

Lead-free brass: A new challenge for the watchmaking industry Torneria Serra and
Tornos combine
experience and
talent in the name of
innovation 24

A winning Record with Tornos

40

Cmatic and Tornos – quality and competitiveness guaranteed



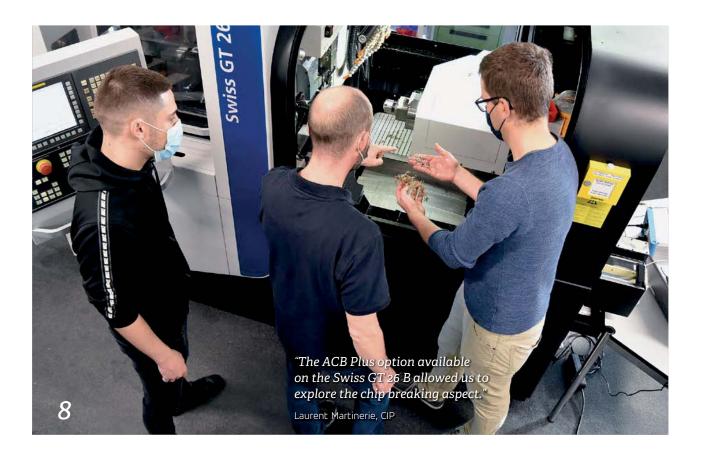
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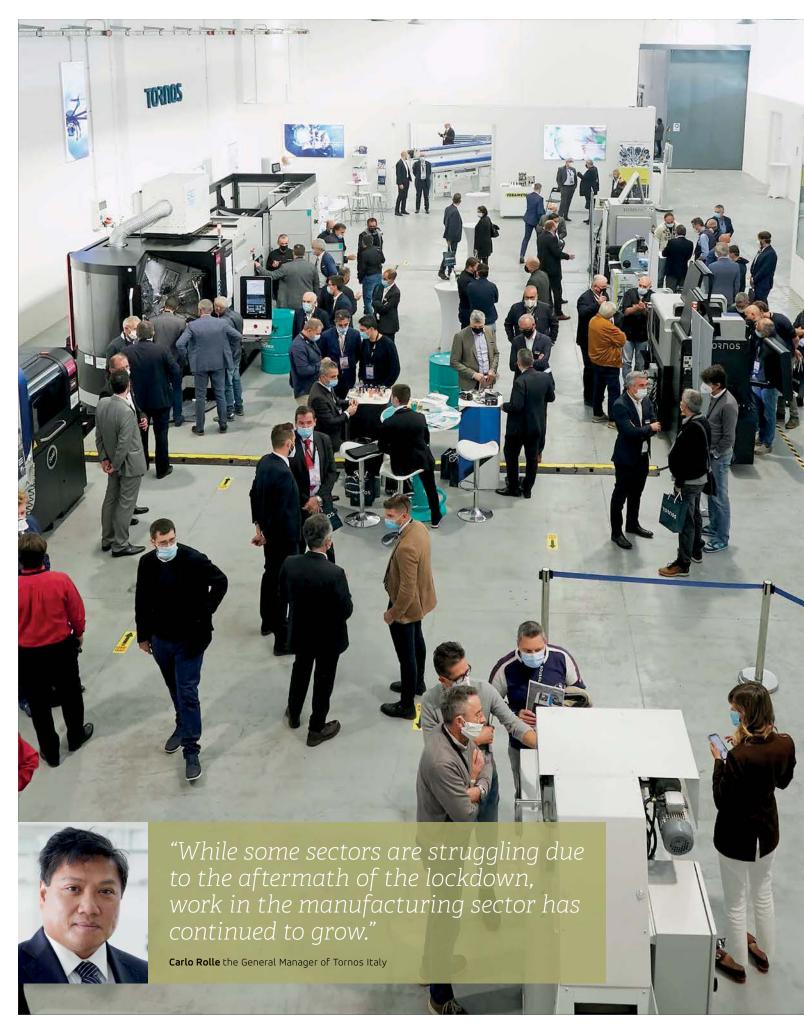
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A more than promising year for Tornos Italy

Carlo Rolle the General Manager of Tornos Italy

The first six months of the year were indeed very positive for Tornos Technologies Italy, not least because, in the context of a pandemic, such a positive market performance was not expected. This was despite strong signs of recovery in Italy in the last six months of 2020 (in the middle of the lockdown).

The official opening of the new Tornos Italian subsidiary, which took place in October 2020, was a success, despite the strong conditioning due to anti-counterfeiting regulations that gave a new impetus to the sales result.

The new Customer Center Milan, which opened a year ago and has machines ready for delivery at all times, has also made a fundamental contribution to the important result, in terms of incoming orders of which we are proud. While some sectors are struggling due to the aftermath of the lockdown, work in the manufacturing sector has continued to grow.

Government incentives such as the Industry 4.0 tax credit and the recently refinanced Sabatini Act have further boosted sales. Indeed, the Sabatini law grants an economic contribution from the Ministry of Economic Development (MISE) to small and medium-sized companies that wish to invest in equipment, such as machinery, either through bank financing or leasing. The purpose of this law is to improve the competitiveness of the national system.

It gives companies the peace of mind they need to continue investing in the renewal of their machinery. However, the incredible results in the first part of 2021 do not only depend on the increase in employment but also on the fundamental contribution of the used machinery market.

What we cannot yet predict without a doubt is what the beginning of 2022 will be like. This is because when we will really turn the corner, will the volume of work we have experienced so far continue going forward.

The forecast is that this trend will remain constant through to the end of 2021. Furthermore, with government incentives that have been confirmed, support for the used machine market will continue.

At the beginning of 2022, with the financial law and its possible modifications, as well as the evolution of Covid-19 which inevitably has an impact on what both individuals and companies fear, we will understand if the enormous visibility we have had in this period will continue or if there will be a decline in business prior to a sustained level.

Sectors currently buoyant for the Italian market

Among the sectors that have recovered best from the lockdown and are doing particularly well are the white goods sector (household appliance companies), the construction sector, thanks to the 110% incentives and the tire sector.

To a lesser extent, in Italy, the automotive sector continues to perform very well. This segment has shifted to hybrid vehicles, which means that automotive parts are simpler, smaller, and they integrate with the electronics sector, thus favoring automatic turning.

The double significance of EMO 2021

For the Italian machine tool market, EMO 2021 will have two profound meanings that are both very important. For all the companies involved in the

"This EMO will also mark a turning point in the way companies approach trade fairs." machine tool sector, this show will represent a real restart and, finally, a massive involvement of customers, suppliers and manufacturers. It will be the confirmation of a gradual return to normal life.

Prior to the Covid-19 pandemic, exhibitors stood proudly on their booths to present their products to customers. However, due to the restrictions and the fight against Coronavirus, enjoying the event of a trade fair was definitely not on the agenda.

This EMO will also mark a turning point in the way companies approach trade fairs. I think it is essential that today's companies have their own showroom, where they can meet their customers, talk to them and solve their problems.









It is unthinkable that this happens in a ten-minute meeting at a trade show.

