

decomagazine

74 03/15 ENGLISH



Swiss DT 13,
the gateway to
Tornos' range of
products



TISIS: ready
for Industry 4.0



At the heart of
a real know-how
microcosm



UTILIS
multidec[®]
swiss type tools

**PRECISION TOOLS
FOR THE MICROMECHANICAL AND
THE MEDICAL INDUSTRY**



100
future since 1915

UTILIS[®]
Tooling for High Technology

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

15



Swiss GT 26 B Axis:
Machining of
highly complex parts
becomes easy

29



Benefits for the customer
when purchasing a used
Tornos machine

35



Oil mist extraction
on the BA 1008:
customised solutions

39



Tornos SwissNano makes
big impact for Harwin's
Gecko connectors

IMPRESSUM

Circulation: 16'000 copies
Eurotec: 10'000 copies
Total: 26'000 copies

Available in: French / German /
English / Italian / Spanish /
Portuguese for Brazil / Swedish /
Chinese

TORNOS SA
Rue Industrielle 111
CH-2740 Moutier
www.tornos.com
Phone +41 (0)32 494 44 44
Fax +41 (0)32 494 49 07

Editing Manager:
Brice Renggli
renggli.b@tornos.com

Publishing advisor:
Pierre-Yves Kohler

Graphic & Desktop Publishing:
Claude Mayerat
CH-2830 Courrendlin
Phone +41 (0)79 689 28 45

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

Contact:
plumez.j@tornos.com
www.decomag.ch

SUMMARY

We keep you turning	5
Tornos is coming back to Milan: discover our competences at EMO	6
Swiss DT 13, the gateway to Tornos' range of products	11
Swiss GT 26 B Axis: Machining of highly complex parts becomes easy	15
TISIS: ready for Industry 4.0	17
Slotting attachment for back machining on the Tornos MultiSwiss	23
New Tornos Robobar SBF 213 and Robobar SBF 326	25
Benefits for the customer when purchasing a used Tornos machine	29
Strategic vision in favor of Tornos' customers	31
Oil mist extraction on the BA 1008: customised solutions	35
Tornos Fluid Manager – for production optimization	37
Tornos SwissNano makes big impact for Harwin's Gecko connectors	39
New part outlet on MultiSwiss 6x14	43
The best connectors worldwide	45
At the heart of a real know-how microcosm	49



Doing it Right!

New MATRIX Series 5
2 Sizes • Completely Modular



WE KEEP YOU TURNING

Did you know that it was in Moutier that the 'Swiss-type' lathe was conceived more than one hundred years ago? Just as back then, Tornos is still setting the standard when it comes to the introduction of innovative solutions. And in doing so, we are constantly focusing on the customers' requirements. Thanks to the joint search for solutions together with our customers, Tornos has acquired an enormous knowledge base in various industries. That's the reason why today, we know exactly how we can help you to make progress. Our ambition is to make sure that you are in a position to keep turning virtually all the time. We are emphasizing this ambition with the motto "We keep you turning". And that's how we want to position ourselves in the market.

Since the last EMO event, a lot has happened in the Tornos Group. After more than hundred years of production of high-end machines, we have bundled our know-how and used it for the successful development and production of our own standard machines. The key components of these machines are all manufactured in Switzerland.

In our new production facilities in Xi'an (China) and Taichung (Taiwan), our employees are working with the same passion and the same goal as ever: to provide you, the Tornos customer, with the optimum solution for your specific challenging production requirements. As our Global Production Manager has declared in his interview, this can only be achieved by smooth cooperation and a steady exchange between the teams in Switzerland and Asia. The most recent example of this fruitful cooperation is the Swiss GT 13 that we introduced in the last Deco magazine. It will be exhibited at EMO, just as the MultiSwiss, the EvoDeco 10 and the Almac BA 1008, to name but a few of the presented innovations.

In this edition, we would like to already present another product: the Swiss DT 13, that will be introduced firstly in the Asian markets. Take your time and let us convince you of the benefits of this Swiss-type lathe and its amazing performance. It goes without saying that our expert system TISIS can be used with this machine as well.

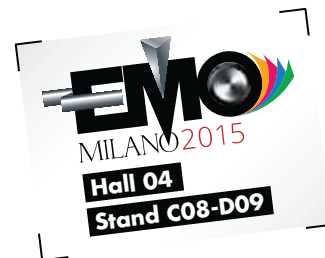


Are you among our valued customers and are you asking yourself whether you should have revised your machine in a general overhaul or purchase a product of the latest generation? Do not hesitate to contact us – we would be pleased to advise you and to find the optimum solution for your requirements.

The upcoming trade fairs and exhibitions are only a few of several options to assure yourself of Tornos' innovative strength. Before the end of the year, in-house exhibitions will be organized in many of our subsidiaries where you can experience our latest products first-hand. We are looking forward to your visit since it is our aim to support you and to be able to say: We keep you turning!

Kind regards

Michael Hauser, CEO



TORNOS IS COMING BACK TO MILAN: DISCOVER OUR COMPETENCES AT EMO

After six years, the EMO world exhibition will take place in Milan from October 5th to 10th in the exposition center of the fieramilano. With its presentation, Tornos focuses on the competence of its specialists in the most demanding fields. Here, we meet Brice Renggli, Tornos' Marketing Manager, who is responsible for the Tornos presentation for the EMO exhibition.



Pier Luigi Strepavava, the General Commissioner of the trade fair, recently announced that the organizers are expecting 1,600 exhibitors in an exhibition space of 120,000 m² and 150,000 visitors from more than 100 countries. How does Tornos want to make sure that customers and potential customers will be able to return home fully satisfied with their visit to the Tornos stand? Mr. Renggli responds: *"This year, we will show five machines on a floor space of 240 m², and we want to focus on two main communication axes: our target business areas and the competence of our engineers".*

Recognized expertise in high-precision technologies

"Tornos has now existed for more than 100 years and the company has always designed tailor-made solutions for various business areas such as medical, automotive, electronic and aerospace industries and last but not least, the watchmaking industry," the Marketing Manager explains at the beginning of our conversation. Based on a decentralized organization with Technology Centers that provide the customers with services all over the world, Tornos has established a central application database that registers

all developments and any commissioning made by the Swiss Group. Apart from the high competence level of its experts, it is this knowledge pool that enables the group to quickly respond to the emerging requirements and to offer the best solutions to customers.

Tailor-made and based on experience

Whether it's about machines, devices, advanced technology, technical advice or even more general advice in view of specific business areas, appropriate answers or test results are always at hand and the company's experts can benefit from this data pool to offer turnkey solutions specifically designed for the customer's demands. Mr. Renggli adds: *"There are dozens of machine manufacturers in the market but none of them can boast such a know-how as Tornos. In watch-making, for example, we have been developing tailor-made solutions for 100 years... and this willingness is still our motivation."*

Lets get more specific:

What can the visitor see at Tornos' stand?

In hall 04, the Tornos stand C08-D09 will comprise five machines including some innovations and demonstration areas for service and programming. Let's look more closely at all these exhibits:

Novelty: Swiss GT 13

This machine, that was presented at the Tornos Technology Days in Moutier in last June, has been very well accepted. *"The reactions were unanimous, the visitors were deeply impressed by the vast*

equipment, especially by the driven tools and other devices such as the thread-whirling cutter, the polygon cutter or the real B axis," Mr. Renggli makes clear. With its motorized guide bush that can reach 15,000 rpm, the machine can be easily modified for collet work. Mr. Renggli explains: *"In contrast to the usual market solutions, the guide bush is permanently connected and can be easily shifted to and deposited in a waiting area. The conversion process is thus very easy and fast."* The Swiss GT 13 has several parts in common with the Swiss GT 26, i.e. the machine boasts a high rigidity. With its comprehensive equipment devices and accessories, such as the high-pressure systems, the machine primarily aims at the microtechnology markets (watchmaking and micromechanics) as well as the medical and connection industries.

Capacity: 10 mm, 13 mm with bar stock preparation.

Workpiece shown at the EMO: dental implant.

Novelty: EvoDeco10

In view of the introduction of machines intended for machining various small-diameter parts, especially for the Italian market, Tornos introduces the EvoDeco 10. Mr. Renggli explains: *"The machines of the EvoDeco series are equipped with the best kinematics in the market: In terms of performance and sophistication, no other solution can keep up with the EvoDeco."* Based on the success of the famous Deco machines, the EvoDeco family has been improved this year with regard to three main aspects: thermal properties, simplification of maintenance and service, as well as ergonomics. The



The present

machining area is as large and clean as possible to facilitate tool set-up to the greatest extent. The control unit mounted on a swivel arm efficiently supports the concept of shortening the start-up times. The machine is offered with the TB-Deco programming system but also with ISO programming function or the new TISIS system (another highlight shown in Milan - see the complete article on page 17).

Capacity: 10 mm

Workpiece shown at the EMO: Control valve (automobile).

SwissNano

Without any doubt, this machine, that is offered in several colors, will be one of the attractions on the Tornos stand. Today, with several hundreds of machines installed, this small machine is one of Tornos' best sellers. The marketing manager is very enthusiastic: *"Throughout the world, the customers come to the same conclusion: Apart from being instantly operational, the machine produces good parts from the very beginning and offers a perfect repeatability."* He adds: *"The high re-purchase rate of the SwissNano is one of the unmistakable signs; the large majority of the customers have already purchased a second machine."*

The 6-axis kinematics of the machine enable numerical settings to be used in all dimensions. All users emphasize the ease of use provided by the counter-

spindle in three linear axes. Apart from the counter-spindle, the second gang tool post can accommodate tools underneath the counter-spindle and thus increases the machining capabilities of the machine. Depending on the tool carrier, 2, 3 or 4 tools can be mounted underneath the counter-spindle. i.e. machining can be done simultaneously with both gang tool posts.

Capacity: 4 mm.

Workpiece shown at the EMO: electronic probe.

Almac BA 1008

The Almac machine cannot hide its close relation to the SwissNano: The BA 1008 actually has the same basic structure and kinematics. The spindle makes way for a dividing head with a maximum capacity of dia. 16 mm; the machine can machine workpieces up to a length of 28 mm. This compact machine has already convinced the Swiss watchmakers; its small footprint and its simple cast structure make it the ideal means of production for this industry. One of the first customers explains: *"The undeniable advantages of this machine include its simple set-up and its ergonomics. When we received the machine, it was immediately operational and we could use it from the very first day to produce parts."* He adds: *"With the front system and the guard which allows an unrestricted view to the complete machining area, our employees benefit from ideal working conditions."* The Almac BA 1008 will open up new machining possibilities for the specialists of the Italian markets and especially for those of the eye-glass manufacturing industry.

Capacity: 16 mm, for prismatic workpieces.

Workpiece shown at the EMO: bracelet link.

MultiSwiss 6x14

The huge success of the last years in the market of multi-spindle machines. With more than 150 machines sold throughout the world, the MultiSwiss has definitely won acceptance in the market. *"Sometimes the MultiSwiss replaces CNC or cam controlled multi-spindle machines while, in other cases, single-spindle lathes have to make way for the MultiSwiss,"* Mr. Renggli explains. The quality level that can be attained with this machine is really astonishing. Often, the quality is even better than on all other means of production currently available in the market. The high rigidity drastically reduces tool wear to such an extent that some customers were forced to recalculate their wear statistics in order to believe these improvements. The machine structure is very ergonomic and the machine is easy





to operate and to program; according to certain customers, operation is even easier than on single-spindle lathes. As a matter of course, the productivity is much higher. The unit price is better as well.

Capacity: 14 mm.

Workpiece shown at the EMO: Bearing cage for turbocharger (automobile).

Novelty: TISIS 2.0

The TISIS software is much more than a simple ISO code editor with an appealing design: It equally allows direct communication with the machines and status monitoring. The user of the new EvoDeco 10 (TISIS version) can thus permanently monitor the temperatures, the axis loads and the machining data. *"Another feature that is very interesting for us is the fact that the system enables us to complete the program using virtually all sorts of information - from plans to photos and other text information,"* a customer explains. Since its grand introduction at EMO in Hanover two years ago, the software has been further developed, and at this year's EMO, the manufacturer will unveil a new, considerably refined version.

