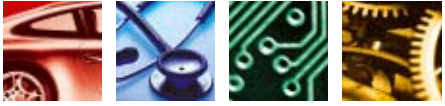
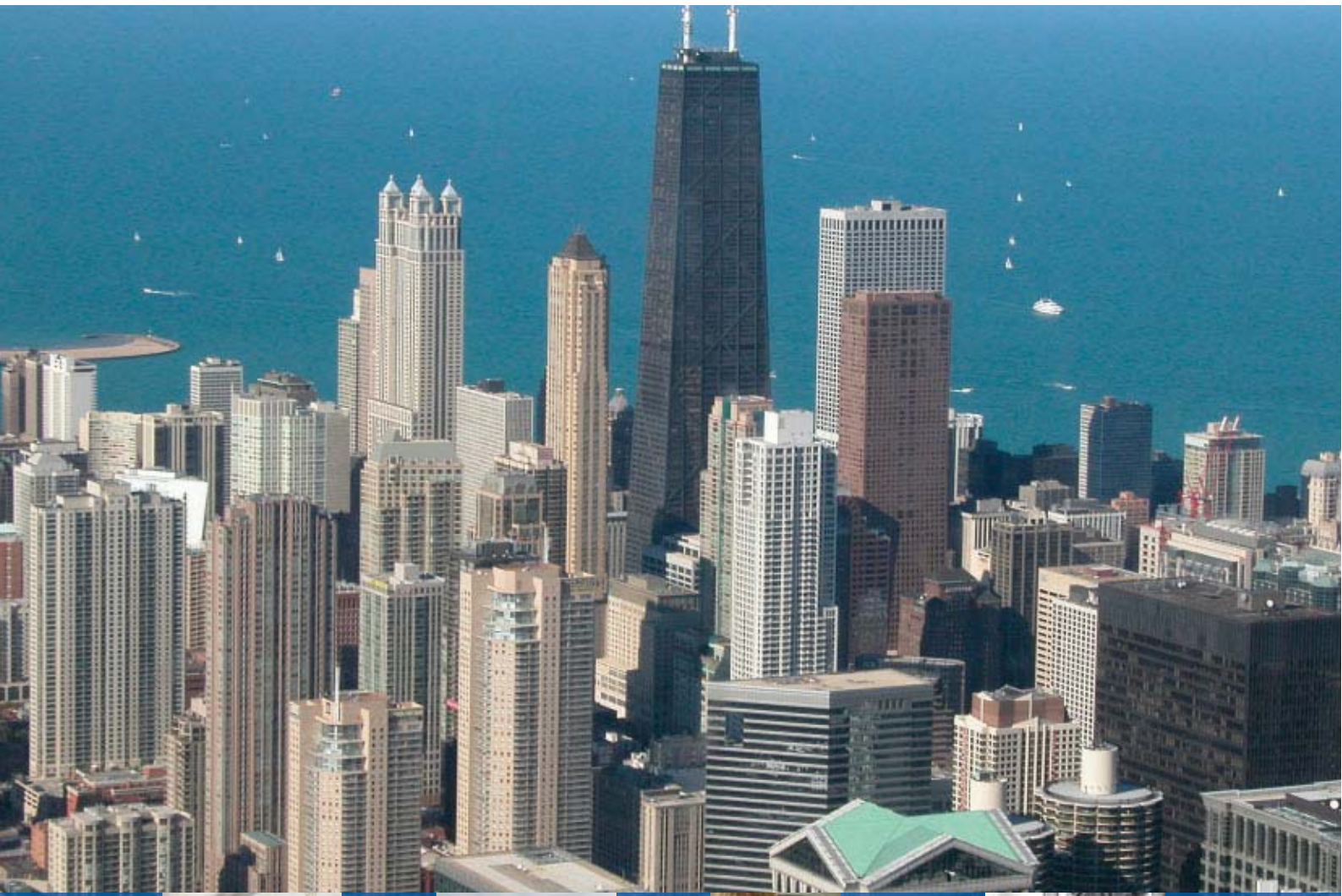
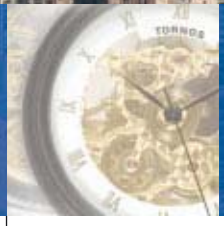


decomagazine

THINK PARTS **THINK TORNOS**

38 03/06 ENGLISH





The revival
of the mechanical watch.