The booth meeting should be used to reach customers who are not yet familiar with a brand and with whom a company would otherwise have no way of getting in touch.

In the future, why not consider a traveling trade show, a sort of circus, with smaller booths. The formula that Tornos has chosen for this EMO is therefore definitely a winning formula. We look forward to welcoming you to this unprecedented hybrid event and inviting you to enjoy both the fair and our brand new showroom.



Lead-free brass:

A new challenge

for the watchmaking industry

Since the summer of 2020, a Swiss GT 26 with a B-axis has been set up at the CIP training centre in Tramelan, Switzerland. It performs a set of bar turning tests as part of a project led by the Swiss Association for Horological Research (ASRH). A strategic step for the sector, this project was initiated at the behest of the Swiss watchmaking industry, which is looking for ways to replace traditional leaded brass alloys with lead-free brass to respond to changes in legislative standards.

ASRH RECHERCHE HORLOGERE

COMMUNAUTAIRE

ASRH

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Centre interrégional de perfectionnement

Chemin des Lovières 13 2720 Tramelan Switzerland cip-tramelan.ch As a regional watchmaking research organisation, the role of the ASRH is to conduct research projects on behalf of its members. Initiated and led by the ASRH, these projects mainly take place in the laboratories of universities and research centres in Switzerland and abroad. For the current project, the association is overseeing an initiative that benefits from the knowledge, technical resources and expertise of several training institutions in Western Switzerland (EPFL, HE-Arc, CIP, CTM), and is making use of the Swiss GT 26 machine provided by Tornos.

The context

Whilst lead-free brass is nothing new, the ROHS standard is imposing a maximum lead content of 0.1% on the electronics industry, the European REACH regulation has set this threshold for the jewellery and watchmaking industry at 0.05%.

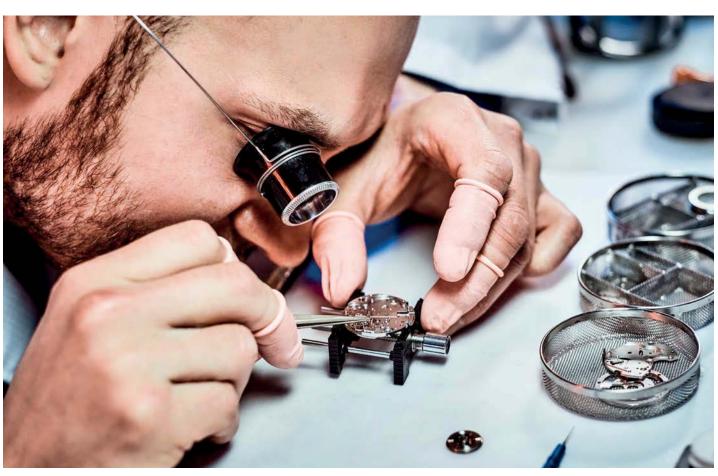
"The ACB Plus option available on the Swiss GT 26 B allowed us to explore the chip breaking aspect."

Traditional brass alloys containing 2-3% lead will therefore eventually be prohibited. By studying different lead-free brass alloys, the ASRH's role is to provide documented data and a database of knowledge to enable the watchmaking sector to speed up its switch to the production of lead-free brass. Through the ASRH, the watchmaking industry is giving itself the resources to move away from leaded brass. As part of



This machined test piece for the comparison of materials reflects typical watchmaking problems.





its work, and to ensure the machining behaviour of these alternative alloys is studied rigorously and pragmatically, the association quickly decided to set up a test campaign.

For bar turning, the association approached the CIP, so that it could perform tests somewhere that would be free of all production constraints, whilst ensuring access to sound technical expertise. The CIP and its highly qualified personnel quickly proved to be the perfect solution. "With help from HE-Arc, which equipped the machine and provided its knowledge of machining processes, we were able to provide the ASRH with the environment and technical expertise needed to perform their practical tests. The collaboration between these three organisations was organic. The ACB Plus option available on the Swiss GT 26 B allowed us to explore the chip breaking aspect", explained Laurent Martinerie, head of the bar turning and gear hobbing department (CIP Technologie) at CIP.

The ASRH appointed Gaël Francillon to the site to oversee the machining tests and coordinate work with Professor Greub's team from HE-Arc. The project was managed by the director of ASRH, Fabienne Marquis Weible. The entire process was very organic, and this project is an excellent example of intelligent pooling of resources and joint capitalisation of the rich expertise available in the Jura region, which combines cutting-edge knowledge in materials science, a sound technical understanding of the machining processes and invaluable practical expertise in bar turning.

A machine and a test bench

Equipped by HE-Arc with sensors enabling the cutting force exerted during machining to be recorded, the Swiss GT 26 B is also fitted with the ACB Plus system (Active Chip Breaker Plus) that is based on the use of low-frequency technology. This system allows

Nicolas Pires, bar turner, in charge of the tests for the ASRH at the CIP Technologie; Gaël Francillon, HES engineer, in charge of the ASRH project; and Laurent Martinerie, head of the CIP Technologie department at the CIP.





The study of chip-related problems is an important part of the project.



the longitudinal axes to vibrate in synchrony with the machine spindle. This action creates a brief interruption in the cut that allows the chips to be ejected in a controlled way; in other terms, it is possible to manage chip production. As lead-free brass is harder to machine, this type of system is proving its worth for the work being conducted here.

A scientific approach

The test campaign was conducted according to a scientific process established in advance, aimed at identifying robust machining parameters during tests conducted on several substitute alloys. The potential of these different types of brass to meet the qualification criteria for the watchmaking sector, which are particularly stringent in some cases, has been analysed to provide the project's partners with rigorously documented data. This will complement the observations originating from their own tests. This regional initiative, undertaken by numerous member companies of the ASRH, not only benefits the watch brands; all of the stakeholders in the watchmaking micro-engineering sector will profit from it. It will reinforce the entire industrial base.

The results of the tests are only available to members of the ASRH. More information can be found on the website: www.asrh.ch

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Azurea and Tornos – the story of

successful collaboration

Just like Tornos, the Azurea Group has had a long-standing tradition and vast experience that dates back more than 100 years. With creativity, innovation and commitment, the companies of the Azurea Group are aiming at everyday excellence and customer satisfaction. To position themselves as a leader in their various markets and to further develop, the Azurea Group is always keeping an eye on technological advancement and is constantly investing in innovations from the Moutier based machine-tool specialist.

azurea:

Azurea Group

Rue du Moulin 30 2740 Moutier Switzerland Tel. +41 32 494 64 64 info@azurea.ch azurea.ch "Born in Malleray, I have always been immersed in the machine-tool universe. After I had taken over the management of Azurea in 1995, we invested in Tornos ENC 75 machines which, at that time, were considered to be the nonplus ultra. Shortly afterwards, Tornos launched their DECO machines. Even if I was not convinced of their reliability from the very beginning, I couldn't help noticing that these machines have proved their worth over the years. Incidentally, we have always had a vast DECO 10 inventory with a total of 40 machines installed in our workshops."