Novelty: machine service and overhaul

Whether it's about retrofitting the central cyclical lubrication system, partial overhaul of devices or fundamental reconditioning of CNC machines, Tornos Service is a partner with a good market reputation. A customer from Switzerland e.g. has ordered a complete overhaul of ten Deco 10-type machines. He comments: *"We have taken the time to think about it as the machine is only the visible tip of the iceberg, so to speak. Other aspects such as the machine equipment, tooling, pre-setting systems or even training (especially programmers' training) will follow, that means if you change the machine you have to start from scratch."* He adds:

"As for overhauls, there are numerous companies and in the past, we have made some unfortunate experiences with service providers who could not guarantee the origin of the parts used for our cam-type machines - with negative effect on the final results of such overhauls. From that time, we have known what to do. For an overhaul of our Decos, the original counts and nothing else."

Even more to see at Tornos Italia

In view of our global concept of providing our customers with competent service, Tornos will also prepare its show-room at Tornos Italia accordingly and equip it with several other machines, notably the Swiss GT 26, Swiss ST 26 and CT 20 models. If required, shuttle service will be organized from the Tornos stand to Tornos Italia to demonstrate applications on these machines as well.

Will you visit EMO? Then you have to visit the Tornos stand!

"We will also show numerous machining films and will thus demonstrate our know-how in various business areas. For this purpose, we will primarily bank on the presence of our engineers who will be available to provide the trade fair visitors with advice," Mr. Renggli concludes. From October 5 to 10, the experts from all over the world will meet in Milan and we feel confident that the companies that are in search of solutions for their problems with the high-precision machining of small parts and want to invest in new means of production will certainly visit Tornos stand.



EMO Milano
Fieramilano
SS 33 del Sempione
20017 Rho MI (Italy)
www.emo-milano.com

For hotel reservation:
www.emo-milano.com/en/visitors/hospitality/

NEW SPINDLE CENTERING SYSTEM MAKES YOUR LIFE EASIER!



HIGH PRECISION – FAST – SMART
VIDEO ► www.wibemo-mowidec.ch





SWISS DT 13, THE GATEWAY TO TORNOS' RANGE OF PRODUCTS

Tornos introduces the Swiss DT 13, a new machine with five linear axes and two C axes. At first sight, this Swiss-type lathe abounds with amazing functions and offers a high performance level. decomagazine, of course, tried to learn a bit more about this new product, which is the successor of the Tornos Delta 12 machine.

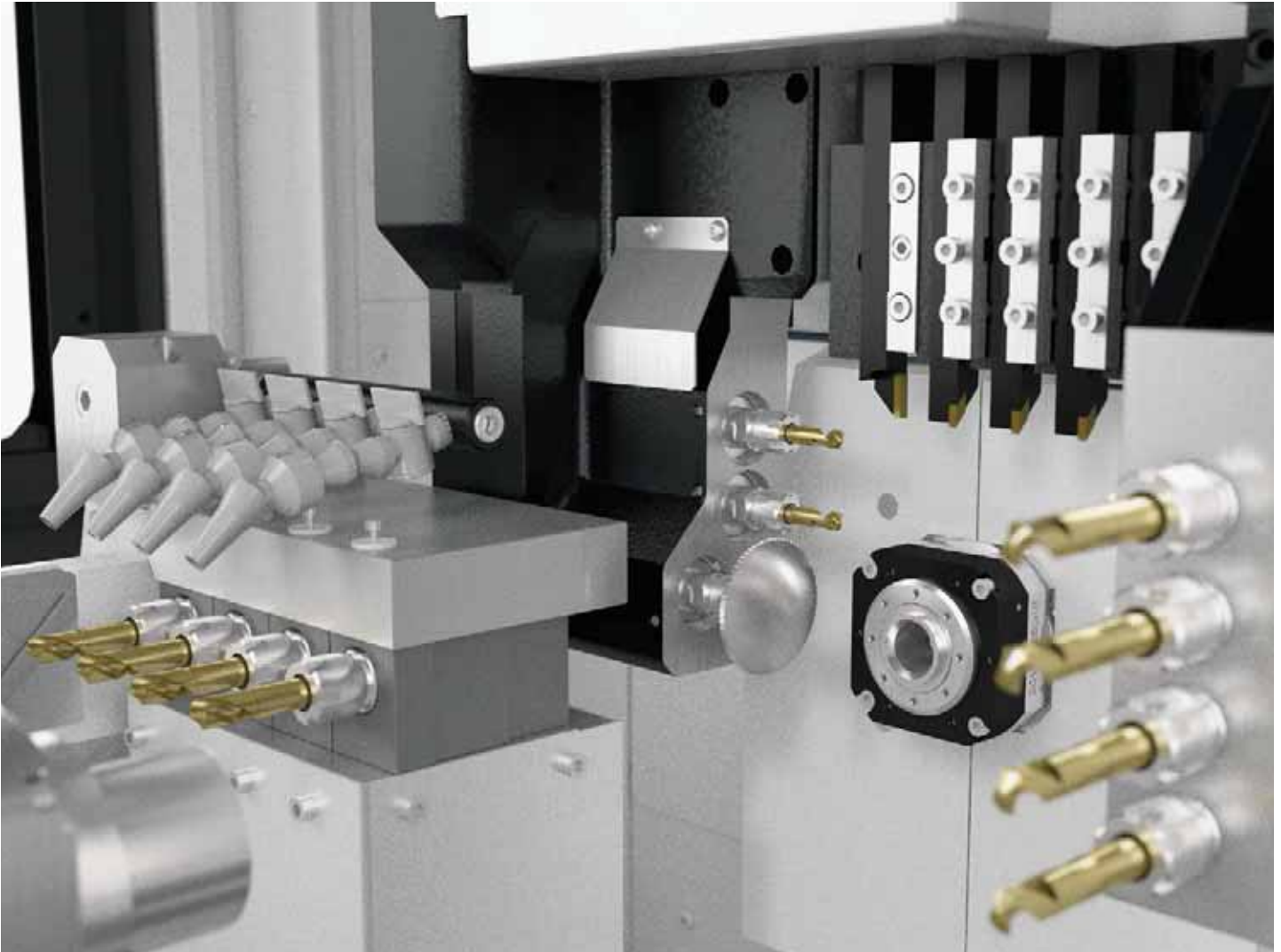


The Swiss DT 13 comes from Tornos' new production facility in Xi'an; the key components such as guide bushes and spindles, however, are manufactured in Switzerland at the company's plant in Moutier. The factory in Xi'an enables Tornos to offer entry-level machines such as the CT 20 or the Swiss DT 13 series in local markets but also on a global basis. With this facility, Tornos is able to stay ahead of its direct competitors. With its product range, that comprises the Swiss DT, Swiss GT and

Swiss ST series as well as the EvoDeco, SwissNano and MultiSwiss product lines, Tornos can offer customized solutions in any price range.

Proven kinematics designed for high speed

With its maximum feed rates that can reach 35 m/min and its L-type kinematics, the Swiss DT 13 is extremely fast with remarkable chip-to-chip times. The spindles can be operated with a maximum speed of 15,000 rpm – a speed that is normally



reserved for higher-class machines. It should be noted that the machine is equipped with a brand-new motorised synchronous guide bush that can reach the maximum spindle speed. This guide bush improves the machining accuracy and the surface finish of the workpieces and, moreover, it can spare valuable seconds when machining long parts.

High-performance spindles

Just like virtually all of the recent Tornos machines, the Swiss DT 13 is equipped with a main spindle and a counter-spindle having the same performance data. They boast world-class power (4.0/8.7 kW) and can reach speeds of up to 15,000 rpm. The machine base has been designed large enough to allow the full utilisation of the spindle performance. Actually, the Swiss DT 13 excels just as well

in difficult to machine materials as it does in brass. It has been developed for bar capacities up to 10 mm without barstock preparation and 13 mm with barstock preparation.

For machining with or without guide bush

Just as on the Swiss GT 13 or the Swiss GT 26, the motorised guide bush can easily be dismantled. In less than 15 minutes, the machine can be converted and the TMI (Tornos Machine Interface) enables the spindle to be positioned automatically for collet work. The guide bush is simply deposited in a bush support located in the spindle zone; hence, there's no need to disconnect the cables. Re-installation can be done with ease and high precision. At the same time, maximum flexibility is guaranteed.

Vast machining possibilities

With its extensive tooling, it is very easy for the Swiss DT 13 to produce complex parts. Actually, the machine can be equipped with 21 tools including 7 driven tools. Three driven tools are located in the main gang tool post. They can reach maximum speeds of 10,000 rpm. Needless to say, if necessary high-frequency spindles can be mounted for micro machining which, once again, increases the machining possibilities of this machine. The angle tool post of the Swiss DT 13 can be equipped with 4 front tool holders for main and back machining. So simultaneous machining can now be performed with perfection! Moreover, the back machining post has four fixed positions and is totally independent. The optional motor drive allows driven-tool spindles to be used.

Compact machine and high-capacity bar feeder

With its width of just 87 cm, the machine has an extremely advantageous footprint and can replace a cam-type machine in the workshop. In addition, maintenance is largely done from the front or from the sides, which makes the installation of the Swiss DT 13 much easier - it fits in every workshop. Every Swiss-type lathe needs a bar feeder and the Swiss DT 13 is available with the new Tornos SBF 213 bar feeder (see our article on page 25). The machine/bar feeder combination offers a very interesting cost/performance ratio.

Ease of programming

Thanks to the TMI - or Tornos Machine Interface, programming and navigation with the Fanuc NC is extremely intuitive and fast. For the first time, a machine of this class is able to attract customers being experienced in this kind of programming. In today's highly competitive markets, there's no time to lose when it comes to satisfying the customer's demands. The programming and communication software TISIS allows effortless programming and real-time process monitoring. TISIS monitors the machine fleet and certainly recognizes the Swiss DT 13. All in all, the production efficiency is improved.

The new TISIS version can assist the user in code writing and output error messages. It emphasizes the code syntax using colours and can display the program in a clearly arranged Gantt chart that illustrates the critical path in a clearly visible manner. This allows quick response for an optimized process. At the same time, the software permits process monitoring. Even remotely, every detail of the machining process can be monitored by using a

smartphone or tablet computer. With the TISIS software, program transfer can be speeded up, both via USB flash drive or directly to the machine.

Available in Europe at the beginning of 2016

For the Chinese market, the Swiss DT 13 is available immediately while in other regions, including Europe, it will be available at the beginning of 2016. For detailed information, please contact your nearest Tornos representation!



Tornos SA
Industrielle 111
2740 Moutier
Tel. +41 32 494 44 44
Fax +41 32 494 49 07
www.tornos.com

MOUTIER, FORUM DE L'ARC

SIAMS

THE TRADE FAIR FOR
MICROTECHNOLOGY
PRODUCTION TOOLS

19-22 | 04 | 2016

Exhibition benefits

- *At the heart of the precision market*
- *Bringing together the entire production chain for all microtechnologies on a single site*
- *Over 17,000 visitors in 2014*
- *A resounding success since 1989*

Book your stand at

www.siams.ch

A FAJI SA event



SWISS GT 26 B AXIS: MACHINING OF HIGHLY COMPLEX PARTS BECOMES EASY

Tornos will be launching a new version of its market leading Swiss GT 26 turning centre. This best-selling unit from the Tornos brand will be introduced at the end of this year with a host of new developments that will include a B-axis to increase the already impressive flexibility credentials of this machine. This innovative B-Axis will be showcased during EMO 2015 through an interactive experience



Customer feedback has noted that the existing Swiss GT 26 has been a huge success in the marketplace with installations in the aerospace, hydraulic, pneumatic, medical and subcontracting sector. However, Tornos is taking the Swiss GT 26 to the next level with a raft of new product developments. With 6 linear axes, two C-axes, three live tooling platens with the facility for 14 driven tools and a total of up to 40 tools, the Swiss GT 26 provides remarkable flexibility and capability for the end user. The B-Axis allows the user to control and index at any angle through the CNC, this feature is especially useful for operation such as angular milling, drilling or even tapping. As the B-axis is incorporated into the main slide of the machine, the Swiss GT 26 is not limited to angular adjustment but can of course perform movement in X and in Y. This gives the possibility to machine in main and counter operations.