Maiko, Okayama, Japan
A High Accuracy Subcontractor.

Honey,
I shrunk the parts!

Universally tailor-made –
it's true!

11 — 20 — 41 — 56

The mechanical watch is gaining ground on electronic watches. And the entire horological part manufacturing chain must follow this trend. Tornos is providing the momentum for this movement with its high precision lathes.

How does one reconcile industrial logic, component standardisation and a broad adaptation to very different requirements ?

Swiss CNC technology produces micro parts profitably for New Hampshire manufacturer.

It all started back in 1981 in White Plains NY when Hans Schneider, a Swiss-American, set up his sales office. He visited the metalworking businesses in the area and with great enthusiasm, told them about the new types of Swiss cooling lubricants, kind to both the human skin and the environment…

IMPRESSUM

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SUMMARY

MAKE COST CONSCIOUS PARTS WITH TORNOS

While visiting the "windy city" in September for Chicago's IMTS Show, come experience the "winds of change" at the Tornos exhibit. With exciting new products of Swiss Type Machines for both extremely complex as well as a new addition, for the cost conscious-less demanding part.

Every chapter of the Tornos Story – from company culture to product – has been manufacturing complex parts. With the advent of the 12 axes DECO product technology. The machine boasted a vast array of tools and operations. No part was to demanding! Contrary, the greater the complexity of the part, the better Tornos performed, while achieving the highest effiencies possible. Thus Tornos enjoys the dominant position at the pinnacle of the pyramid of Swiss Type Machines.

With a great demand from our markets, Tornos has taken the knowledge and expertise of the DECO "a" product and are proud to introduce the new DECO Sigma 20 and DECO Sigma 8. These 6 and 7 axes products incorporate multifaceted front and back operations, utilizing up to 22 tools.

With the introduction of the DECO Sigma 20 and Sigma 8, as well as several new innovations from Tornos, our products now cover the spectrum of our customers' everchanging demands on cost and performance.

The DECO Sigma 20 and Sigma 8 are priced to allow our customers to remain competitive in their markets. All these capabilities while maintaining Tornos rigid standards of quality manufacturing, offering precision up to ± 1 micron!

In addition the program approach is now conventional G-Code (ISO) or the innovative TB-DECO ADV machine optimization software.

As with all Tornos products, inclusive is our decades of experience as the pioneer of our industry. It is one thing to have technology. It is quite another to have the application know how. Nobody does it better than Tornos!

The ultimate in productivity is the DECO line. Theses products have great success in small to large companies. Producing from simple to complex-multifaceted parts in the medical, electronic, automotive and general engineering industries.

These are the highlights of what's new at Tornos, we are confident with the constraints and challenges our customers face today, our products and capabilities will surpass in comparison, ensuring your confidence that now more than ever Tornos is your partner in productivity.

With the inclusion of these products, Tornos US and Hydromat US have created a partnership for the North and South Americas.

This allowing Tornos US to focus its capabilities on the Tornos single spindle product and all competencies associated-sales, service, parts and applications support.

Furthermore this partnership allowing Hydromat US to represent the Tornos multispindle product and all aspects in these same markets.

Both Tornos US and Hydromat US commit their organizations to our customers' success!

Visit us at IMTS Tornos: Hall A, booth A8140, Hydromatic: Hall A, booth A8127.

Scott Kowalski
President Tornos Technologies USA

Organisational changes in the US

The management of Tornos Switzerland would like to take this opportunity to thank Mr. Tom Dierks for his dedicated service to Tornos in the US. Tom who will be retiring after many years of service will be replaced by Mr Scott Kowalski who will now manage the Tornos USA subsidiary. «All of us at Tornos would like to wish Tom all the best for the future and congratulate Scott upon his new post.»

Tornos Moutier

APOLLO NO LONGER FITS THE BILL...

Yet travel in space will soon be open to the public at large!