Being both passionate and inspiring, Daniel Uhlmann, CEO of the Azurea Group, remembers the long-standing relationship between Azurea and Tornos. His narrative is riddled with anecdotes and describes the evolution of his company. For instance, he talks about the purchase of the company Germain Loetscher in Bévilard: "About fifteen DECO machines



Daniel Uhlmann, CEO of the Azurea Group



were in the possession of this company. Germain Loetscher had used the machines for a product range outside the norm. That's when I understood that the machines were really tough! They strengthened my belief that I should continue banking on Tornos." That was a bet on the future, as Daniel Uhlmann never grows tired of repeating. "In terms of technical features, Tornos is unbeatable. And for us to become unbeatable as well, we simply need to rely on these machines and make progress."

"In terms of technical features, Tornos is unbeatable. And for us to become unbeatable as well, we simply need to rely on these machines and make progress."

Anticipating the needs to be able to respond to the ever more demanding customer requirements

"Already long ago, we opted for the Japanese way of doing business. We want to offer our customers turnkey solutions. Against this backdrop, we equipped our wokshops with machinery that enables us to respond to the customer needs just in time. That gave us the long-awaited opportunity to build the future against all odds. By purchasing the required equipment 'in advance', we can offer state-of-the-art technology without delay."

"About 60% of our enquiries are coming from the medical industry. For this reason, we have applied for the ISO 13485 certification and have invested in a cleanroom. We believe that a company like Azurea must provide a comprehensive service that ranges from raw material approval to packaging, including the entire documentation required for the customer's product."

Azurea can produce components and assemblies for the medical, dental, microtechnology and watchmaking sectors. With Tornos, the company has found a partner that can tackle the challenges of a market in constant evolution. "The SwissNano 7 machines are a hit," Daniel Uhlmann gets excited. These little technology gems finally convinced him by their excellent accessibility, footprint and stability.

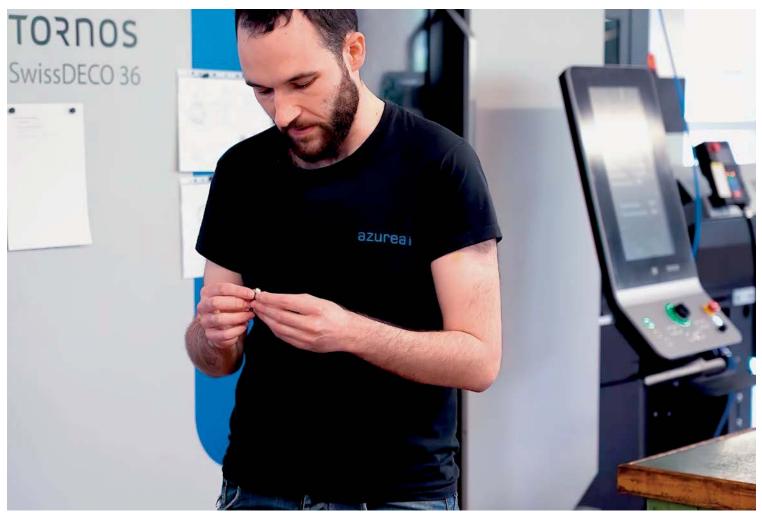
As far as MultiSwiss machines are concerned, Daniel Uhlmann appreciates both their innovative technology and their ease of programming. His real favorite, however, is Tornos' jewel - the brand new SwissDECO. He has nothing but praise for this machine. According to Daniel Uhlmann, this is the ideal machine for highly complex components offering a high added value. For a kind of win-win situation with Tornos, Azurea incidentally decided to act as a 'guinea pig' for this new machine and it opens the gates of their workshops for interested persons who want to watch the machine in action in a real working environment.

"The history of the Swiss Jura Mountains and the love of their inhabitants for precision and well-made things are like a catalyst for new developments that enable both Tornos and Azurea to tackle the challenges ahead in this world of constant evolution. This may be a risky bet, but it is a bet on the future and proves to be worth trying."

A wonderful promise and a more than successful long-term collaboration!

With their vast inventory of Tornos machines (with several Tornos machines of all types being installed at all their sites, even in Portugal), Azurea knows and will keep on understanding how to anticipate the needs of their customers and to respond to them without delay.

azurea.ch

















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TORNOS SWISSDECO 36:

A new option for machining bars up to

42 mm diameter

Since its launch, the SwissDECO has become the reference for bar turning machines producing large diameter complex parts. Its power and infinite possibilities have enabled the production of parts that have been impossible to machine until now. Rapid and precise, this machine is particularly well suited to the production of highly complex parts. Now, a new 42 mm option has been added to the broad range already offered by the SwissDECO.

TORNOS

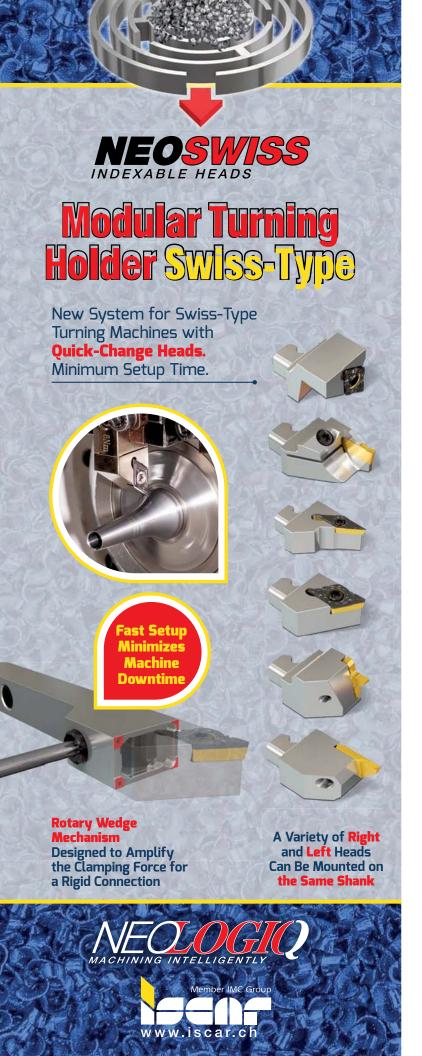
Tornos SA

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

Up to 42 mm diameter and astonishing power

The SwissDECO 36 has been equipped with an updated 36 mm spindle. As always, the machines offer identical main and secondary operations and feature a liquid cooling system. The clamping force is 25,000 N and the maximum rotation speed is 8000 rpm. These spindles benefit from the latest motor technology that enables them to deliver 53 Nm of torque. This impressive torque offers truly exceptional chip removal.

"Thanks to the power and rigidity, a series of machining tests confirmed that it was possible to switch to a larger diameter." Tornos product manager Michael Dunner explains that, right from the start, the machine was designed with this objective in mind. However, despite the broad offering already available for this diameter range, we wanted to take time to confirm our customers' interest in this option. We also needed the machine to prove its performance before finalising its development. The new 42 mm option is well and truly ready to go!



The SwissDECO 36 can now machine bars up to 42 mm without a guide bush. Clamping is done by biconical collets to double the available clamping force. The clamping force can be easily adjusted to allow for even the most difficult machining operations.