EMO will bring in the latest re-design of the Swiss GT 26 that now makes the new machine a more ergonomically feasible machine. The external design of the Swiss GT 26 has been improved and is even more user friendly. The access to the oil tank and to the back of the machine is improved. With the B-axis facility available as an option, Tornos is taking the machine to a whole new level of complexity. As always Tornos strive to offer the most capable and comprehensive machining solution. Unlike the competition the B-axis sits on two massive fixation points that make it far more rigid and robust.

Why? Because the development engineers at Tornos are fully aware that the extremely powerful spindle motors on the driven tool stations demand the utmost in rigidity to enhance material removal rates as well as improve precision, surface finishes and consistency of the final component. Moreover

The present

the market is clearly moving towards material that is harder and harder to machine and therefore it is important to offer a nice consistent package

The innovative design of the Swiss GT 26 B-axis enables it to accommodate 2x4 rotating spindles with a spindle speed of up to 9000 rpm. This high speed driven tool station incorporates a 1 kW spindle motor for machining difficult to cut materials or conducting heavy roughing processes. Furthermore, the kinematics of the new Swiss GT 26 provide the facility for 2x4 fixed front tool stations, ensuring that virtually any angle can be indexed or processed by the NC programs.

Patented by the Swiss manufacturer, this raft of new features that have been integrated into the B-axis to ensure it is the only B-axis machine that can support up to four fixed tool positions. It is also the only B-axis machine tool design with a modular position that can incorporate either a fourth rotating drilling station or a 'true' thread whirling head. This will make the new Swiss GT 26 the ideal proposition for the medical industry. This impressive new thread whirling configuration has a helical angle adjustment feature that can be fully controlled by the CNC control unit. Therefore set-up times will be drastically reduced.

Aesthetically pleasing, practical and above all productive, the new Swiss GT 26 has a coolant system embedded in the B-axis and it can also be adapted to accept high frequency (HF) spindle units. This ensures the new B-axis configuration is effortlessly added to the work envelope without compromising the operator access to the work area, which is particularly spacious and well lit with LED technology. Tornos is proud of its ability to incorporate new innovations with groundbreaking design and with the latest Swiss GT 26, the development team has not only improved the capability of the machine, but also made it more accessible from the rear of the machine.



TORNOS

Tornos SA
Industrielle 111
2740 Moutier
Tel. +41 32 494 44 44
Fax +41 32 494 49 07
www.tornos.com



TISIS: READY FOR INDUSTRY 4.0

It was the Hannover Fair 2013 when the topic of the 4th industrial revolution arrived - i.e. the intelligent factory - at the dawn of the 21st century. And even if the machine builders in general remain reluctant with Industry 4.0, the Tornos engineers have already discovered this field and this is demonstrated with TISIS 2.0 which will be unveiled at the EMO exhibition.



Since its launch in 2013, the programming and machining management software designed for all Tornos products working in ISO mode has been continuously expanded to provide the users with a steadily increasing number of features. In this edition of Deco magazine, we would like to get back to the innovations unveiled with version 1.6 in mid-July and to discover version 2.0 that will be launched in Milan at the EMO Show.

TISIS 1.6 – JULY 2015

Select the TISIS version that suits you best

Some of the users wanted to use only TISIS' ISO editor and didn't need any other available software tools. Responding to these demands, Tornos now offers two TISIS versions: the full version and a simplified version called TISIS Light.

PROFESSIONAL TOOLS
 - FROM SPECIALISTS
 - FOR EXPERTS



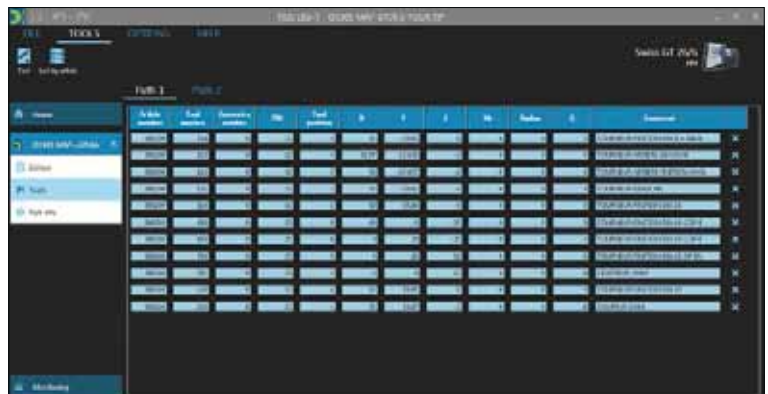
NEW GENERATION MICRO END MILLS

- Corner radius of 0,02 - 0,03 mm
- Reinforced cutting edge
- Newest coating technology

www.zecha.de

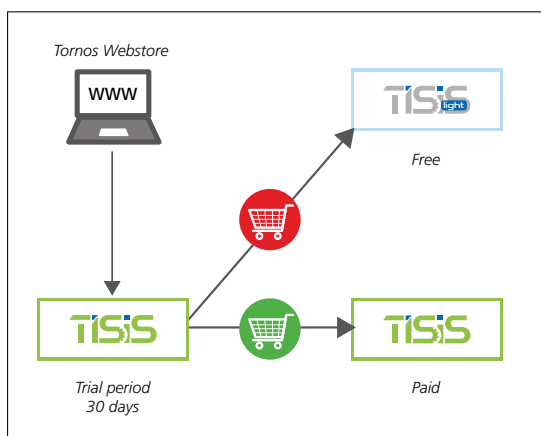
TISIS	TISIS light
ISO EDITOR	ISO EDITOR
VIRTUAL TOOL	VIRTUAL TOOL
ASSISTANT	ASSISTANT
ERROR DETECTION	ERROR DETECTION
PRINT	PRINT
COMPARE	COMPARE
TIME CALC	TIME CALC
GANTT	GANTT
DIAGNOSTIC	DIAGNOSTIC
MONITORING	MONITORING

Summary of the main functions of TISIS (in green) compared with the TISIS Light version in blue. (The grayed out items are not available for the TISIS Light version.)



Tool list management in TISIS Light is very easy and is done by means of a table as shown above.

The TISIS Light software is installed through the TISIS standard version. After having installed TISIS, the user may use the full version for a period of 30 days. After this trial period, the TISIS software remains active, provided that the license fees have been paid and the license has been activated. If the license is not active, TISIS changes to TISIS Light. After the change to TISIS Light, you can reactivate the standard TISIS version at any time. The part programs are fully compatible.



Major improvement of the 1.6 version:

From now on, so-called parameterized programming is managed by TISIS. For the calculation of the workpiece cycle time, the values assigned to the various parameters are taken into consideration. Patrick Neuenschwander, Tornos' Software Manager explains: "Our customers, for instance in the medical sector, are often working with workpiece families. This family notion is based on so-called parameterized programming in which only the dimensional data of the workpiece is changed." Parameterized programming can be used for spindle speed settings that can be repeated throughout the part program. Once a value has been changed via the parameter, this change is reflected throughout the program. This simplifies programming and above all, prevents errors or omissions.

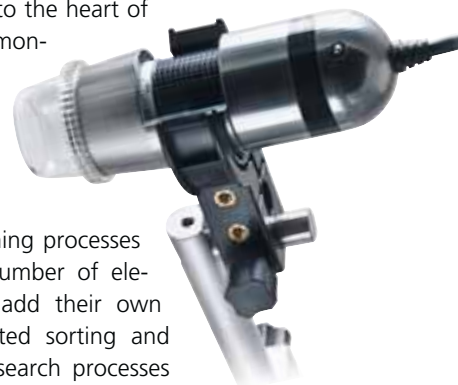
TISIS 2.0 – OCTOBER 2015

A new TISIS version will be presented at EMO in Milan. What are the main evolutions?

Patrick Neuenschwander explains: "This version has numerous new features intended to make the use of Tornos machines and of the TISIS software much easier and more efficient."

Set-up support

From now on, tool set-up is possible using a plug and play camera that can be easily installed in the machining area. The video streaming function of the TISIS application provides a view into the heart of the machining area. Thanks to the monitoring function and a preliminary calibration sequence, this camera can also be used for measuring purposes. This option is available with the Connectivity Pack.



The library function for ISO machining processes comes equipped with a certain number of elements; the users, however, can add their own machining processes. The integrated sorting and search functions make it easy to search processes registered in the library. Program creation is much faster since writing the complete part program is no longer required; only the dimensional values of the program must be adapted. This function as well drastically reduces the risk of errors.



TISIS i4.0: the first dedicated software package for Industry 4.0

The concept of Industry 4.0 is quite simple: By adding sensors and intelligence at various positions, the factory gets the ability to communicate - not only with peripheral systems e.g. for real-time data transfer to the customer's information systems but also



PONTZ/CH

ROUTE DE CHALUET 8
CH-2738 COURT
SWITZERLAND
T +41 32 497 71 20
F +41 32 497 71 29
INFO@MEISTER-SA.CH
WWW.MEISTER-SA.CH



serge meister  **sa**

P R E C I S I O N C A R B I D E T O O L S

endless flexibility



Next challenge, please!

Versatile, high-performance, capable of working with or without a guide bush and performing high added-value operations, the Swiss Swiss GT 13 is a comprehensive machining solution which enable complex parts to be produced at a competitive price.

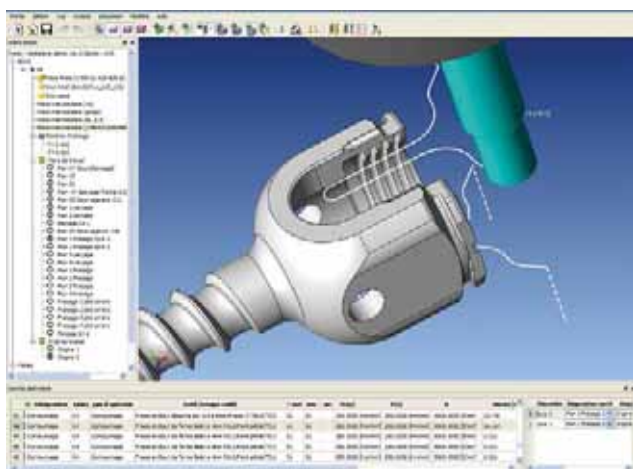


TORNOS SA
Moutier, Switzerland
www.tornos.com



with the interior of the machine for the purposes of operation improvement. Against the background of this continuous data flow, what is the future role of the operator?

According to specialists, the operator shall monitor the processes and intervene in case the intelligent factory encounters an unexpected situation. To be able to manage such situations, the operator will get more and more interactive means of interfacing and intervention and will no longer be confined to a simple keyboard. With TISIS i4.0, the operator already has a touch pad at hand that shows all machine-related data as well as the production monitoring data in real time in accordance with the Industry 4.0 standards. All in all, TISIS i4.0 is a valuable tool for the workshop manager since it provides simple performance indicators. This option is solely available with the Connectivity Pack.



Automatic code generation for complex operations.

Integrated CAM

In partnership with the Mastercam product, TISIS will offer a CAM solution as an aid for programming, 3D simulation and 3D collision monitoring when performing complex operations. *“This is a real bonus for our customers when it comes to machining of complex workpieces,”* Mr. Neuenschwander makes clear. This integral solution is offered at a very attractive price compared to other CAM solutions. Tornos will schedule an appointment at the EMO booth for customers who are interested in this option and want to learn more about it.

Android and now iOS

The users of iOS tools (iPhone, iPad) who want to monitor their machine fleet or an individual machine using their preferred Apple product, will be satisfied with the launch of TISIS 2.0. Needless to say that TISIS Tab will also be integrated in Industry 4.0. Mr. Neuenschwander adds: *“Via TISIS Tab, the user has the possibility to keep informed of an occurring alarm or an error message for a machine installed in the factory. The complete alarm history can be retrieved on the tablet PC and thus enables a detailed traceability of the production.”*

TISIS with the future in mind

A European study conducted at the end of last year shows that Industry 4.0 is currently still perceived as moderately important but that it will gain importance in the course of the next five years and will become “important” and, finally, “very important”. *“With TISIS, we are pursuing two targets: immediate improvements in terms of comfort, productivity and efficiency as well as, in the long run, offer of Industry 4.0 solutions. For customers who are interested in such solutions, we can already offer dedicated functional solutions for the fourth industrial revolution”,* Mr. Neuenschwander concludes.