Photo: NASA

The symbol of an era – a name that communicates strong values that transcend a product. It represents a lot, both in respect of the company and its clients. But despite this, sometimes one has to know when it's time to move on and risk surprises! The management at Tornos decided to change things with the well-known DECO machines … a change our editorial staff just had to find out about! A meeting was arranged with the heads of the Business-Units, Messrs. Cancer and Nef and with Mr. Kohler, who is head of marketing.

As I approached the meeting, I asked myself what news would be awaiting me. In the meeting room I noticed some panels, which seemed to show alternative presentations of the machines. My curiosity now awakened, I decided "to go for it".

DECO Magazine: Hello gentlemen. Are there going to be name changes at Tornos?

PYK: More than changes in name – we should rather be talking about a change in policy regarding the brand and company name. We are not going to rename more than 5000 DECO and MULTIDECO machines that are already installed. We carried out an audit and are planning a review of our global corporate identity. We want to reinforce our image as an innovator in the market – and thereby strengthen the position of Tornos! The inevitable consequence of this decision is that the Tornos logo and brand name will be upgraded. The "Tornos-Technologies" logo, for example, will disappear! We want to be more consistent throughout the world. Tornos is a strong company that markets its product range to specific sectors.

DM: So you won't be changing the names of the machines?

PYK: Some developments involve planned changes. I'll hand you over to the heads of the Business Units, Messrs. Cancer and Nef, who will provide more detailed information.

CC: What we've done is analyse the situation on the basis of possible developments and we wanted to take a decisive leap with regard to the names, to underline the fact that innovation is always of prime importance to us. The strength of the DECO brand

is, to some extent, also its weakness. Even though its image is very positive with certain clients, it is nonetheless somewhat old fashioned. We have now achieved a global concept that takes account of and will influence the names of future machines, including the DECO 8sp and 20s. We intend to use the Greek alphabet. Those machines deployed to execute complex parts will be known as the Alpha machines. I must, however, point out that this will only apply to future products. The popular «a» DECO machines will not change. Things are a little different with the [s-line] machines, because these are new machines. This range will form part of the Sigma range. We decided to rename our DECO 8sp and DECO 20s machines as DECO Sigma 8 and DECO Sigma 20.

DM: Aren't you afraid to make this change in the market ?

CC: I understand that you may be surprised by this decision. We wanted to think more globally and find a policy for a "universal" name. What is most important is for us to offer our clients high-performance and reliable machines. This change in name forms part of our on-going development policy.

PYK: The policy concerning a company name is always tricky – there are examples of products in the market, whose name has become generic (such as "Frigidaire") where the company doesn't even exist any more! Likewise, some products underwent a change in name (who still remembers that Twix bars were known as "Raiders") without being penalised.

DECO Sigma 20

DECO Sigma 8

Multi Alpha 6x32

What is important is that we must adopt a cohesive and transparent approach.

DM: The situation seems clear with respect to the single-spindle machines and the company. How did you tackle the multispindle machines?

WN: As this is a "company project" we were involved right at the outset. Overall, the concept was the same but the answer was somewhat different. The world of multi-spindles is not as straightforward, with the MULTIDECO b, c and d machines…

For the future, we decided, as we did for the single-spindle, to manage two lines – the "Alpha" line and "Sigma" line. And guess what … we also used Greek letters.

DM: Let me guess – are you referring to the MULTIDECO Alpha 20/8?

WN: Not at all! You can see for yourself when you say it – it's long and complicated. From now onwards we decided to drop the word DECO in the name and delete all the hyphens and lines.

Our second problem was deciding when this policy should be applied and to what machine (just like the DECO 10a remains a DECO 10a). We decided that only the "d" machines – i.e. those with single spindles and multiple back-operation facilities should be renamed.

MULTIDECO 20/8d thus becomes the MULTIAlpha 8x20 and the new 6-spindle machine, which will be launched at AMB 2006, will become the MULTIAlpha 6x32.

DM: You are taking a great leap. Aren't you worried that you may be too radical in dropping the word DECO?

WN: But change is radical! A MULTIAlpha 8x20 machine is very different from a MULTIDECO 20/8b and I am satisfied with our global strategic change. It meant that I could reappraise innovation and development at Tornos and bring it to its true value.