The SwissDECO is also the first Swiss-type lathe to feature an optional high-precision hydraulic brake, guaranteeing high machining quality in any situation. The brake precisely locks the bar in position, relieving the bearings and the spindle body. This device results in an improved finish and preserves the machine's mechanical components.

Three versions to meet every need

There are three different machines in the SwissDECO range, and this makes it possible to choose the kinematics best suited to the requirements. All these configurations have three completely independent tool systems, the same secondary operation block, and a platten to the right of the guide bush. The SwissDECO features an extremely rich secondary operation block. It is quite simply the richest one currently on the market.



The machine can be equipped with up to 16 tools, 12 of which are rotating. To form a coherent assembly, the secondary operation block has very high drive power. The tool drive alone develops 8.2 Nm of torque, providing a maximum rotation speed of 10,000 rpm. The machine's left-hand platten is fully modular and adaptable to the requirements of the workpiece. It is possible to install chisel holder plates, radial drills/milling tools, a horn or even special devices. The platten features completely autonomous X and Y movement capability. It rests on high-precision solid guides, giving the assembly excellent rigidity and enabling very fast chip-to-chip times.

The difference between the SwissDECO versions lies in the latest tooling system, taking the form of either a turret or a platten. These two devices feature X and Y movement capability. They are also equipped with a Z-axis that enables them to work in differential mode and, for example, performs stroke progression for operations.

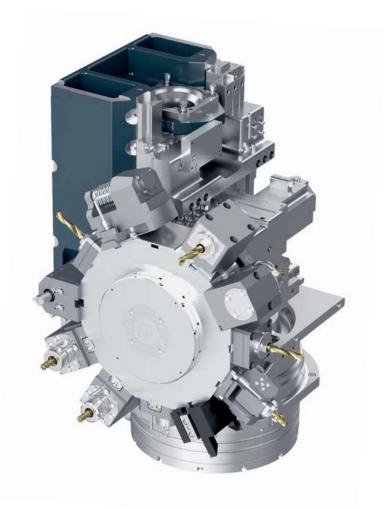
Version with 12-position turret and platten

The addition of a turret enables the SwissDECO to accommodate an extra 36 tools. It has 12 rotating positions that can house up to three tools per position. With this device, the SwissDECO has a total of 57 tool positions, 36 of which are rotating. The turret can be indexed quickly and extremely quietly, thanks to the torque motor. Indexing and locking are immediate, thereby reducing the chip-to-chip time. The turret can be fitted with an optional B-axis. The turret can pivot +100°/-15° and be used for both main and secondary operations. That means the full diversity of turret tools can be utilized to perfectly execute applications requiring angular machining.

Conscious of the importance of reducing setup times, the turret of the SwissDECO can be equipped with a quick clamping system. The tool holder can be locked onto and released from the turret using a single screw. In addition to the significant time savings this system offers, it also guarantees excellent repeatability and high concentricity levels.

Dual platten version

The machine can also be equipped with a second platten. If there are fewer tool positions on the platten than on the turret, the platten offers even shorter chip-to-chip times than the turret. A total of 38 tools,



27 of which are rotating, can be fitted to the machine in its dual gang system. Like the turret, the platten is equipped with a Z-axis.

An 'all-in-one' concept

Just like the MultiSwiss, part of the SwissDECO's basic equipment is a container where the various peripherals it needs to run effectively are installed. This design both reduces the machine's footprint and substantially simplifies its use and its autonomy. The device is designed to keep maintenance to a minimum. Depending on requirements, the SwissDECO can be equipped with a chip conveyor, a heat exchanger, a paper filtering device, various high-pressure pump versions or even an oil mist filtering device, fitted on the machine container.

Please do not hesitate to contact your usual Tornos dealer to find out more.

tornos.com



Torneria Serra and Tornos combine

experience and talent

in the name of innovation

Founded in post-war Turin by Tommaso Serra, Torneria Serra has built a solid reputation as a specialist in the high-tech production of mechanical components by combining vast experience with innovative methods. Originally a supplier of tooling and die equipment, the company has gradually reoriented its core business to produce a wide range of turned and milled parts for the automotive (around 90%), household appliances and industrial sectors.



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10046 Poirino (TO) Italy Tel. +39 011 945 3855 +39 011 945 3263 Fax +39 011 945 3887 torneriaserra@torneriaserra.it A proud family business with historic roots in Poirino near Turin, it is currently run by its third generation of management, in the shape of founder Tommaso Serra's two nephews, who took over the company following substantial development by their father, Carlo. Over time, Torneria Serra has strengthened and consolidated its position in the automotive sector, establishing itself as a trusted partner for OEMs and car manufacturers.

The company has undergone sustained growth, increasing its output to around 60 million parts per year from almost 6500 tonnes of raw material.

"Over the years, Torneria Serra has expanded its machine inventory to include second-hand mechanical multi-spindle machines, which have been converted and adapted to meet the company's requirements. This has enabled us to control our "This type of technology is not always suited to the market's needs. That's why our investment strategy also covers numerically controlled multi-spindle machines."

initial investment while keeping maintenance costs down. We have always used our specialist staff to service and convert these machines", states Marco Serra, owner of Torneria Serra. "This type of technology is not always suited to the market's needs. That's why our investment strategy also covers numerically controlled multi-spindle machines."

A great example of a company that has opted for digitisation and Industry 4.0, Torneria Serra was keen to equip itself accordingly. As a result, in October 2020 it purchased its first MultiSwiss 8x26. This was swiftly followed by an EvoDECO 32 in February 2021 and a second MultiSwiss 8x26 in the summer, building on the company's already impressive machine inventory.

"The MultiSwiss has shown itself to be the ideal choice for producing complex parts, whether in terms of tolerance or geometry, in some cases avoiding the need for multiple operations on several machines", explains Marco Serra. "We are particularly impressed by its flexibility. Thanks to the new technologies, we are now even better placed to meet the market's constantly changing needs."

With the switch to electric technology in the automotive sector, Marco Serra is keeping a close eye on developments in the market, expressing surprise at some of the rebounds he's witnessed. His analysis of the sector is both precise and detailed, reflecting that it accounts for around 90% of Torneria Serra's business.

However, the Turin-based company is equipped and in a strong position to respond to the evolving market, producing both turned and milled parts at its vast 12.000m² site.

In recent years, Torneria Serra has started to specialise in the machining of hard materials, such as stainless steel. The company's Tornos machines are











fully equipped to meet this requirement, thanks to their hydrostatic bearings and high-pressure cooling system. This enables them to produce parts with tight tolerances.

Their open, accessible machining area allows quick reconfiguration, making it easy to meet different customer requirements – a major asset in the current climate.

Torneria Serra has remained true to its founding values since its inception in 1956 and the company strives to ensure consistent development. It achieves this both externally, by strengthening relationships with its customers and suppliers, and internally with its 125 staff, creating a connection that is mutually beneficial and built to last.