If you have not yet purchased the TISIS software you can download it through the web store <http://store.tornos.com> and test it for free for 30 days.



Tornos SA
 Patrick Neuenschwander
 Software Manager
 Rue Industrielle 111
 2740 Moutier
 T +41 32 494 44 44
 F +41 32 494 49 03
neuenschwander.p@tornos.com



TARGETED COOLANT SUPPLY!



MAJOR PERFORMANCE PLUS DUE TO GWS-COOLANT MANAGEMENT!

- High or low pressure option
- Optimum and precise coolant supply to the cutting edge
- Improved efficiency and chip control
- Maximum process reliability

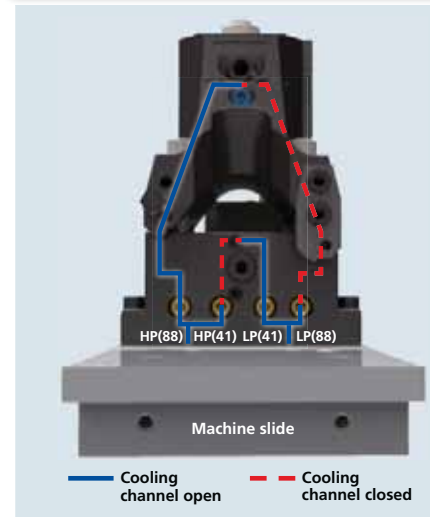
Secure your competitive edge. Now!



LEARN MORE!



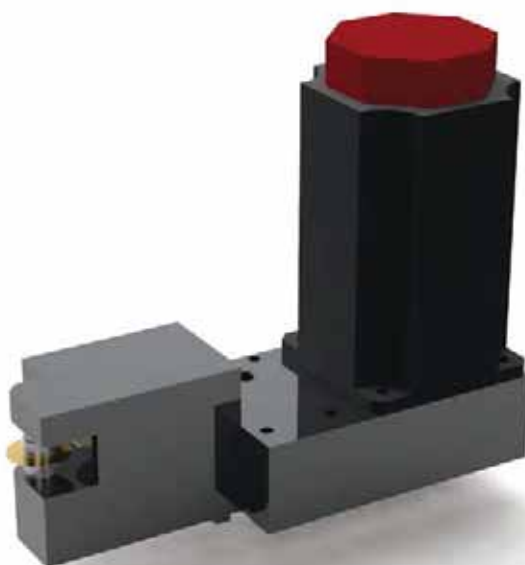
GWS-tool holder for TORNOS MultiSwiss 6x14





SLOTING ATTACHMENT FOR BACK MACHINING ON THE TORNOS MULTISWISS

With more than 120 machines sold, the MultiSwiss 6x14 partially owes its success to the vast range of available options and attachments.



For this machine, a comprehensive range of special attachments to increase its machining possibilities are available. This range even broadening continuously according to the users' requirements. The customers can choose between various types such as drills, a polygon cutter, a thread-whirling cutter, a thread rolling attachment and other devices. Today, another attachment is now available for the MultiSwiss range, the slotting tool for back machining.

Easy and fast installation

This new attachment has been arranged on the back machining slide and is driven by the Plug&Play system of the machine. Just as with any other attachment, a belt drive is not required. Once attached in the correct position, the slotting attachment is connected to the machine by means of a simple connector.

New possibilities

The slotting tool for back machining can cut kerfs during back machining. Depending on the application range, this option can prove to be very useful.

In particular cases, it is even possible to separate the workpiece in two parts by using a special collet.

The slotting tool is offered as of now and it can be adapted to all MultiSwiss 6x14 machines.

For more details, please contact your regular Tornos partner or the MultiSwiss expert at the following address:

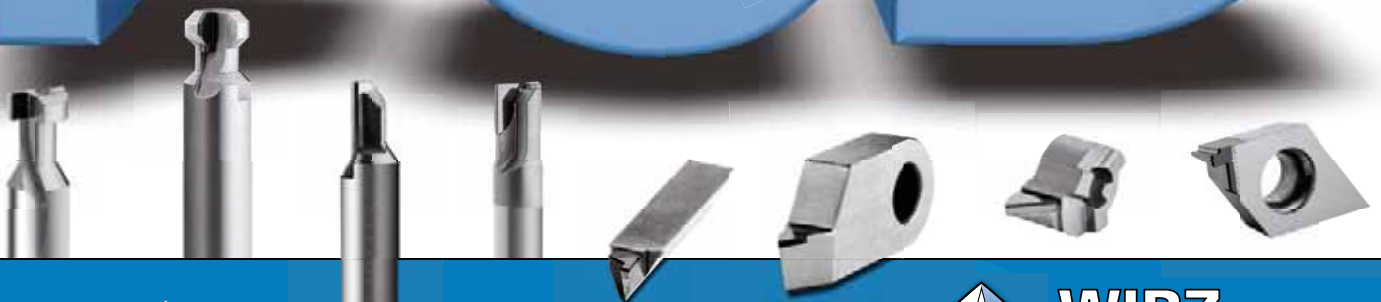


TORNOS

Tornos SA
 M. Rocco Martocchia
 Product Manager MultiSwiss
 Industrielle 111
 2740 Moutier
 Tel. +41 32 494 44 44
 contact@tornos.com
 www.tornos.com

High precision diamond tools | Standard and special shapes

PCD



WIRZ DIAMANT Ltd.
Mattenstrasse 11, CH-2555 Brügg
Phone +41 32 481 44 22
eMail info@wirzdiamant.ch

www.wirzdiamant.ch



**WIRZ
DIAMANT**

vma-werbeagentur.de



FORM TOOLS MADE TO YOUR PRINT



FORM DRILLING WITH INSERTABLE FORM TOOLS

AS INDIVIDUAL AS YOUR PART!

- Part cost reduction by up to 40 %
- For bore diameter up to 28 mm
- For use on any lathes, milling and drilling centers
- For bore tolerances $\geq \pm 0.02$ mm

www.schwanog.com



schwanog



NEW TORNOS ROBOBAR SBF 213 AND ROBOBAR SBF 326

The R&D, technology and innovation that is invested into high-end CNC machine tools can, in many cases be restricted by the equipment that feeds the material into the machine. This is particularly the case with turning centers and bar-feeding units where the integration between the two, goes hand-in-hand.



To this end, Tornos has recently launched a number of new turning centers with more planned in the near future. To ensure that speed, precision and vibration elimination is maximised, Tornos is now introducing new bar-feed units.

For bar diameters from 2 to 13 mm, Tornos is now replacing the existing Robobar SBF 216 with the new Robobar SBF 213. The incumbent bar feed will improve the ergonomics for the end user with its side loading facility. From a customer perspective, another major benefit will be the reduced cost of the new unit. From a capacity standpoint, the new Robobar SBF 213 is available in numerous models that will include 3M, 12 feet and the 4 m. The Robobar SBF 213 has a loading capacity of up to 20 bars. These bars are neatly side loaded into the

Robobar SBF 213. These variants can hold a maximum bar weight of 300, 355 or 377 kg respectively. With the new Robobar SBF 213, Tornos has developed a bar loader that offers the same quality of guidance as a high quality bar loader equipped with tubes, yet it is easy to use for the end user with its ergonomic design and innovative side-loading, that can be used also when the loader is in operation.

Developed upon a girder frame principal and also including NC subsets, the Robobar SBF 213 has a ground girder frame construction that minimises vibration and enhances the smooth transition of bar from the barfeed to the machine tool with high bar guiding quality. Furthermore, the channels of the new bar-feed accommodate two different diameters simultaneously. The movement of the bars are aligned with the spindle through an mechanical

Presentation

synchronising device. The headstock is directly connected to the device and ensure a perfect synchronisation without any delay.

Furthermore, the bar loader does not require any tools to change the bar channels and set-up is simple. In addition, the programmable functions control the device with ease. The impressive SBF 213 is compatible with all numerically controlled machines from the Tornos product line, as long as the diameter capabilities are compatible.

In addition, the synchronisation device mounted in the axis of the spindle allows the Robobar SBF 213 to work effortlessly, efficiently and without vibration. The jaws that extract bar remnants are auto-centering from 2 to 13 mm and require no adjustment.

And for the larger bars...

Tornos' established and well sought after Robobar SBF 326e has now been completely re-designed from the ground up, whilst retaining all the key features and benefits that made this bar feeding unit so successful. The replacement bar feeding unit will be the new Robobar SBF 326.

Tornos has decided to re-engineer and reinforce the design of the previous barfeed, this gives a much improved performance for a comparable cost. The new Robobar SBF 326 features a more heavy duty design that has been created to support production processes that are running at optimum speeds and feeds. The latest addition guarantees that the end user achieves the highest possible guiding quality with low noise and effective vibration-dampening



that is beyond compare, credit to a patented dampener design. This V-Block front rest system provides the perfect guidance for the bar that reduces noise whilst extending tool life through vibration elimination.

The anti vibration device within the new Robobar SBF 326 are pneumatically controlled with independent opening. What this gives the end user is a much more precise bar guidance, regardless of the position of the bar. The bar pusher is mounted on a linear rail guide that eliminates friction and supports the concept of high guidance accuracy.

From a capacity standpoint, the new SBF 326 is available in three variants that offer a maximum bar length capacity from 2 m to 4 m for bar diameters from 3 to 26 mm.





Control at your finger-tips

The new Robobar SBF 326, like the Robobar SBF 213 incorporates a handy remote control (HMI) that is extremely easy to use. The prompting remote control is operator friendly and ensures the interaction between the bar feeder and the lathe. This ensures the production process is run safely and efficiently. The setup is easy and takes less than 1 minute on the panel, this is credit to simple setup function keys that optimise parameter settings, expedite the troubleshooting process and make the response to abnormal display functions easier to detect.



Tornos SA
 Industrielle 111
 2740 Moutier
 Tel. +41 32 494 44 44
 Fax +41 32 494 49 07
 www.tornos.com



WE LET OUR CUSTOMERS DO THE TALKING...



www.partmaker.com/video/integral/

... HEAR WHAT THEY HAVE TO SAY

“With PartMaker, we have much better utilization of our programmers, our set-up people and our operators. Some things that were being sent off shore are coming back because we can do them more efficiently. PartMaker has helped us bring in more business and cut down on our costs as well.”

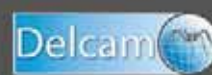
Peter Reypa | President
 Integral Machine | Oakville, ON Canada

certified for Deco [a-line] by



Use PartMaker to program the following Tornos machines:

- * Tornos DECO Series
- * Tornos EvoDECO Series
- * Tornos Sigma Series
- * Tornos Gamma Series
- * Tornos Delta Series
- * Tornos Micro Series



Advanced
 Manufacturing
 Solutions

PartMaker

A Division of Delcam Plc

Contact us today to learn how PartMaker can improve your productivity.

Pacific Design & Manufacturing
 February 10-12, 2015 | Booth #4146
 Anaheim Convention Center, Anaheim CA

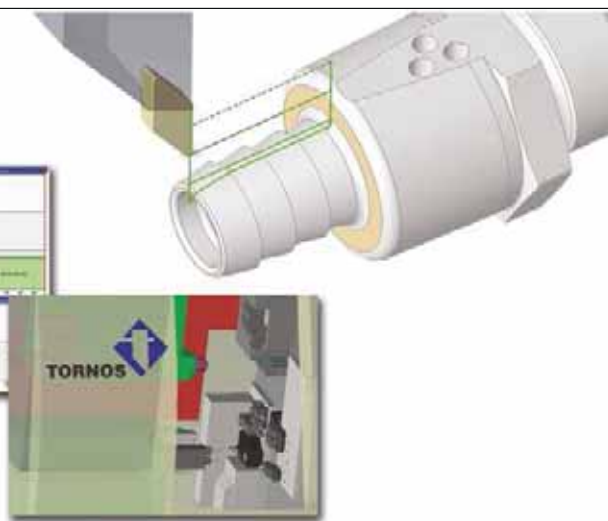
Houstex
 February 24-26, 2015 | Booth #1141
 George R Brown CC, Houston TX

Ph: 215-643-5077 | Toll Free: 888-270-6878 | Email: info@partmaker.com | web: www.partmaker.com

Make the Most of Your Swiss Machine

Mastercam Swiss delivers everything you need to make the most of your Swiss machine.