DM: DECO Sigma, Alpha, MULTIAlpha, the change is quite marked…

PYK: It is extremely important – it repositions us as innovators but is based on the success of the DECO machines and, of course, Tornos. In talking about this, we want to upgrade the company, its quality and Swiss precision, not to mention our know-how. To achieve this we shall also be launching a new worldwide, standardised corporate identity !

DM: What is the schedule for this operation ?

PYK: In all, this operation will continue to the end of 2006.

DM: To come back to the machines, Mr. Cancer, you said that the Alpha range would be destined for future products used to produce complex parts. Does this mean that projects are already on-going ?

CC: Our Research and Development department is a real melting pot of ideas. We are working on tomorrow's and future technologies. Many projects are already on-going but I can't give you more details at this stage.

WN: It's the same with the multispindle – we are actively working for the future… but this does not mean that today's product will be obsolete.

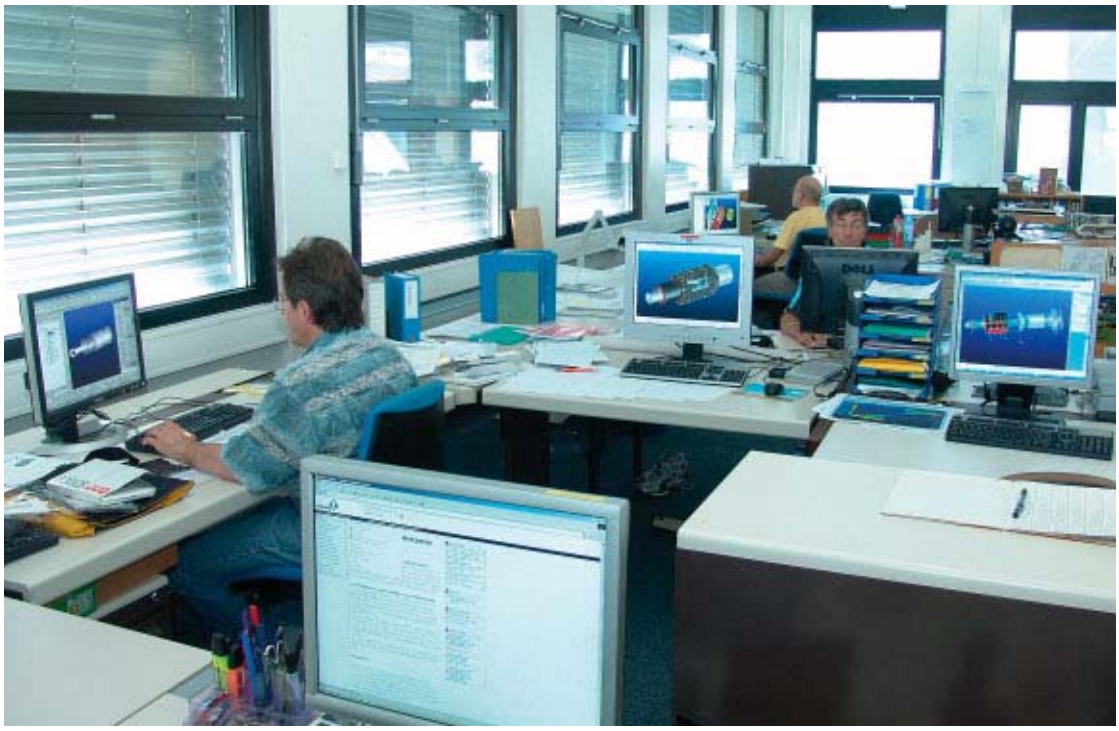
DM: People frequently talk about changing names, which at the end of the day costs millions. How do things stand with Tornos ?

PYK: With regard to this type of change, you are probably referring to changes in the company's name or to products in the public domain. In our case, this is not a "draconian" operation. All we want is simply to have a consistent range, which will be with us over the years.

DM: Why the Greek alphabet ?

CC, WN & PYK (joint reply): Why not ?

WN: In principle, there are as many possible names as ideas. As far as we're concerned it's more a question of finding patronymic names for the ranges than individual names, but we are dealing above all with Tornos machines. We came up with countless alternatives, but in the end we chose names that did



Research and Development.