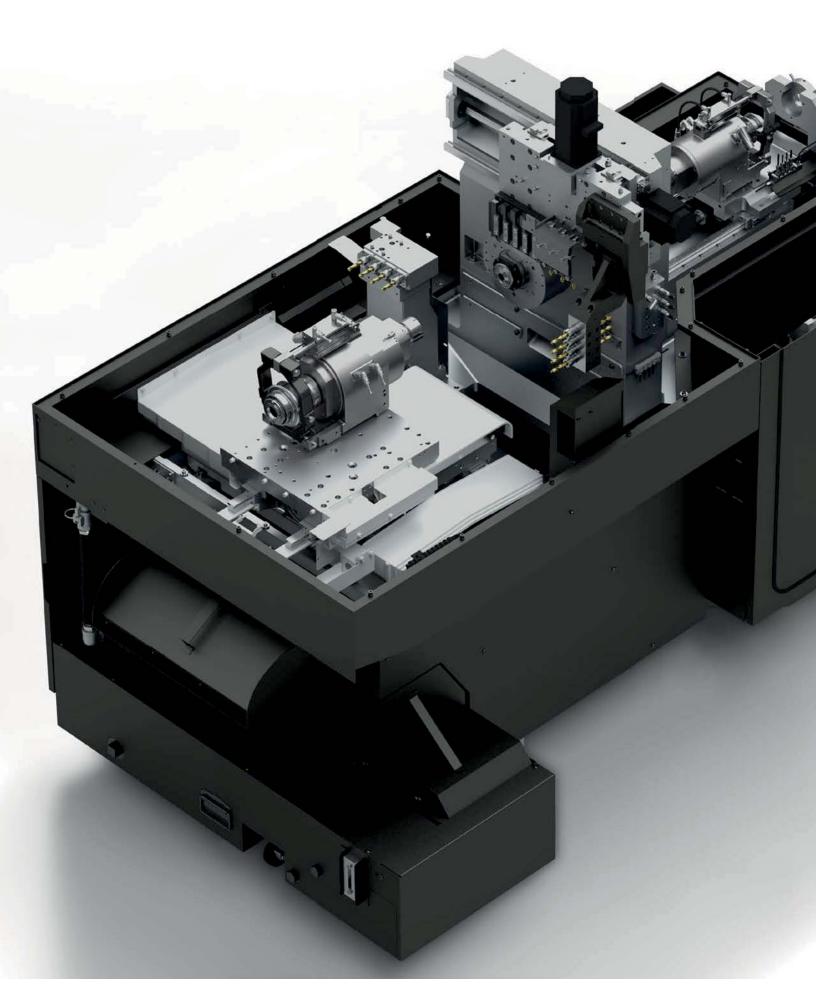
This is also the relationship Torneria Serra has with Tornos, which has proved a reliable and flexible partner capable of meeting its needs and expectations while offering extra options focused on the future of the automotive industry.

torneriaserra.it



Torneria Serra and Tornos combine experience and talent in the name of innovation

youtu.be/ACXdoN1FS28



NEW SWISS DT RANGE:

6 models

to meet all your needs

In the latest edition of decomagazine, we presented our new Swiss DT range. Now, we'll take a closer look at the machines to be launched at EMO in Milan.

TORNOS

Tornos SA

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A shared architecture

The new Swiss DT range from Tornos has been created to meet the diverse requirements for machining long and short parts from bar stock measuring 2 to 38 mm diameter. Thanks to Tornos' 125-plus years of experience in bar turning, the Swiss DT range is an affordable solution that offers the best value for money on the market. The machine is based on relatively traditional kinematics with five linear axes. This means highly complex parts can be produced by adding a range of options compatible with all machines.

It is also possible to add up to 4 tools next to the back spindle to enable counter operations such as deep drilling, simultaneous turning and the finishing of blanks, as well as operations with axial rotating tools. Simple and efficient, the machines can operate with or without a guide bush. A 3-position self-adjusting quide bush can also be added.

Two series to better meet your needs

The range shares the same kinematics and structure; it comprises 5 HP (high performance) models and 2 S (speed) models. The HP series comprises:

- Swiss DT 13 HP
- Swiss DT 26 HP
- Swiss DT 32 HP
- Swiss DT 38 HP

Each of these machines can be fitted with an optional 'plug and play' B-axis module that is available on all HP versions in the 4 capacities.

The S series includes 2 models:

- Swiss DT 13 S
- Swiss DT 26 S

These entry-level machines offer numerous benefits and are notable for their guide bush with an offset drive instead of a motorised guide bush.





The Swiss DT 26 S includes a less powerful back spindle. These versions benefit from the full range of advantages offered by the Swiss DT range. They incorporate the best technology: high-end motor, polyurethane electric cable, guide components, bearings, ball screws and electrical components from globally renowned manufacturers. The machines strictly conform to the CE standard.



Increasing your products' added value with Swiss DT

The ultra-precise Swiss DT machines benefit from liquid-cooled spindles with controlled airflow to maintain uniform stability throughout. The motors on the S51 and S11 tools are oil-cooled to guarantee thermal stability. The machine frame and structure has been optimised using the finite element method (FEM) to ensure optimal rigidity loops between the tools and bars.

High-performance spindles to boost your productivity

The Swiss DT 13 offers outstanding performance thanks to its spindles with 5 kW integrated motors. The ceramic bearings guarantee extremely high precision, even at high loads. In addition to their power, the spindles offer phenomenal acceleration. The Swiss DT 26, Swiss DT 32 and Swiss DT 38 are also equipped with motors offering power of up to 10.5 kW.

Swiss DT		13 HP	13 S	26 HP	26 S	32 HP	38 HP
Maximum diameter	mm	13	13	25.4	25.4	32	38
Number of linear axes		5	5	5	5	5	5
Number of C-axes		2	2	2	2	2	2
Plug and play B-axis		Option	-	Option	-	Option	Option
Number of independent tool systems		2	2	2	2	2	2
Total number of tool positions		28	28	28	28	28	28
Position for rotating tools		14	14	14	14	14	14



The rotation speed is adapted depending on the diameter. The spindle on the Swiss DT 13 can drive the bar at up to 15,000 rpm, while that on the Swiss DT 26 can reach speeds of 10,000 rpm.

The Swiss DT 32 and Swiss DT 38 deliver 8000 rpm and 6000 rpm respectively. On HP models, the spindle and back spindle are identical, allowing programming to be optimally balanced between main and secondary operations. It is therefore no longer necessary to prioritise main operation-heavy jobs. The spindle power means these operations can be performed as secondary operations. The Swiss DT 26 S is equipped with less powerful motorisation with a back spindle delivering up to 2.2 kW.

The ultra-rigid machine base can handle extremely high feed rates and hard-to-machine materials such as titanium or cobalt-chrome without difficulty.



Discover our rotating drilling/milling spindle that doubles the available torque!