Solids-based programming, machine simulation, specialized toolpaths and synchronization combine to deliver the exact results you need. Find out what Mastercam Swiss can do for you!

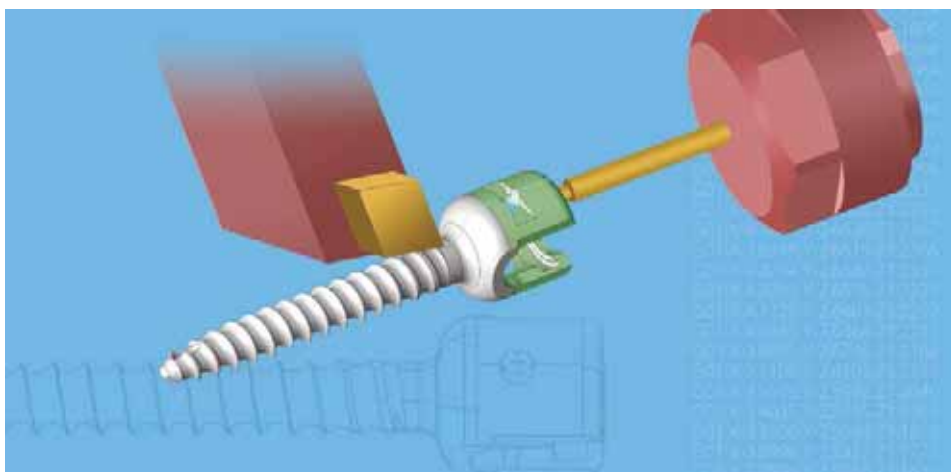


Mastercam. Swiss

CNC software, inc.

Tolland, CT 06084 USA
www.mastercam.com

CNC Software Europe SA
CH - 2900 Porrentruy, Suisse
www.mastercamswiss.com



DIXI
polytool

Tungsten carbide and diamond precision tools



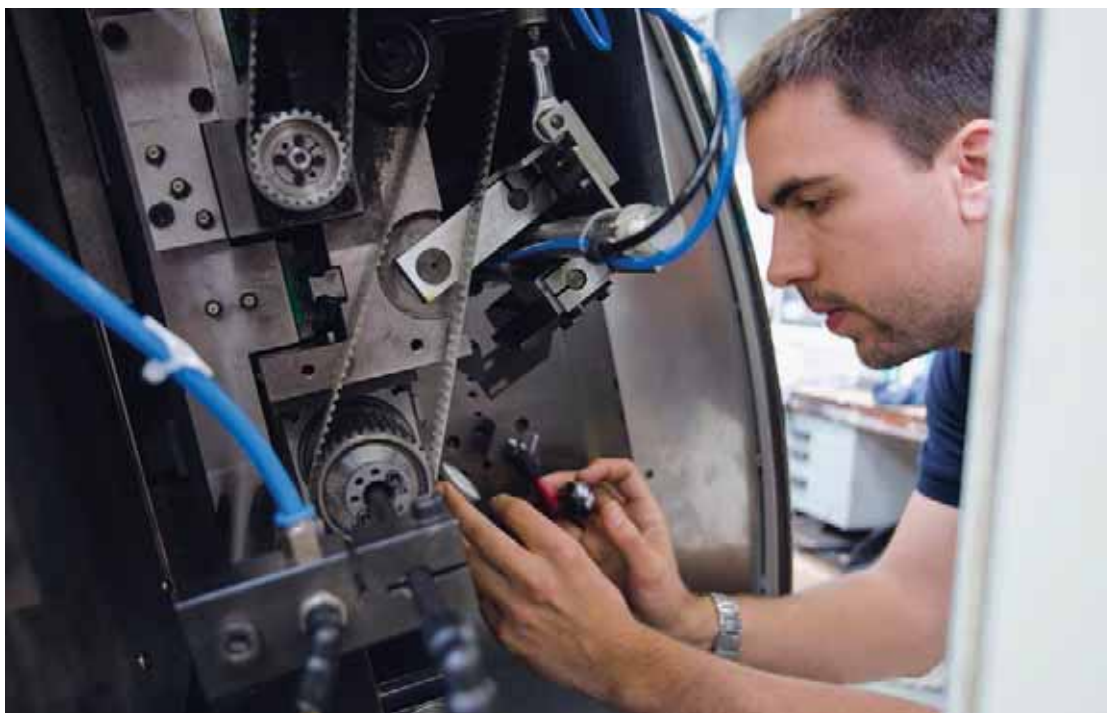
DIXI POLYTOOL S.A.
dixipoly@dixi.ch
www.dixipolytool.com



POINT OF VIEW M. DAMMAN – HEAD OF TORNOS SERVICE

BENEFITS FOR THE CUSTOMER WHEN PURCHASING A USED TORNOS MACHINE

Since spring 2015, Tornos has been offering its customers an additional service. The customer can sell their used Tornos machines to Tornos and vice versa, they can purchase used Tornos machines from us.



Purchase and sale of used Tornos machines is the next logical step ensuing from the service product "Revisions". Due to the fact that the machines are installed, maintained and revised by Tornos, the experience of our service staff can be utilized for the benefit of the customers throughout all phases of the machine's service life. The complete machine history such as measuring reports, information on spare parts and service work performed on the machine are recorded on Tornos' Service database. When customers buy a used Tornos machine, they can be assured that they get a factory-overhauled, well-functioning machine while being able to optionally make use of all Tornos service products available for the respective customer project. To make 100% sure these manufacturer benefits

will be converted to customer benefits, only used machines made by Tornos are purchased, reconditioned and resold.

At Tornos Service, the three service products "Used Machine", "Revision" and "Upgrade" are ideally harmonized with each other and offered according to the customer. When purchasing a used Tornos machine, the customer can define all service products required for his future machine when speaking to our service team. Normally, the revision of a used machine includes full disassembly and cleaning of the machine, replacement or revision of all key components, repainting in the original colors, assembly, test run in continuous mode and geometry report. If, however, due to his production range,

The present



The installation of the used machine can be realized over the same service channels, i.e. the customer can address the contact person he is acquainted with and these contact persons will support the end user throughout the whole service life of the machine. Every supplied machine is covered by a warranty to make sure the customer gets ideal and unbureaucratic support within the first few months after machine installation.

If the customer has revision know-how and his own service department; the used machine can certainly be offered in a basic revision status to be defined, together with an attractive spare parts package that has been tailored to the respective machine status.

At the moment, used machines of the following models are in stock: Deco 20, Deco 26, SAS 16 and Micro 8. You can find all used machines offered on our website www.tornos.com under Service. Here, you will also find peripheral devices on offer such as bar loaders, chip conveyors or cooling systems. They can be combined with the offered used machines or purchased separately - just as required by the customer.

After a revision, the used machines will be available in combination with upgrades if requested. Used Tornos machines are purchased and sold via the established distribution channels.

The main goal of all Tornos Service activities is high customer satisfaction. That is why customer benefit and service is the top priority.

the customer only wants a partial revision of some axes that are subject to high loads, the exact scope of the revision will be determined in close cooperation between the customer and the responsible revision engineer. Moreover, with regard to a further productivity increase of the used machine, existing options and upgrades or compatible ones that have been newly developed by Tornos will be discussed.

Before it is delivered to the customer, every machine is tested in continuous operation and its geometry is measured in accordance with Tornos standards. The quality of the used machine is thus guaranteed and recorded. By request, test parts can optionally be manufactured as well.



Tornos SA
Industrielle 111
2740 Moutier
Tel. +41 32 494 44 44
Fax +41 32 494 49 07
www.tornos.com

STRATEGIC VISION IN FAVOR OF TORNOS' CUSTOMERS

Today, Tornos offers a large range of various products covering the complete scope of production requirements for bar turning work - from simple to highly complex workpieces and from diameters of a few tenths of a millimeter up to 32 mm. Based on a platform concept and on the use of common modules for several products, the design has been streamlined and simplified. The customers can therefore be sure they get proven and reliable products.



Tornos Xi'an.

This reorganization of the product line was only possible with a drastic reorientation of the company's strategy but also of its means of production. We are meeting Mr. Carlos Paredes, responsible for the implementation of the global production strategy at Tornos.

A clear strategy

The vision developed by the Board of Directors and the Executive Management has been clear from the very beginning. They wanted to develop a coherent product line that covers the requirements of every Tornos customer, as well as those of potential cus-

tomers. *"Based on this vision, now it's up to me to implement a global production strategy that enables us to offer good products built on sound principles at competitive prices,"* Mr. Carlos Paredes says at the beginning of our conversation.

Follow the market

Of all automatic lathes sold worldwide, the medium and small end products make up the biggest share, and this applies throughout the world, but especially in Asia. Mr. Paredes makes clear: *"If you want to be competitive you have to go where the market is; and what's more, this approach enables us to be*

close to our customers." The decision to produce the Swiss ST, Swiss GT, Swiss DT and CT machine series in Asia where large volumes are consumed, has rapidly resulted in major decisions and investment.

Benefits for all

The fact that Tornos now has less complex machines on offer is something that has opened up new opportunities with regard to customers that never had contemplated Tornos products before. In this matter, Mr. Paredes is quite clear: *"As to our customers, they can be reassured that they get the best machine for their requirements while we get the opportunity to offer our complete range of products to the users. For us, having a large product range is a win-win situation."*

Experiences in Asia

Since 2013, Tornos has been manufacturing machines in Taiwan and since 2014, in China - in two production facilities to distribute charges and risks. In both cases, Swiss specialists are on site to ensure that the machines produced on the local pro-

duction lines comply with Tornos' quality standards. Moreover, the key elements such as the spindles are manufactured in Moutier, to make sure they can benefit from the cumulative competence available from the headquarters.

A strong brand

Mr. Paredes explains: *"We have a strong brand to present in the market. The customers associate high quality and performance with our brand and we should not disappoint them; these elements should be just as convincing as the production site of the machine."* The capabilities of the machines are certainly different, but the quality perceived by the customers (as well as the real quality) must always be identical; that's the reason why the manufacturer is making every effort to guarantee this.

Unconditional commitment

To ensure perfect quality, Tornos is actively investing in training, quality control and quality management, both in Taiwan and in China. *"From Switzerland, we are extensively supporting the production sites, even if we are still at the beginning of the process and*



Tornos Xi'an.

we are doing everything in our power to make sure our organization is reliable and to guarantee that only high-quality products roll off the line," replies Mr. Paredes when being asked about the company's commitment in Asia. He adds: "We regard this as an investment. The local (Asian) market consumes a vast volume of machines and our on-site commitment enables us both to strengthen our image and reputation in terms of quality and to begin to supply the market."

Two dedicated production sites

While the medium-range machines are produced on the Asian continent, the high-end machines, namely the EvoDeco, SwissNano, MultiSwiss, MultiAlpha and SAS 16 machine series, are manufactured in Moutier, a town Mr. Paredes is full of praise for: "The Tornos headquarters are located at the heart of a region where microtechnology has its home. This is why our employees possess outstanding expertise and know-how. The products manufactured in Moutier could not be realized without our staff. And we have always sought to maintain this know-how."

An indispensable tool: "Lean Manufacturing"

Notably due to the exchange rate issue, it is difficult for products made in Switzerland to compete on an international scale. And while it is often said that innovation is the best way to get response, good production certainly is another way to achieve immediate results. Mr. Paredes provides us with some information on the implementation of "Lean Manufacturing" in Moutier: "We began to implement "Lean Manufacturing" at the end of 2014 and the results achieved so far are very encouraging. The lead time of an EvoDeco, for instance, has been reduced by 50%! Higher flexibility, shorter delivery times and manageable investment are thus guaranteed for our customers. Moreover, the implementation of this concept enabled us to better warrant quality in the assembly process." In addition, the premises in Moutier are better utilized and the production will be consolidated at one production site.