1996

2002

2006

not correspond to concepts like "performance quality" and the like. Stereotypes are different in all countries and it is difficult to find universal names. The Greek alphabet provides us with neutral labels that allow us to clarify what we are offering our clients. These names will very quickly become synonymous in the minds of our clients.

CC: To summarise: for single-spindle machines producing simple parts, our clients now have the choice between DECO Sigma 8 and DECO Sigma 20. For parts requiring greater machining we have DECO 10a, 13a, 20a and 26a.

WN: For the multispindle machines producing more complex parts we have the MultiAlpha 6x32 and MultiAlpha 8x20. For more simple parts, we have the MultiDECO 20/6b, 32/6c and 20/8b.

PYK: Since 1996, DECO has been part of the history of Tornos and small parts turning. We shall continue to provide innovative solutions to enable our clients to achieve success with the DECO [a-line], Sigma, Alpha, MultiDECO, MultiAlpha and MultiSigma machines. We deployed the means to make us more consistent and the future will confirm our strategy.

Conclusion

Everyone's heard of the Apollo spacecraft. They enabled man to leave the earths' atmosphere and walk on the moon. Nowadays there are many more ways of going into space that are more finely tuned to specific requirements. This in no way diminishes the achievement of the Apollo launches.

Without abandoning its past, Tornos has the courage to look at things in a new light and move on. DECO Magazine will follow this trend and keep you fully informed.

Does the above arouse your interest ? Please do not hesitate to contact the editorial staff on Redaction@decomag.ch

THE REVIVAL OF THE MECHANICAL WATCH

The mechanical watch is gaining ground on electronic watches. And the entire horological part manufacturing chain must follow this trend. Tornos is providing the momentum for this movement with its high precision lathes.

An interesting article recently appeared in the press: Watch manufacturers looking for retired staff (!) with in-depth horological training. What happened ? After the difficulties in the horological sector – which, after all, were quite a number of years ago – electronic and low-cost watches succeeded in rekindling the tastes of bracelet watch amateurs. But at the same time, the watch-making profession had lost its attraction. Nowadays, consumers are again targeting purely mechanical watches, especially in the medium and top of the range class. A type of watch that has really caught on is the so-called skeleton watch, which allows you to see all the mechanics inside the case. But here too, there is a shortage of watchmakers capable of producing such watches and arranging the parts accordingly.

New data

Many facets in producing such watches have changed. In the past, horological parts were typically executed on cam-operated lathes, which perfectly met the conditions of that time. These lathes lent themselves completely to the large-scale production of small parts, with undeniable precision. However, the complexity of parts was nothing like that expected and achieved today. A crucial aspect lies in the series runs, which these days are not as large and which could even go down to a few dozen parts. The production tool is expected to show a high degree of flexibility.

Visible mechanics

A new aspect has reinforced the latest vogue in mechanical bracelet watches: you can now see the movement of the watch. Its wearer wants to see what is moving inside his jewel, because in fact, bracelet watches are not only nowadays worn as an instrument to measure and show the time, but also as an item of jewellery. Seeing the mechanics of these parts means that besides their top-of-the-range precision, they must also have perfect purity and shine. But how is this achieved ?

The machine tool is following the trend

Tornos, the manufacturer of automatic lathes has meticulously been following the trend. With its previous name – Tornos screw machines – dedicated more than several decades to cam-operated machines used for producing watch screws, this manufacturer was already demonstrating its know-how of the horological sector at that time. It is

therefore hardly surprising to find Tornos specialists involved in R&D who know the world of clock and watch making inside out.

The cam-operated machines were gradually replaced by numerically controlled automatic lathes in the production shops. Whilst at the outset these controls did not always respond to fast rates of production, the performance of modern controls puts these lathes on a par with cam-operated machines. The speed of control and the servomechanism, representing another key element of a machine tool, have progressed enormously. Another plus point in this direction is that the PNC-DECO control can operate several axes simultaneously, thereby conferring peak productivity on those machines incorporating this technology.