Configuration 1 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 5 ESX20 drilling/milling spindles
- Support block for 4 fixed tools or support block for 5 fixed tools
- Up to 5 tools in counter-operation



Configuration 2 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 4 ESX20 drilling/milling spindles
- 1 triple drilling/milling unit
- Support block for 4 fixed tools
- Up to 5 tools in counter-operation



Configuration 3 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 6 ESX20 drilling/milling spindles or 4 ESX20 drilling/milling spindles and 1 high torque rotating drilling/milling spindle (ESX20 + ESX11)
- Up to 5 tools in counter-operation



Configuration 4 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 4 ESX20 drilling/milling spindles
- 1 triple angular drilling/milling unit
- Up to 5 tools in counter-operation



Configuration 5 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 4 ESX20 drilling/milling spindles
- Thread whirling unit
- Up to 5 tools in counter-operation



Configuration 6 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)*
- 3 ESX20 drilling/milling spindles
- Gear hobbing unit
- Up to 5 tools in counter-operation

Thanks to its high-quality motorisation, the Swiss DT range is quite simply the most powerful and efficient machine on the market.

Options to suit every need

The tool holders in the Swiss DT range are interchangeable, not only between the different machines but also with the Swiss GT range and the earlier Swiss DT range. This allows you to rapidly and optimise your investments. The machining area is fully modular, enabling users to adapt the machine to the workpiece requirements. For example, the tooling concept allows you to install six transverse tools after the plate housing the turning tools.

The Swiss DT range is designed for special operations. Medical threads can be produced by adding a thread-whirling device. This means it is possible to create a polyaxial screw for spinal surgery on a Swiss DT 26. Hexalobular milling is also possible using a high-frequency spindle in a secondary operation, or a stamping operation depending on the type of part.

Gear hobbing is another operation that can be performed. This avoids costly back working operations and allows the part to be finished directly on the machine. A long part system is also available, allowing parts longer than 500 mm to be safely unloaded. The mechanically tiltable drill can be used to





Configuration 7 – Swiss DT 26

- 5 turning tools $(12 \times 12 \text{ mm} / 1/2 \times 1/2 \text{ in})^*$
- 4 ESX20 drilling/milling spindles
- Polygon milling unit
- Up to 5 tools in counter-operation



Configuration 8 – Swiss DT 26

- 5 turning tools (12 × 12 mm / 1/2 × 1/2 in)
- 3 ESX20 drilling/milling spindles
- Up to 5 tools in counter-operation
- Plug and play B-axis, with 2x3 ESX11 drilling/milling spindles + 1 additional drilling/milling spindle for B-axis, ESX8 or 1 high-frequency spindle



Configuration 9 – Swiss DT 26

- 5 turning tools (12 × 12 mm / in)
- 2 ESX20 drilling/milling spindles
- Support block for 4 fixed tools
- Up to 5 tools in counter-operation
- Plug and play B-axis, with 2x3 ESX11 drilling/milling spindles + 1 additional drilling/milling spindle for B-axis, ESX8 or 1 high-frequency spindle

As an option, and with the removal of an ESX20 drilling/milling spindle, the machine can be configured with six turning tool holders (12x12 mm or 1/2x1/2 in) or five turning tool holders (16x16 mm or 5/8x5/8 in).





ANDRÉ FREI ET FILS SA

Rue des Gorges 26 Tél. +41 32 497 71 30 www.frei-andre.ch CH-2738 Court Fax +41 32 497 71 35 produce dental implants. A frontal device that can be equipped with up to three dual drills can also be fitted to the machine. Under certain conditions, this tooling can be doubled to fit two frontal drills, for example. The Swiss DT range offers unique options that are unparalleled on this type of machine. The nine configurations presented on pages 32 and 33 are just an example of the possibilities offered by the machines.

A B-axis like no other

The machines can be fitted with a plug-and-play B-axis that can be added based on the workpiece requirements. Once installed, this device facilitates the machining of awkwardly shaped parts in both main and secondary operations. It is fitted with three ESX 11 rotating spindles for both main operations and secondary operations; there is also the option of installing a fourth ESX 8 rotating spindle. It is also possible to install a high-frequency spindle on the B-axis for micro-machining or even deburring operations.



Boost your machine availability with ACB Plus

Chip management is always a complex subject in the machining world. Swiss DT machines all come with optional high pressure units or ACB Plus! The latter uses low-frequency technology, enabling synchronised vibration of the longitudinal axes with the machine spindle. This causes a brief interruption to cutting, which allows chips to be removed in a controlled manner. The function means it is possible to manage 'chip production'.

ACB Plus secures the process and improves the machine's availability.



Programming in ISO Code A or C

The products can be configured ex-works with the Code A programming language which is more commonly used in Asia and the USA, as well as Code C, which is the European standard

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MOWIDEC-TT

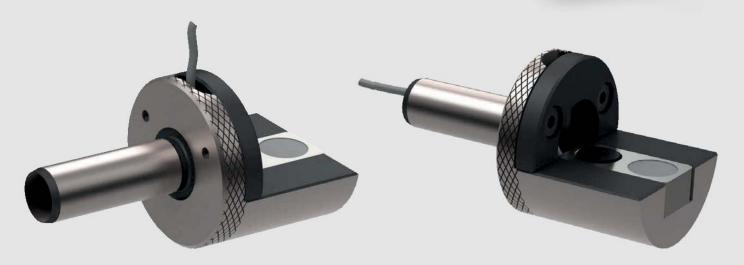
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The BA 1008 machine responds to

milling challenges

Do you need to produce prismatic workpieces in large volumes? Are you thinking about acquiring a rather expensive 5-axis bartype machining center? If so, stop! There is another solution. The BA 1008 enables you to respond to machining challenges that have never been seen – at a cost/performance ratio difficult to match. As well as its ability to produce highly complex workpieces, the machine offers ultra-short chip-to-chip times.

TORNOS

Tornos SA

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

With a BA 1008, everything is possible

The Tornos BA 1008 machines offer the perfect customization and are adapted to the customer requirements in the best possible manner. They feature a performance that is second to none.

A simple machine with optimum accessibility

The basic concept of the BA 1008 is rather simple. The aim was to design a compact high-performance milling machine. The machine soon aroused interest in various industries, not only in the watchmaking sector, but also in numerous other fields such as the connector marketplace, eyewear manufacturing and the medical industry. Over time and depending on the customer requirements, the machine has successfully been adapted to all types of customer demands. Therefore, it can be equipped with various spindle types according to the machining process to be carried out.

Other features include a B-axis on the front spindle block and a full enclosure for precious metals that is especially designed to recover 99% of the chips in 20 minutes. A high-pressure unit turns the BA 1008 machine into another variant, the BA 1008 HP that is capable of machining even the most exotic materials with amazing ease. The high-pressure unit enables through-the-spindle coolant supply with a continuous pressure of 120 bar. With this technology, very high drilling speeds are obtained. Even tool makers were amazed by the capabilities of this machine when they tested it for the first time.

The BA 1008 range now comprises of three machines: BA 1008

The BA 1008 is a bar fed machine and a dividing head allows workpieces of diameters up to 16 mm to be loaded. Machining operations with positional control and interpolation between the tool systems and the workpiece are also possible. The machine is equipped with 4 front spindles, 3 lateral spindles and 2 spindles for back machining.