Better involvement of the staff

With less than a year passed, Mr. Paredes does not want to make general statements but he tells us: "We still have little experience but we already got enthusiastic reactions to date; our employees are satisfied. The complete logistics around the production line has been improved and the workers waste far less time. The work stations have been improved which primarily can be traced back to the fact that we asked our employees working at these produc-



Tornos Xi'an.

tion lines for their feedback and have adapted the working conditions based on such feedback. As a whole, this project has united us all and has generated a lot of positive energy."

Continuously increasing requirements

In the industry, but also for capital and consumer goods, you can observe a major trend: The requirements are continuously rising and today's medium-end segment comes very close to yesterday's high-end segment. Mr. Paredes explains how Tornos responds to this trend with its strategy: "We have to permanently be ahead of the requirements of our customers. To do so, our R&D departments are constantly striving for new developments and innovations to be able to offer more than ever to our



Tornos Xi'an.

customers. At all times, they are carefully calculating the return on investment of such developments and that's why innovation must always serve the customer. At Tornos, today we are developing our products also in due consideration of the constraints of lean manufacturing to make sure our processes are always the optimum ones."

A great opportunity

Asked about the application of this global strategy, Mr. Paredes concludes: *"For us, it's an opportunity rather than a risk to produce in Asia and thus to complement our traditional production sites in Europe. In Switzerland, it would not be possible to produce the products that are manufactured on the Asian continent in a profitable manner. With these products we can complement our product range that is now so comprehensive that it covers a vast scope of customer requirements."* Moreover, this article makes clear that the medium-range products are also provided with the Tornos label and benefit from the same quality and requirements standards even if they are manufactured in Asia.

We would like to thank Mr. Paredes for this interesting interview that enables us to look behind the scenes at Tornos.

Are you looking for a machining solution tailored for your specific requirements? Visit the Tornos booth on the EMO or contact the company - you will find the right product.



Tornos SA
Industrielle 111
2740 Moutier
Tel. +41 32 494 44 44
Fax +41 32 494 49 07
www.tornos.com



OIL MIST EXTRACTION ON THE BA 1008: CUSTOMISED SOLUTIONS

All types of Almac machining centers can be equipped with the optional oil mist extraction unit with mechanical or electrostatic filtering function.



Up to now, Almac has offered solutions either for the direct connection of the BA 1008 machining center to the central purification network (provided that the customer has such a purification network) or for the connection of the machine to a separate extractor placed on a dolly, next to the machine.

Our slogan: keep compact, ergonomic and efficient

Today, the bar-machining center BA 1008 can be equipped with a new option for installing the extraction unit on the machine. A well thought-out stand enables an oil extraction unit to be mounted on top of the machine.



With this solution, the company-specific machine concepts of “compact” and “ergonomic” are heeded, as peripherals can be added without changing the footprint. This is possible while providing optimum access all around the machine. Excellent accessibility to the electrical cabinet at the rear side of the machine is also provided.

With its open-work design, the stand is in full harmony with the original design of the BA 1008. It would have been a shame to spoil the look of this machine with an overly bulky trestle. Nevertheless, the stand is very sturdy, as its steel structure ensures a very high stability. Moreover, it has been carefully designed with regard to minimization of potential head losses by arranging the extraction unit directly above the machining area to ensure minimum hose length.

Tailor-made solutions for the customers' requirements

The users of the BA 1008 can choose an extraction system adapted to their needs (choice between mechanical, electrostatic or centralized system). Customers can also opt for the desired installation

type (dolly-mounted or installed on a stand). This ensures we provide the highest flexibility for satisfying even the most demanding customers. The stand for the BA 1008 has been available since May 2015 and it can be installed even on machines that are currently in production. For detailed information, please contact your nearest Almac distributor.



Almac SA
39, Bd des Eplatures
CH - 2300 La Chaux-de-Fonds
Tel. +41 32 925 35 50
Fax +41 32 925 35 60
www.almac.ch
info@almac.ch

TORNOS FLUID MANAGER – FOR PRODUCTION OPTIMIZATION

Pinpoint coolant supply is one of the machining parameters that is having a direct impact on productivity and downtimes.



This particularly applies to value-added machining operations such as deep-hole drilling, milling or thread whirling. Such operations cause fast contamination of the cutting oil and create sludge accumulation in the machine tank.

To solve this problem, Tornos offers a compact and efficient solution, the new Fluid Manager. By default, this device includes a 500 litre tank and a hydrostatic paper filter. Optionally, it can come equipped with up to two high-pressure pumps.

BENEFITS

- Increases machine uptime
- Reduces the footprint of the hydraulic units
- "Fully integrated" compact design
- No machine strainers
- Continuous filtration of 'all' the cutting oil in the machine
- Reduces cleaning operations
- Eliminates machining sludge
- Better surface finish
- Prolonged tool life

TECHNICAL SPECIFICATIONS

- Dimensions: 1900 x 800 x H 1700 mm
- Transfer pump included
- Hydrostatic paper filter
- Automatic paper reel winder
- 500 l tank
- Up to 2 HP pumps
- 3 types of HP pumps available - 60, 120 or 340 bar
- 5 configurations possible

At the moment, this is the most compact device of this class on the market. Each Fluid Manager is provided with an oil/water heat exchanger. Depending on the plant configuration, the device can be connected to a centralized water network via its interface while a water chiller can be added, if necessary.

An integral system

The Fluid Manager is integrated in the machine/bar feeder assembly. It pumps and filters the whole machine cutting oil and refills its own tank. The filtered oil is then directly extracted by the machine's coolant pump and/or by the high-pressure pumps of the Fluid Manager. The device has 8 independent outlets for the pumps. The hydrostatic paper filter can filter up to 150 liters per minute with a filter mesh between 50 and 100 microns, depending on the machining requirements.

High ease of maintenance

The Fluid Manager not only improves the surface finish of the machined parts and ensures a longer useful life of the machine cutting oil, it also helps to

drastically reduce routine maintenance. This kind of filtration actually works without strainers inside the machine and reduces necessary cleaning operations.

For detailed information on the Fluid Manager, please contact your nearest Tornos representative.



Tornos SA
Industrielle 111
2740 Moutier
Tel. +41 32 494 44 44
Fax +41 32 494 49 07
www.tornos.com



TORNOS SWISSNANO MAKES BIG IMPACT FOR HARWIN'S GECKO CONNECTORS

Portsmouth-based Harwin has a reputation within in the global electronics industry for the production of high reliability connectors. From its humble beginnings in 1952 as a small family-owned turning shop, Harwin has evolved into a world leading connector manufacturer that exports 80% of its products to over 90 countries.



With locations on three continents, Harwin has an active portfolio of over 50,000 connectors. To retain its position as an innovator within its customer base that includes blue chip names in the F1, aerospace, oil & gas, undersea, UAV and satellite sectors, Harwin implements a strict policy of replacing its plant and equipment on a 5-year cycle. The latest stage of this strategy was the purchase of two Tornos SwissNano sliding head turning centres.

In the electronic connector industry, size, weight and power output of connectors, known as the 'swap ratio', is a critical factor as the industry continually evolves. For Harwin to continually push the boundaries and produce ever-smaller connectors, the company realised that its existing machine shop needed upgrading. So, the company reviewed the machine tool market for a solution.

Presentation



As Harwin's Operations Director, Paul McGuinness comments: "We are bar-feeding our sliding head lathes with 2 mm copper alloy bar that is turned to produce male and female connector pins with diam-eters of 1 mm down to 0.3 mm. As industry evolves, these dimensions may get even smaller. This has been the case with our Gecko line of connectors that have a pin pitch of 1.25 mm - smaller than other products that address the same application. When we looked to replace some of our machines, key issues included small factory footprint, high precision at micro sizes, cost reduction and waste elimination, speed, ease of set up and future-proofing."

What has the SwissNano brought the Gecko?

Like any busy machine shop running 24/7, productivity per square meter is a key factor for Harwin. To this end, the company can achieve the same level of output in half the space of other machines. The result is that output capacity per square meter has been more than doubled.

With regard to cost, the immediate benefit was a reduction in job set-up time. The installation process and integration of the Tornos machines was further simplified by the Fanuc Oi control unit on the machines, which is similar to the control system used on its existing sliding head machines. Better yield is achieved by an improvement in process reliability.

As McGuinness says : "We are frequently working to tolerances down to +/-0.01 mm, which is easily achieved on the Tornos SwissNano machines. Our Design department is continually making higher precision demands of the products - the SwissNano machines enable us to meet these demands."

SwissNano Makes Big Impact on the Gecko's Environment

A key to Tornos becoming a benchmark on a global stage is the 'ever-improving, cost down, production up mantra', and the SwissNano machines have instantly made an impact on material savings and power consumption. With smaller spindle motors, the two SwissNano machines have extremely low 6 kVA power consumption, significantly less than other machines on the market. The company can potentially double its output with the same power consumption costs.

Another major saving is material consumption. As Mr. McGuinness continues : "The high-performance copper alloy we use gives us great performance, but is also a significant cost. Whereas some machines

left bar remnants of 300 mm, the SwissNano turners can achieve an additional 25 parts per 3 m bar length and reduce the bar remnant to just 120 mm. This is a 60% saving on wastage and considerably more parts per bar. Considering we are producing tens of millions of connector pins each year, these savings are highly significant."

Process & Component Improvements.

The Gecko connector pins undergo a series of processes that involve rough and finish turning, complex form turning, drilling, slitting and swaging. All this is completed in one-hit by utilising the main and sub-spindles on the SwissNano machines.

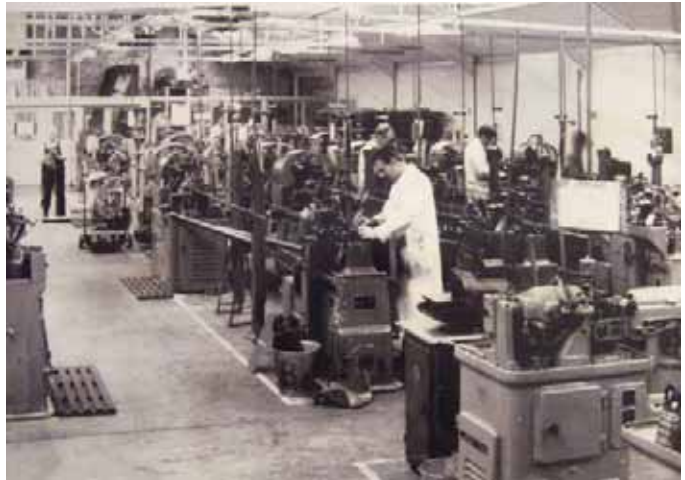
"The SwissNano machines are undoubtedly geared for micro production. The thermal stability and rigidity of each individual facet within the SwissNano machine has been designed to reduce vibration. In the few short weeks since installing the SwissNanos, we can see they are improving our surface finishes and prolonging our tool life. This is immediately evident, but it's too early to quantify the improvement. The linear platform of these machines also makes them remarkably quiet with no base vibration," says Mr. McGuinness.

It's the Little Things That Count...

Whilst Harwin has instantly benefited from the two SwissNano machines, there are a number of other technological advantages that shop floor operators at the multi-award winning Hampshire manufacturer have noticed. As Mr. McGuinness confirms: *"With a high precision micro-machine, bar-feeding can be an issue. However, Tornos has supplied an innovative bar-feeding unit that can feed bars below 2 mm diameter with absolute ease, precision and the elimination of vibration."*

"Additionally, the transfer of micro components from the work envelope to the completed component compartment is unique. With the Tornos SwissNano, the parts are flushed with oil prior to parting-off from the sub-spindle and then transferred neatly to a collection 'chute'. This removes all swarf and contaminants prior to ejecting the parts to a collection bin. Although our parts undergo secondary cleaning processes - and swarf removal may not be an issue for many manufacturers - when you are producing parts less than 0.5 mm diameter and only a few millimetres in length it's a major asset to remove 'all' swarf at source."

As Mr. McGuinness concludes: *"Our Gecko range currently has a pin pitch of 1.25 mm and the indus-*



try will dictate whether this 'pitch' and the respective male and female pin dimensions eventually reduce. One thing which is certain is that Harwin now has the capacity to move to smaller component production in the future with improved design to production flexibility. For us to move from precision micro to nano production is something we would find very hard without Tornos."