The numerical control responds perfectly

As already indicated the watch industry also witnessed a considerable drop in the volume of series runs, but repetitive orders for these same parts or requests for similar parts have now become commonplace. In such cases, the Tornos PNC DECO numeric control avails itself of all these advantages. With this tool, the precision engineer will quickly load the program for a given part and then launch a series run – even if much reduced in volume.

As for the programmer, it is sufficient to load the program for a given part and to modify the pertinent dimensions. The new program is then ready for use. A library can be created, so that the programmer and operator can easily find what they require to adapt a program to a new part. The flexibility of this system therefore meets the trend for small series runs perfectly.

CuBe
Ø 9 mm

Reduced setting up times

Setting up a machine tool is one of the criteria governing high output. For cam-operated lathes, setting up can take up to several hours. But this investment in time is compensated for by the production time of a very large series run, which may run for several months.

Against this, the small, repetitive runs require extremely short setting up times so that production is profitable. This is one of the major benefits of numeric control, especially when compared with cam-operated machines. The operator can quite easily save the parameters of a part and recall these values at the next new small series run. In other words, the know-how invested in the initial production of a part will now remain quickly and easily available for future series. The setting up time of an automatic NC lathe has consequently become insignificant with regard to the small series runs. What is more, given the fact that the operator can execute even quite complex parts on Tornos lathes, the saving in time nullifies the setting up time for small series production.

Much more than mere turning!

If turning as such remains unchanged, the facility of producing highly complex parts using other machining processes on the same machine has expanded considerably. One of the major parts of the watch is the balance, a part that was typically stamped in large series. Each watch production shop wants to have its own balance so as to set it apart from the competition. Suddenly, there is now an enormous variety of balances, which signifies major costs from a stamping tool point of view.

The latest facilities mean that these balances can now be produced on an automatic Tornos lathe instead of having to stamp them. The precision engineer will cut out the part on his automatic lathe and then manufacture balances from start to finish. A further major benefit is the facility for creating different models using a basic machining program, thereby lending each watch its intrinsic character. Both the precision engineer and watchmaker will derive enormous benefits with regard to time and precision, because the balances are machined in a single chuck. The facility of using a basic program means that the reaction time is much shorter in relation to market trends, which is an important benefit.

These new machines also provide the facility of executing other complex operations apart from turning, such as hobbing. This operation is executed on the part whilst it is still firmly attached to the bar. This is then followed by the entire machining operation. In addition to saving time, this facility provides the precision engineer with a high-quality finished part, because the part does not have to be re-clamped to another machine for hobbing, thereby eliminating any impact on quality. Apart from the actual parts required for watch movements, even the exterior elements of the watch can be produced on an automatic Tornos lathe, because of its multiple machining facilities.

The screw – a jewel

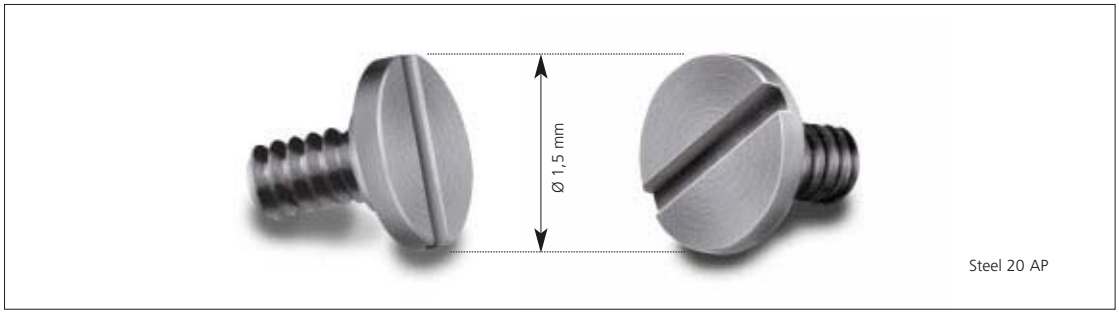
In the first instance, a screw is used to assemble two or more parts and to hold them in place. This also applies to the mechanical watch, except that up to now, the screws were either hidden in the case or they were simple mass produced wood screws for watches at the lower end of the scale. Watch designers discovered that this screw not only served as an assembly part but was also a first choice decorative item. However, this means a new requirement for these screws. They must not only meet technical criteria (correct screw thread) but must also provide a pleasing appearance to the wearer – in other words, have a perfect finish with no signs of burrs, scratches or chipping.