BA 1008 HP - high-pressure version

Just like the established BA 1008 machining center, the BA 1008 HP is fed with bars and equipped with 4 front spindles, 3 lateral spindles and 2 spindles for back machining. The BA 1008 HP comprises a complete through-spindle coolant supply unit (120 bar) for even more precise and faster machining. The BA 1008 HP machine offers optimum chip removal, and this allows machining operations with the generation of large chip volumes.

BA 1008 XT

The configuration of the BA 1008 XT significantly increases the machine capabilities and enables the manufacture of workpieces that were previously impossible to produce. It can be equipped with up to 8 spindles and 2 tool changers and thus achieves a maximum capacity of 23 tools.

A smart investment

The BA 1008 HP allows production with outstanding throughput and above all, with excellent quality. An ideal example is of a simple bracelet link, this type of part can now be realized from sectional steel with cycle times of less than 5 seconds. Depending on the type of the workpieces to be machined, it is therefore logical and most interesting to compare the investment in a BA 1008 machine fleet with a transfer-type machine. A study carried out by Tornos experts has shown that for the small or medium-batch machining of a bracelet link, it really makes sense to invest in three or four BA 1008 HP machines rather than in one single transfer-type machine. For an equivalent initial investment, the BA 1008 HP option offers higher production flexibility, considerably shorter production launch times, less floor space and a cost price reduction per workpiece by 10 to 20%.

If you want to get detailed information, do not hesitate to contact Tornos.

tornos.com





INGENIOUS — THE GWS-TOOLING SYSTEM FOR EVERY MACHINING PROCESS!

Best example:

Customised solution for highly efficient backworking machining on the TORNOS MultiSwiss 6x16.

GWS-change holder designed for specific machining with holder for HF spindle and additional static tool – separately adjustable in centre height.

- Using the standard GWS-base holder
- Optimum solution in the smallest space
- Highest productivity and efficiency





Tool adjustable via eccentric bush +/- 0.06 mm in centre

height (Y-axis) to HF spindle



A winning Record with Tornos

Drawing on extensive expertise gained over many years, Record constantly creates new opportunities. It aims to continually expand its range, from tyre valves to industrial valves. The company has built a solid reputation as a manufacturer of small metal bolts and screws. Record is now able to produce turned parts in both small and large runs, across a diverse range of markets, using the most common raw materials. To realise its objective of constant improvement and better performance and to meet its specific needs, Record recently purchased a Tornos MultiSwiss machine.



Record Spa

Via Vittorio Veneto, 65 24040 Bonate Sotto (BG) Italy Tel. +39 035 900 28 11 record@recordspa.it recordspa.it Record's history is a record in itself. It all began with a small laboratory in Bonate Sotto (BG) called Officina Dante Beretta. It was here that the founder, Dante Beretta, started producing turned metal valves and components for the cycle market. Dante Beretta's enthusiasm for cycling was such that, in 1967, despite having built a solid Europe-wide reputation for its valves, a new brand was created for the company. The logo, designed by founder Dante Beretta, depicted the Vigorelli Velodrome in Milan, home to the 'Record dell'ora' race (literally: "hour record"). The company was renamed Record, linking it inextricably to the velodrome, which in turn became emblematic of the company. Dante Beretta's intense, lifelong passion for the world of cycling has led him to sponsor various teams within the discipline. Record continues this legacy today, sponsoring the "SC Michela Fanini" women's cycling team.

Turning obstacles into opportunities

Thanks to Record's solid expertise acquired since 1946, the Bonate Sotto-based company has obtained a wide variety of patents. Among the most significant is a patent for a core mechanism for high-pressure refrigerant gases, and another for a product called 'Dual Valve', part of the Pro-Core project by Schwalbe (a world leader in the production of cycle tyres and accessories).

Claudio Vettore, General Manager of Record, Francesco Spada, CFO of Record and Carlo Rolle, General Manager of Tornos Italy. "When I asked one of my employees what he liked about the new MultiSwiss, the answer was mainly the reduction in operations. This meant that everything could be done in one go without needing other machines."



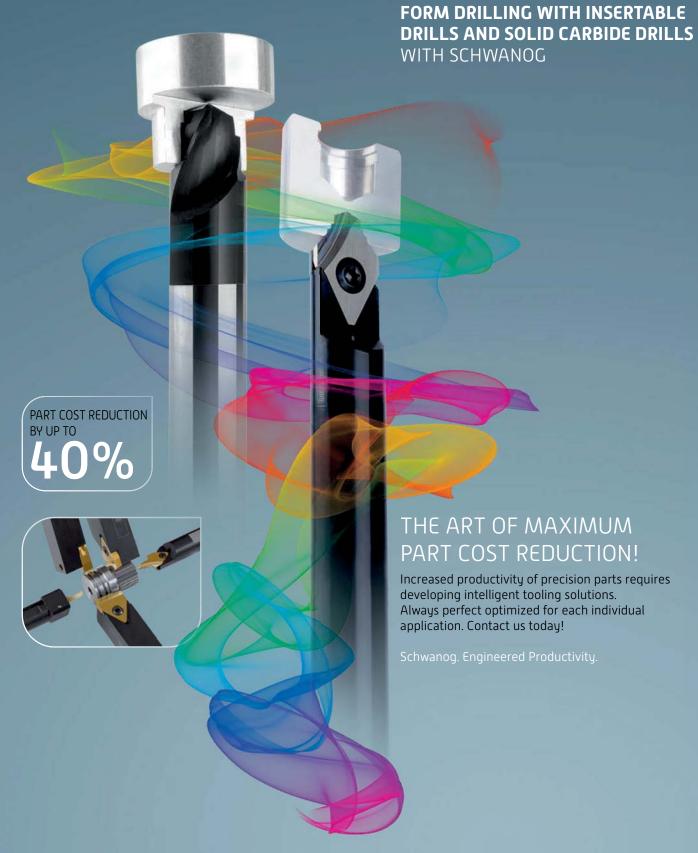
Record's astonishing capacity for evolution has led the company to constantly innovate, patenting and marketing genuinely revolutionary products and processes. Record has patented and marketed several new types of mechanisms that have been well received on the market. These are used in installations and systems operating at moderately high temperatures and pressures, outperforming the competition.

The company recently developed an HNBR seal compatible with both new fourth-generation HFO and HC gases and blends with very low GWP, and existing gases currently used on the market. In response to high demand, Record has also developed a compound enabling the mechanism to be used in specific applications with operating temperatures down to -45 °C.

To achieve these kinds of results and obtain so many patents, Record has had to fully optimise its equipment. For this, Record has naturally turned to Tornos, and specifically its MultiSwiss machine, which is extremely popular with operators. "When I asked one of my employees what he liked about the new MultiSwiss, the answer was mainly the reduction in operations. This meant that everything could be done in one go without needing other machines", explains Claudio Vettore, General Manager at Record. "We are increasingly being asked to machine steel – and different grades of steel.