HARWIN

Harwin plc Europe
Global Headquarters
Fitzherbert Road
Portsmouth, Hampshire, UK
Tel: +44 (0)23 9237 0451
www.harwin.com
mis@harwin.co.uk



HAROLD HABEGGER

Canons de guidage Führungsbüchsen Guide bushes



Type / Typ CNC

- Canon non tournant, à galets en métal dur
- Évite le grippage axial
- *Nicht drehende Führungsbüchse, mit Hartmetallrollen*
- *Vermeidet das axiale Festsitzen*
- Non revolving bush, with carbide rollers
- Avoids any axial seizing-up

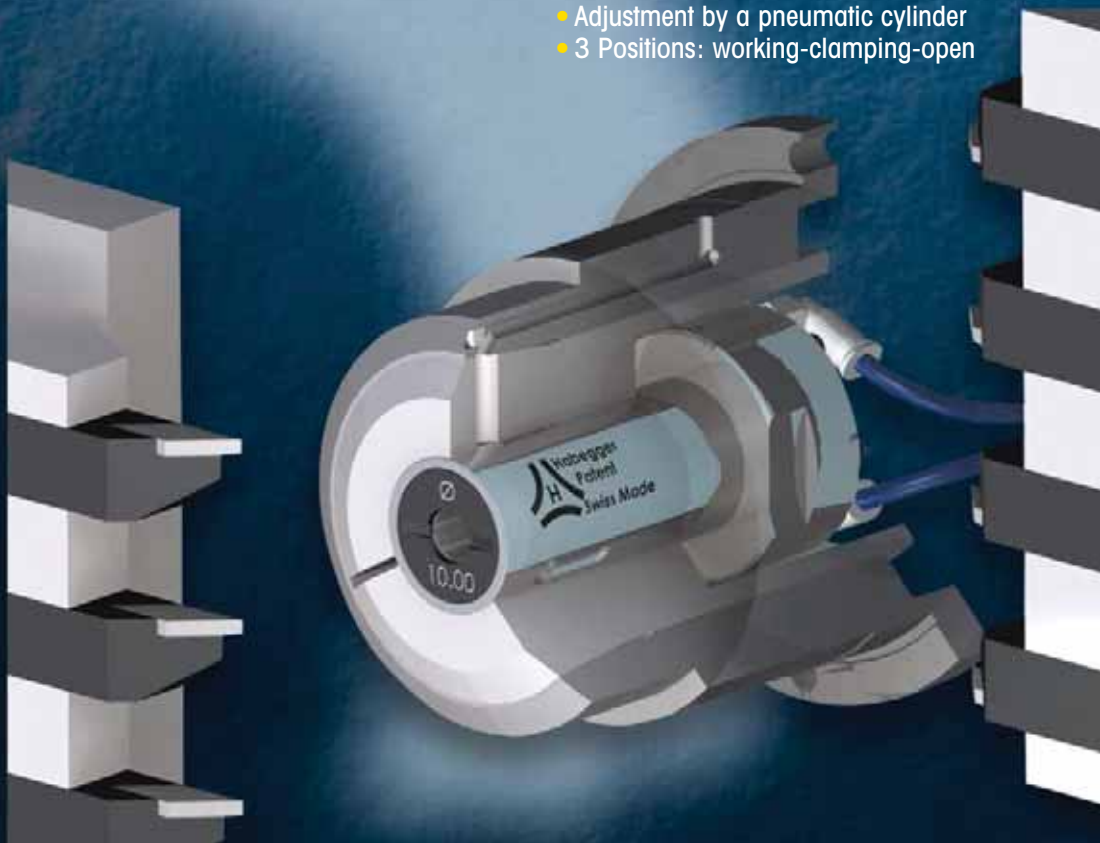
Type / Typ C

- Réglable par l'avant, version courte
- Longueur de chute réduite
- *Von vorne eingestellt, kurze Version*
- *Verkürzte Reststücke*
- Adjusted from the front side, short version
- Reduced end piece



Type / Typ TP

- Réglage par un vérin pneumatique
- 3 positions: travail-serrage-ouverte
- *Einstellung durch einen pneumatischen Zylinder*
- *3 Positionen: Arbeitsposition-Spannposition-offene Position*
- Adjustment by a pneumatic cylinder
- 3 Positions: working-clamping-open



- ◆ 1 Porte-canon: 3 types de canon Habegger!
- ◆ 1 Büchsenhalter: 3 Habegger Büchsentypen!
- ◆ 1 Bushholder: 3 Habegger guide bush types!



NEW PART OUTLET ON MULTISWISS 6x14

In one of the last editions of the decomagazine (72, 1/2015), we presented the new part outlets available on the MultiSwiss machines. With these outlets, the finished workpieces can be picked up by suction and apportioned to different trays.



In some cases, however, these solutions and the customer's workpieces or wishes may not perfectly match. To discover another device for discharging finished parts from the machine, we have met Rocco Martocchia, Tornos' Product Manager of the multi-spindle division.

decomagazine: Mr. Martocchia, could you please explain us why you have decided to expand your range of part outlet solutions?

Rocco Martocchia: The MultiSwiss series is very successful and our customers use these machines to produce a vast number of parts of different shapes and characteristics. 70% of the machines sold are equipped with one of the part outlets of our product portfolio. However, especially in the automobile industry, the demands are subject to constant

changes, in particular in terms of the workpiece quality, and that's why we have to permanently adapt, to anticipate the wishes of our customers.

dm: Can you tell us a bit more about this new system?

RM: I'd be glad to! This system is primarily intended for discharging parts with dimensions of approx. 10x10 mm from the machine without them getting damaged in order to meet the high demands on surface quality and extreme overall quality. For this purpose, the workpiece is gently ejected into an aluminum tube, then slowed down in an alumite ring tube, that has been manufactured using 3D printing technology, and finally discharged into a tray.

This system has a trap door that allows the isolation of a workpiece and selective inspection procedures.

The present



We have developed this system for one of our customers who demanded a system that should enable him to make sure that no part will get lost while being extracted. So, we have equipped the machine with two inductive sensors for detecting the ejection of the workpiece and the workpiece exit from the tube. We can thus be sure that the workpieces cannot clash together in the aluminum tube. At the time of publication, the system is sold for parts made of steel. For other materials, please contact your Tornos dealer.

dm: What about the workpiece length; is it possible to monitor it during the production process?

RM: We have developed an interface for the adaptation of the PC2003 measuring system. Depending on the parameters set by the operator, we can sort out any workpieces that are too short. If the system detects a more severe problem, e.g. if several too short parts are produced successively, the machine stops and an alarm message warns the operator. Tolerance values can be defined. If a single part is too short it will be automatically discarded. By means of a parameter, the user can define the maximum number of parts to be discarded before the alarm is triggered. This device thus allows con-

sistent workpiece quality in terms of length and prevents the production of bad parts. It is mounted in a standard front dual tool holder, e.g. parallel to a drill bit. Length variations can be detected and the workpieces can thus be sorted. Programming is done directly on the machine PC.

dm: Is it possible to adapt this new system to machines already installed?

RM: Certainly! Do not hesitate to contact your nearest Tornos representation if you want to get detailed information.



TORNOS
 Tornos SA
 Mr. Rocco Martocchia
 Product Manager MultiSwiss
 Industrielle 111
 2740 Moutier
 Tel. +41 32 494 44 44
 contact@tornos.com
 www.tornos.com



THE BEST CONNECTORS WORLDWIDE

For almost 70 years, LEMO has been exclusively manufacturing high-end connectors. To do so, the company can count on highly qualified staff and on the high-capacity production machines from Tornos.



The high-quality Push-Pull connectors made by LEMO can be found in a variety of demanding applications in sectors that include the medical, industrial control, audio/video and telecommunications industries. You will find them under the sea, in space, in the fastest trains and cars of the world as well as at the heart of the biggest events such as the Olympic Games. All over the world, they ensure reliable and perfect connections. The company is proud of being able to connect any cable in any environment and this results in a vast product catalog.

Infinite possibilities

LEMO offers much more than connectors: the end customer gets turnkey solutions. *"There is no connector we cannot produce. On the other hand, since 2014, i.e. following the acquisition of the American*

cable manufacturer Northwire, LEMO has been able to offer complete customized cable/connector solutions for the most demanding customer requirements," Mr. Maret, Director of the production site in Delémont, Switzerland, declares. The product range comprises more than 75,000 combinations and it is still growing and covers various specific designs. Today, LEMO and associated companies such as Redel, Northwire and Coelver are serving more than 100,000 customers in more than 80 countries throughout the world.

A long-standing partnership

In its early days, the company selected Tornos as a supplier for its machining demands; the proximity between Tornos and the production site in Delémont certainly played a role but not the only

Presentation

one. LEMO had been looking for machines that were able to respond to its highly specific needs, i.e. that could produce connectors in small to large batches in a very flexible and efficient manner. Nowadays, LEMO 5 is starting the production of 5000 series ranging from 5 to 100,000 pieces on 120 machines per year. In the beginning, the company had logically banked on cam-type machines such as the M7, MS7 or even the R10 to name but a few models and then LEMO switched to the Deco 10 machine in the late 2000s. This choice has proved to be a good one as today, LEMO has 20 Deco 10, 5 Deco 13, 9 Deco 20 and two Deco 26 machines. In addition to the Deco family, LEMO has purchased five Delta 12 and twelve Sigma 20 machines. The Deco 10 is LEMO's flagship, it covers the heart of the company's production and is used to manufacture the smallest and most precise parts. As the machines were getting old after so many years of service, the time had come to make a decision to be able to remain competitive.

Staying ahead of competition

LEMO is constantly conducting studies to determine the best method of keeping its means of production at the level required to be able to continuously manufacture high-precision parts under the optimum

conditions. It quickly became clear that there was only one machine that was capable to compete with the Deco 10 machine, the EvoDeco 10. However, it was not possible to replace every single one of the 20 machines in one go. Even if the Deco 10 and the EvoDeco 10 are very similar, the new machine offers many new features such as the supplemental Y4 axis or the integral industrial PC. Notwithstanding the substantial benefits of the EvoDeco 10 in terms of rigidity, minimum downtimes and simplified maintenance, the Deco 10 machine is still an excellent machine and its optimum kinematics make it highly stable during the production process.

Overhaul as a logical choice

"When Tornos presented its offer of machine overhaul, we were convinced immediately," Mr. Maret emphasizes and he adds: "The overhaul of Deco 10 machines was a service already known in the market, but in this case, we are speaking about complete machine rebuilding by the manufacturer. Our machines have more than 50,000 hours of extensive machining and numerous set-ups under their belt. We were pleasantly surprised when we got the first overhauled machine: to us, it appeared to be like a new machine and on the very first day, we could restart production." Sooner or later, the workshop



equipped with the first four revised machines will be supplemented by new EvoDeco 10 machines. At Tornos, the machines are completely disassembled and the components are cleaned and analyzed. The machines are then rebuilt by the technicians that disassembled them. Tornos' spare parts center is located just above the overhaul center – the ideal site.

For large quantities

The numerically controlled multi-spindle machines of the MultiAlpha type installed at LEMO 5's have enabled the company to simplify its production process. As a matter of fact, the machines can finish highly complex workpieces that used to require several finishing processes. The MultiAlpha 8x20s are equipped with a barrel containing 8 spindles; the spindle speeds can be selected independently, i.e. the optimum speed can be used for each machining position. To be able to keep up with the working cycle of the 8-spindle barrel, the machine is equipped with two counter-spindles that are mounted in three NC controlled axes and can machine using five tool positions. This concentrated technology package is brilliantly controlled by the TB-Deco software, which offers positive and intuitive

control of the large number of NC axes. With these lathes, LEMO 5 can hugely optimize its production. Errors can be much better traced back and, of course, the production speed is increased.

Optimization of production

Just like the unique push-pull technology facilitates the users' life, the production of these connectors should be as easy as possible. A leading company being as innovative as LEMO has to optimize its production process and must also ensure ensure the shortest cycle times in order to cut down the deadlines. That is in the interest of the company's strategy. The production facility in Delémont is extremely flexible and can thus process any order the group receives. That's why the inventory can be kept very low; the Tornos machines can respond to the emerging requirements at all times.