This stringent quality finish applies to all watch parts. To meet this requirement for a quality, jewel-like surface, Tornos incorporated a direct drive in its lathes, because the secondary effects of a belt-drive could lead to slight vibrations that are transmitted to the tool. The result of the latter is a surface with very small ripples, coupled with greater wear of the cutting tool. This automatically leads to a drop in surface quality, not to mention the premature replacement of the cutting tool. With the direct drive, these vibrations quite simply vanished completely. The surface quality now responds perfectly to customer expectations and tool life has been extended.

Increased precision

One of the latest automatic lathes produced by Tornos is the DECO Sigma 8 (previously named 8sp). This lathe was originally intended for the production of very small parts for the electronics industry. These parts must comply with a very demanding tolerance to within just two microns. The key to success in achieving this precision is found in the design of the machine; it has a very strong spindle but no guide bush. The operating architecture comprises fewer elements, thereby leading to increased strength and reliability.

All conscientious precision engineers will be questioning this point. But the watchmakers even went one step further – they tried out this lathe and the quality results obtained surprised even the highly sceptical. Because the tolerances in the watch industry are within the two-micron range, the productivity and convenience to obtain this precision are now increased with this very high-precision lathe.



Ø 7,5 mm Ø 5 mm

Stainless steel

Ø 10 mm

SUS 430F

The automatic DECO Sigma 8 lathe is highly reliable in complying with dimensions, thanks to its thermal stability. In addition to being a very high precision lathe for small series runs, it also lends itself to the production of large series, since the repetitiveness of precision and surface quality are guaranteed at all times, whilst matching the production rate of the old cam-operated lathes.

Limited space

Cam-operated lathes occupied a small amount of space. When these lathes are replaced, the available floor area hardly ever changes, hence the demand for compact automatic lathes. In addition to the qualities indicated above, the DECO Sigma 8 is a compact machine that perfectly meets this space requirement.

Mini-series are now possible

Watch manufacturers live under the constant pressure of having to offer new watches very quickly. This pressure is conveyed to the parts supplier, who in turn is under great pressure on prices. Thanks in particular to the new technologies available in the automatic Tornos lathes, such as the DECO Sigma 8, this latter machine has a vast calculation range and can now produce parts of the required precision. Although it can also produce very large series runs, it tends to specialise towards the small series runs, at an appropriate price.

Interest amongst new precision engineers

In precision turning, the man-machine element is very important. However, a certain degree of disinterest is felt amongst potentially interested parties. The latest generation is discovering renewed interest in working as a precision engineer/multi-disciplined mechanic. In fact, the possibilities currently offered by numeric controls lead to direct contact with IT technologies and because the operator can follow and correct any discrepancies during actual machining in real time, this job is particularly interesting and challenging. A new step towards flexibility and adaptation to customer requirements has been achieved with the Tornos DECO Sigma 8. In fact, the professional now has the facility to program his machine either using the TB-DECO, or more conventionally in ISO.

The 4 «Ps» of Tornos.

The basis is already there

The watch industry has a long tradition of precision and finish – a tradition that Tornos is also involved with. This facility of machining small parts to a high degree of precision and finish is not only acknowledged in this sector but also in others, such as the medical sector, which, compared with horology and electronics, is equally demanding in its requirements. Tornos bases itself on its concept of the four "Ps" which stand for Place, Price, Productivity and Precision. These four Ps apply to the watch industry as well as to the other industrial sectors.

On account of the flexibility of numeric programming, the precision engineer can now program a type pinion. He can then re-use this program and quickly adapt it at any time to another part having the same geometry, thereby creating a programming family for each family of parts. This benefit can easily be transferred to the other sectors where there are families of similar parts, meaning that it makes for easy copying and machining. The flexibility of this production tool for the lowest cost possible are not just empty words.