It can be more difficult to work with this material, but thanks to our MultiSwiss, we can quickly and precisely respond to this demand"

The two MultiSwiss run in a 2x4 configuration (2 workpieces per cycle, which enables double-speed operation but for production of less complex parts, which seems sufficient for valves). The valves produced on the MultiSwiss are intended for tubeless rims. These valves require cross drilling to allow the tyre to be filled with anti-puncture fluid. The flexibility of the machining area means that Record can easily produce these parts, even in a 2x4 configuration, which leads to a doubling of productivity. The machine's multi-programme management function also allows the different part families (different valve lengths) to be programmed, enabling the machine to run fully autonomously. The machined material is usually stainless steel. The eight spindles are all equipped with hydrostatic bearings to quarantee an excellent surface finish while minimising tool wear.

For Record, optimising processes requires preparatory operations, the creation of special tools, presetting using the most recent TPM criteria, the presence of a central lubrication system using high-pressure refrigerated cutting fluids, optical tests and real-time process capability during production. This enables customers to benefit from high-precision metal products adapted to each application.



Thanks to Tornos, Record is now in a position to further develop its activities, despite already covering a vast range of sectors requiring the use of valves, including cycling, aviation, automotive, pneumatics and hydraulics, as well as a wide variety of industrial applications. Together, Record and Tornos look set to secure further victories while remaining faithful to the primary mission of the famous Vigorelli velodrome in Milan, which was created to set records... in record time!

recordspa.it



A winning Record with Tornos

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The universal tubeless valve

This is an innovative product created by Record—with help from the Tornos MultiSwiss. This valve is called the universal tubeless valve because it adapts to any rim hole (F6, F8) and to any rim profile (wide, narrow, high, etc.), for any type of racing, road and/or mountain bike, thanks to its truncated, cone-shaped foot.

Thanks to its oversized longitudinal hole and its radial holes, this valve allows maximum air flow and avoids any obstruction problem for those who use anti-puncture foam or foam on their rims. The result: no need to sacrifice lightness and strength. In just a few

grams of aluminum is a concentration of technology that meets the expectations of an increasingly demanding market.





Cmatic and Tornos – quality and

competitiveness guaranteed

Cmatic, based in the Italian commune of Giussano (MB), in Brianza at the foot of the Alps, specialises in the production of pneumatic connectors and it has been a market leader since 1979. It boasts an extensive catalogue covering all user requirements, meeting the most demanding standards set for the various production sectors. Cmatic has been a loyal Tornos customer since 2010, with its management viewing the reliability of its machines as an unwavering guarantee of quality. This enables them to stay competitive and respond to an increasingly demanding market.



C.Matic S.p.A.

Via G. Matteotti. 32 20833 Giussano (MB) Italy T. +39 0362 805 246 cmatic@cmatic.it cmatic.it Used across the entire range of pneumatic equipment industries, including solutions for pneumatic automation (food, chemicals, pharmaceutical, vending machines and sales and critical applications), lubrication, fogging, transport and hydraulics, Cmatic offers products and services boasting the highest level of quality. Cmatic offers more than 40 products and 5000 types of connectors, allowing it to meet all the needs of the market. It also offers a customisation service to adapt products to the specific requests of each customer. Its expertise relates to automatic connectors, standard connectors, ogive connectors, snap connectors, functional connectors, quick connectors, quick safety couplings and multi-connectors.

Although this objective is not easy to achieve, Cmatic uses the very latest technology for its automatic production machines, such as the Tornos MultiSwiss, which allows the company to meet the demands

"We haven't yet unlocked the full potential of this amazing machine – far from it"

of extremely competitive markets and to quickly respond to its customer's needs.

"When I started working for the company in 2014, we already had a few Tornos machines (Cmatic currently has 10 Tornos machines), which we used for both special and standard connectors", explains Emilio Tiburzi, Chief Technical Officer (CTO) at Cmatic.

"Because our products are constantly being updated based on the market and its ever-expanding requirements, we needed automatic production machines that were capable of manufacturing more complex parts within a reduced timeframe. After purchasing a MultiSwiss in December 2020, we are now able to use this unique machine to perform operations that had previously required several machines. In addition, the reliability of Tornos machines when working with brass enables continuous cycles to be run, even at night, without an operator. This provides remarkable results guaranteed, particularly in terms of quality. In recent years, the collaboration between Cmatic and Tornos has been based on trust and precision."

More specifically, the Tornos MultiSwiss works largely with brass, and performs numerous milling operations, producing very small chips. The machining area on the MultiSwiss is open and has been optimised to prevent chips from getting entangled. The machine also has four different cutting oil processing systems, enabling it to operate autonomously without maintenance.





An innovative, future-focussed company

Cmatic was founded in 1979 by Orazio Confalonieri who, with his many years of experience as a third-party supplier of precision metal bolts and screws, decided to specialise in the production of brass connectors and custom components for the pneumatic sector. Today, the company is well-known on an international scale as a leader in the production of high-quality pneumatic connectors.

Development and innovation play a key role in the company and the R&D department, which uses a modern laboratory based at the Giussano site as the driving force. New solutions and materials are trialled there, alongside the daily tests performed on the connectors, which are subjected to unfavourable conditions (temperature, pressure, chemical products, etc.) to quarantee their long-term performance.

The new MultiSwiss is a key component of this strategy, thanks to its ability to produce unusually complex parts. "We haven't yet unlocked the full potential of this amazing machine – far from it," enthuses Emilio Tiburzi. "But we are still very satisfied, as it allows us to meet certain specific demands from our vast market which, until now, was impossible to do. From now on, we will therefore be able to face a new type of challenge, and this is exactly the mindset Cmatic has always adopted to set itself apart."

Cmatic, an iconic company with a human face

Employing around 100 staff, Cmatic has three teams working 8-hour shifts around the clock to produce its pneumatic connectors. Always ready to examine and assess its customers' new opportunities, as well as resolving existing issues to offer optimal solutions,

Cmatic strives to create sustainable partnerships based on the objectives it shares with its partners, including Tornos and its customers.

In the new and impressive facilities in Giussano (8,500 m²), the company produces over 20 million parts annually and boasts cutting-edge logistics. Its packaging and labelling systems are automated, as are the warehouses storing the various components. The widespread use of automation enables Cmatic to prepare orders fluidly and efficiently.



Cmatic and Tornos – quality and competitiveness quaranteed

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This Brianza company has had ISO 9001 certification since 1994, ISO 14001 since 2018 and also ISO 45001 since 2020, proving its ongoing commitment to protecting the environment, and to the well-being and safety of its visitors and employees. In fact, ISO 45001 aims to improve safety in the workplace, by reducing accidents and illnesses related to professional activities. Cmatic has always considered eliminating risk factors to be a real development and growth opportunity for the company.

It is essential for a company at the cutting edge to improve productivity, and to do this, Cmatic relies (in addition to internal safety protocols and a highly specialist workforce) on reliable work tools boasting state-of-the-art technology, such as the new Tornos MultiSwiss. As soon as it is installed, this machine can run at full capacity, opening up new opportunities for the production of increasingly complex parts which will attract and expand an already large customer base in Italy and worldwide.

cmatic.it











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The range consists of six S and HP machine configurations accommodating 13, 26, 32, and 38 mm diameter bars.

Discover all the benefits and features of the new Swiss DT range at EMO Milano 2021, visit us online, or contact sales today.

