 9 out of 10 people have signed an employment contract. André Merz explains: “Our objective is clear: we are aiming at the re-integration of the individual into the job market. Furthermore, it is very important to supervise the respective person in order to find the optimum solution from a win-win perspective.”

Mario Kucman continues: “A successful vocational rehabilitation means guidance and training tailored to the individual competence and to the functional

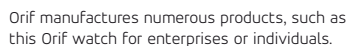


Extended management team (EDE) of the Orif site Delémont.

limitations. This is how qualified beneficiaries will find their place back in the free economy. The vocational integration crowns the commitment of the persons in their efforts, of the agents in their aim of rehabilitation and of the Orif employees in their mission. We would like to express our gratitude to the employers who confide in us and who can rely on us and on the people proposed.”

A machine inventory adapted to the market requirements

In light of the training courses offered, the Orif training center in Delémont is equipped with numerous state-of-the-art machines that are representative of the machines used in the region. The bar turning department comprises two cam-type Tornos machines as well as two Tornos CNC machines (one Delta 20 and one SwissNano). With these machines, Orif enables some of its beneficiaries to successfully re-enter working life, but that is not all. The Tornos machines are also used to produce parts for training purposes. To underpin the reintegration of people working with Orif, it is important for the site managers to make sure their work is as concrete and realistic as possible. For this purpose, the machines are producing on-site in a training workshop that covers an area of 200 m². This enables the people to monitor the production on the machines.



The SwissNano machine superbly complements the inventory of cam-type and CNC machines by Tornos installed in the bar turning workshop of the Orif site in Delémont. The last machine purchased is the small SwissNano machine. This machine enables the team to polish their knowledge of gear hobbing operations on Swiss-type lathes. The presence of the machine also reflects its success.

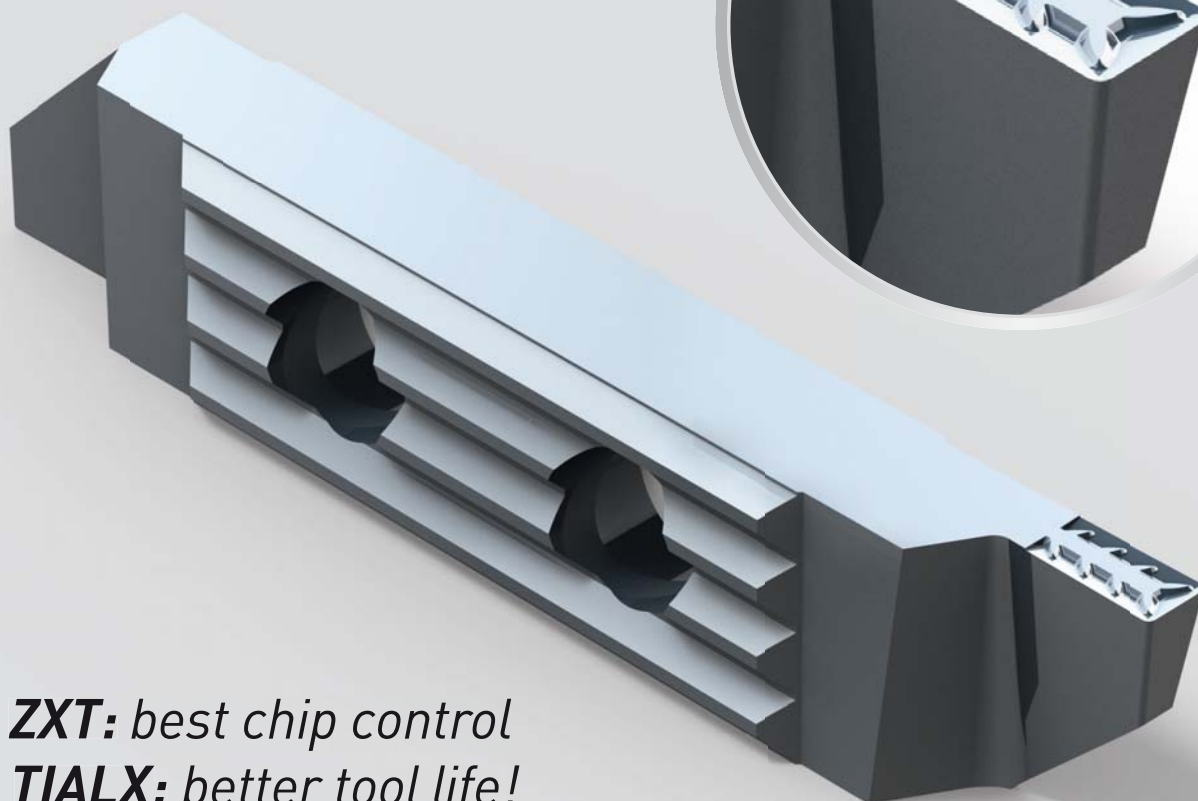
The socio-vocational teachers of this field are experienced industrial professionals who are duly qualified to guarantee continued training. Just as for any other craft of its scope of services, Orif offers theoretical and on-the-job training programs and certifications recognized by the competent authorities.

Incidentally, Orif is always in search of partnerships and concrete offers for its beneficiaries. We can only encourage you to contact this dynamic team.

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TOP-Line

ZXT-TIALX



ZXT: best chip control
TIALX: better tool life!



TORNOS

MultiSwiss 6x32

The MultiSwiss 6x32 shares the same base as the MultiSwiss 8x26 machine. It is equipped with six independent spindles with hydrostatic bearings and can turn bars up to 32 mm in diameter. To achieve excellent machining conditions at these diameters, the 11-Kw motor has an increased torque of 27 Nm (S6). The maximum spindle speed is 6000 rpm and the maximum part length is 65 mm. As an option, the machine can also be equipped with three Y axes.

tornos.com



*32 mm, 27 Nm, perfect
for large diameters*

MultiSwiss 6x32