The ace in the hole: the staff

LEMO 5's most striking benefit - apart from its exceptional means of production - is the commitment of its staff. Each of the 230 employees is actively involved in the life and the performance of the production site. Every day, coordination meetings are held to identify potential problems and thus



Presentation



to be able to take the required corrective measures to ensure optimum operation. This kind of proceeding makes sure that everyone has the same level of information and is aware of the challenges ahead which must be met to reach the production goals. To top it off, the company has several excellent Swiss-type lathe operators for whom cycle time optimization is a kind of religion. Research and development are also part of the very essence of the company. The challenges posed by the connection business are constantly rising, especially in the high-end range offered by LEMO. Extreme precision and complex shapes are requested and this trend is constantly increasing; a company must be able to meet this demand.

LEMO attaches great importance to the vocational training of young people and to further training. In a dedicated training center, the apprentices can learn the tricks of the trade under optimum conditions. The apprentices get the chance to be trained on several machine types. Needless to say that all of them are Tornos machines! Moreover, one Tornos Deco 10 has been especially installed for them. As many as 12 apprentices are permanently taking advantage of a formation meeting the highest LEMO 5 requirements.



LEMO SA
Chemin des Champs-Courbes 28
P.O. Box 194
CH-1024 Ecublens
Tel. +41 (0)21 695 16 00
Fax +41 (0)21 695 16 01
info@lemo.com
www.lemo.com

LEMO (5) SA
Electrotechnique
Rue Saint-Sébastien 2
2800 Delémont
Tel. +41 (0)32 421 79 00
Fax +41 (0)32 421 79 01

AT THE HEART OF A REAL KNOW-HOW MICROCOSM

Throughout the world, everywhere where English is spoken, automatic lathes are known as “Swiss-type lathes”. Why? The explanation for this is quite simple: These machines come from Switzerland, or, to be more precise from the Swiss Jura Mountains or even more precise, from Moutier where Tornos, Bechler and Petermann, the most renowned manufacturers were headquartered.



For more than 100 years, the complete region has worked in this industry, i.e. high-precision micro-technology. It is often said that their DNA gives the workers of the Swiss Jura Mountains a real feeling for micro-technology. In the beginning, bar turning gave the watchmakers/farmers the chance to keep themselves busy during the long winter months. In the meantime, this activity has been developing and innovating continuously.

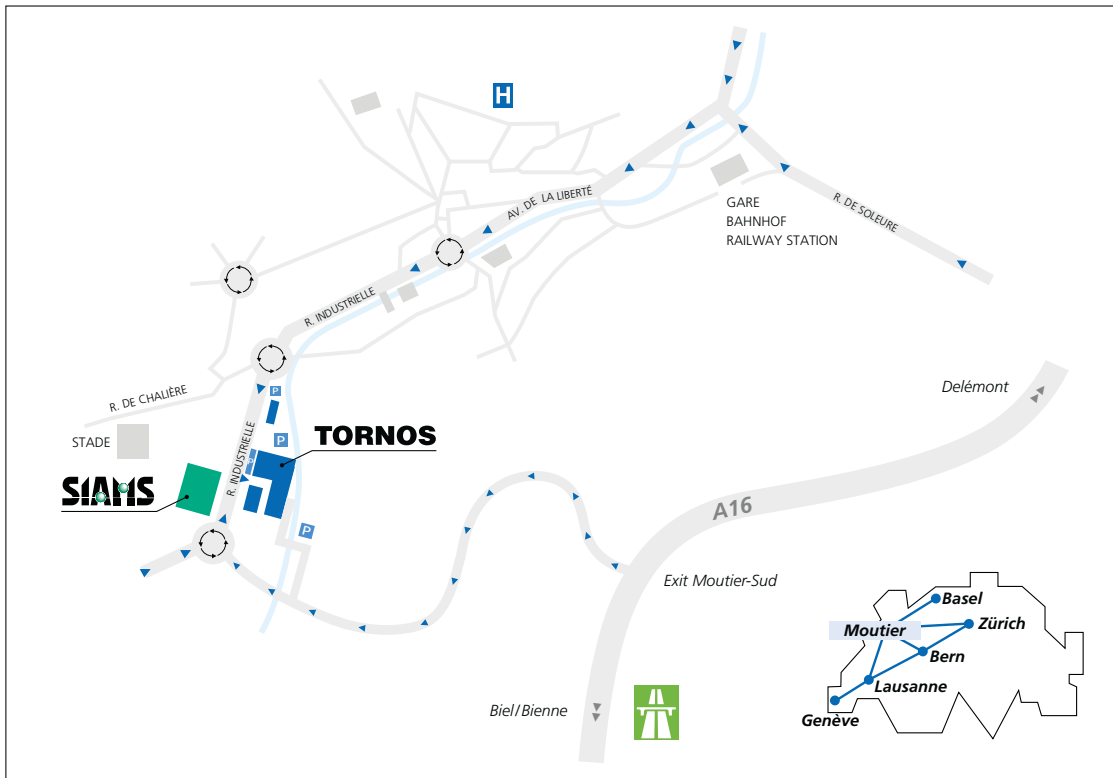
Swiss Jura Mountains and Micro-Machining Competence

Over the years, a world itself has developed. Apart from machines, the peripherals, cooling lubricants, tools and any accessories and peripheral devices have evolved to supply innovative solutions on a

worldwide scale. Today, the region is the global epicentre of micro-machining competence and it is not unusual that the customers of an enterprise do not only benefit from the competence of that specific company, but also from that of various other enterprises. Mr. Renggli, Tornos' Marketing Manager, comments: *"Tornos is ideally headquartered at the heart of an extensive network of partners and this enables us to be highly responsive to the needs of our customers."*

A targeted event

In 1989, a new event was launched at the center of the Swiss Jura Mountains region. It was intended to offer all its participants the opportunity to promote and demonstrate their competence. The SIAMS



exhibition was born at the skating rink of Moutier. Later, it was held under a tent before it moved to the Forum de l'Arc vis-à-vis Tornos. Francis Koller, founder and former CEO of SIAMS remembers: "It has taken many years to make SIAMS known throughout the world. At the last SIAMS, 450 exhibitors and approximately 17,000 trade visitors from more than 30 countries were registered." Pierre-Yves Kohler, the current CEO adds: "SIAMS has grown enormously but it has succeeded in maintaining its convivial and positive atmosphere." Both the visitors and the exhibitors use the exhibition for work; SIAMS is a trade fair that is firmly anchored in this region, crowded with specialists and also widely open to the international audience!

Prospective customers from afar

In 2014, approximately 90% of the exhibitors came from Switzerland, in particular from the Jura Mountains. You could say that SIAMS is a showcase for highly specialized technology of the regional industry. But is there really a market for such an event? "Yes, absolutely," Pierre-Yves Kohler replies and he adds: "The competences of the industries based in our regions are appreciated all over the world and SIAMS is acknowledged as a showcase for the resources of every company operating in the micro-technology branch, no matter where it

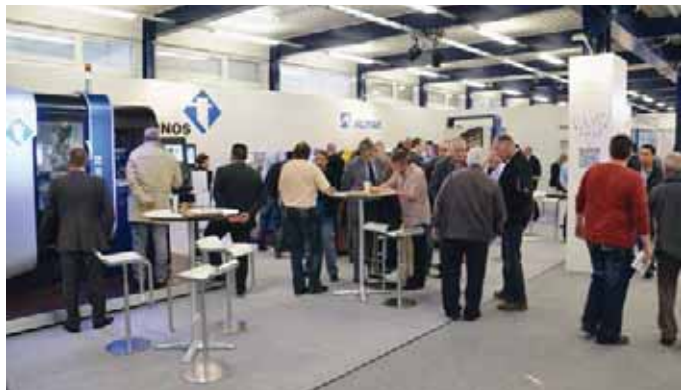
comes from." Brice Renggli agrees wholeheartedly and mentions the following anecdote: "Last year, a customer from New York who could not find a satisfactory tooling solution in the United States visited Tornos during SIAMS. On one single day, he used the opportunity to meet all specialized tool-makers and he finally found tools that enabled him to produce his parts back home in the Bronx." He adds: "Every year, the managers of our subsidiaries in Spain, France and Italy, as well as our Swedish agent, organize trips for several dozens of their customers to visit SIAMS in Moutier."

A committee of exhibitors to ensure higher quality

At the end of June of this year, the organizers have established a committee consisting of over twenty Managers or Marketing Managers both of companies exhibiting at SIAMS and of other companies. This committee serves as a platform for exchanging ideas, understanding the demands of the exhibitors and finally for ensuring the success of the next trade fair. Pierre-Yves Kohler tells us: "We spoke to about twenty business managers and almost all of them were about to participate. This confirmed our idea and our desire to be transparent. Our meeting was extremely interesting and I would like to thank all participants."

The exhibitors demonstrate their know-how

As a new service offered by SIAMS to all of its exhibitors, the latter may use the SIAMS website for communication purposes. Using "copy & paste", each exhibitor can very easily prepare messages and news and publish them online. Any such messages and news are then linked to the exhibitors' online profiles. The participation in SIAMS therefore is not limited to a single week in April 2016 but extends over the whole year.



Survey of the 2016 exhibition

After the great success of the SIAMS 2014 and probably in response to the abundance of information published by the organizers, a large number of prospect exhibitors have already registered. Just one week after commercialisation started, more than 40% of the booths and more than half of the exhibition space is reserved (as of end of June). Laurence Gygax, SIAMS Customer Manager, adds: "For the previous exhibitions, such a registration level had not been reached before September/October." Prospective exhibitors can feel reassured, there are still places available... but they should not wait too long.



To discover the event, visit Moutier from April 19th to 22nd, 2016.



EXPRESS INTERVIEW

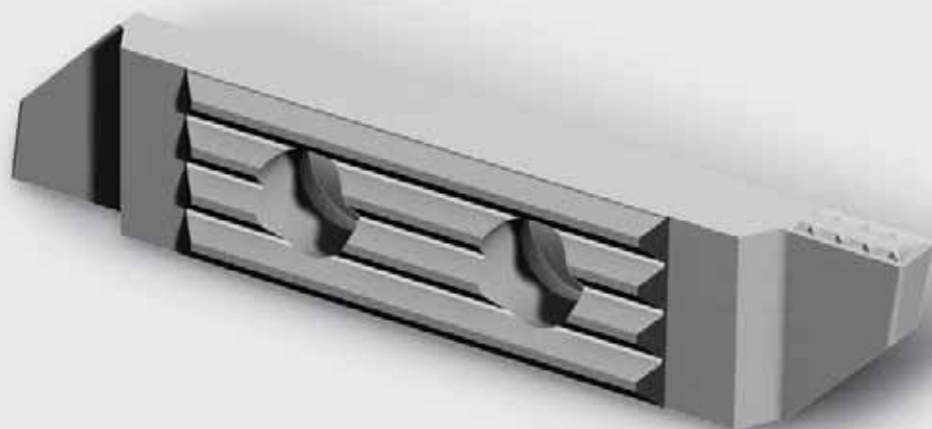
We have met Brice Renggli, Tornos' Marketing Manager, who talks about his participation in the SIAMS exhibitors committee.

"We are glad of getting the opportunity to take part in this committee. As SIAMS is taking place vis-à-vis Tornos, this is the ideal place to demonstrate our skills to the world of bar turning and micro-technology. This year, we wanted to change the location of our booth to join the other machine manufacturers on the first floor of the main building. In the committee, we brought up the arrangement of the booths and the stream of visitors in the halls to make sure each exhibitor will be satisfied with its participation. This was a very positive experience."

SIAMS

SIAMS 2016
19-22.04 2016
www.siams.ch
info@faji.ch

PERFORMANCE | PRECISION | RIGIDITY



APPLITEC
SWISS TOOLING

Applitec Moutier S.A. | Ch. Nicolas-Junker 2 | CH-2740 Moutier | Tél. +41 32 494 60 20 | Fax +41 32 493 42 60

www.applitec-tools.com