Steel - Ø 3,9 mm

Steel - lg. 7,6 mm

Steel - lg. 1,5 mm

Steel - Ø 4 mm

Brass - □ 4 mm

Steel - Ø 5,7 mm

Brass - Ø 2 mm

Steel - Ø 2,4 mm

Steel - lg. 2,6 mm

Steel - Ø 1,25 mm

Looking towards the future

The engineers at Tornos have long-standing expertise in automatic precision lathes for the horology industry. Several tens of thousands of cam-operated lathes have already been supplied to this sector. With the emergence of the DECO machines, these specialists have now acquired extensive know-how in numeric controls and programming software, as shown by the TB DECO. New ideas are being developed with a view to offering more to the market – the proof of this is the DECO Sigma 8 – which already indicates that this manufacturer does not rest on his laurels but is working on other innovations soon to be revealed. We shall not fail to keep you posted.

Watch Industry – a growth sector.

According to the figures published by the Swiss Horological Employers' Convention, there were around 42,000 employees at the end of 2005, which was an increase of more than 1,500 people compared with 2004. This is the highest level achieved in 25 years. This improvement has been partially felt in the sub-contracting industry. The level of training of these employees is likewise higher.

decomagazine

YOUR OPINION!

Dear Reader,

Previous surveys relating to DECO Magazine showed us that we were on the right path, thereby enabling us to make improvements and offer a magazine that truly meets your requirements.

The survey

The results of a DECO magazine survey conducted in 2004 led to the publication of different language versions and to our adapting our current editorial line. Now, after being in existence for almost 10 years we would again like to ask your assistance as we very much value your opinion.

How can we do this?

Our editorial team tackled this subject by asking you to provide a quick and simply reply to a few questions. We felt that a questionnaire in the magazine did not seem to be the best way of guaranteeing that it would be returned and we felt that a fax reply coupon was too limited. As we wanted to adopt the best method to home in on the various issues and ideas whilst leaving you sufficient space for your opinion, we came to the conclusion that the easiest way would be to generate a questionnaire on the Internet. No sooner said than done! You can simply fill it in online and it shouldn't take more than 10 minutes.

Your magazine…

To thank you for your participation, we shall have a draw of all replies received and the prize will be a mechanical skeleton watch (100 % Swiss Made) worth more than CHF 500.– Deco Magazine would like your information and opinions as it is published for your benefit. Therefore, do not miss this opportunity to help improve it in the way that appears most logical to you and tell us what you like best!

To take part please visit: www.decomag.ch

The questionnaire will be online until the end of the year and the draw will take place on 10th January 2007. The winner will be personally contacted and the editorial staff reserves the right to publish the winner's name and photo in a subsequent issue and on the www.decomag.ch[1] site.

Likewise, the results of the investigation will be published at the beginning of 2007.

I would sincerely like to thank you for your participation and look forward to receiving many replies!

Kind regards.

Pierre-Yves Kohler
Editor in Chief

[1] *All readers of DECO Mag may take part in the survey. No correspondence will be entered into. The legal venue is Moutier. The data relating to your participation will not be used for any other purpose than the survey and the draw. The data will not be retained after the draw.*

DIVERSITY WITH SIMPLICITY

When family run Advanced Coil Slitters Ltd (ACSL), a specialist contract manufacturing supplier to the medical, aerospace, hydraulics and instrumentation industries needed a functional and productive turning centre – it turned to Tornos Technologies.

ISO: 9001/2000 registered ACSL provides a rapid response 'emergency service' to customers needs. To fulfil this demand, Stevenage based ACSL operates a high specification production facility on a 24-hour basis with 30 employees covering a three shift pattern. An integral part of the high specification CNC equipment at ACSL is a Tornos DECO 26a sliding head turning centre. Used for the manufacture of critical parts incorporated into medical gas, anaesthesia and optical equipment with tolerances less than 0.005mm, the 32mm diameter capacity DECO 26a has been a valuable asset to the company.

ACSL Production Director Mr Steve Ward says: "In the time we have had the DECO 26a; it has been an excellent machine. It runs 24/7 on a diverse range of materials from hastelloy, stainless steel, brass, aluminium and plastic. The 12 axis machine is capable of very complex work and this capability has reduced some jobs from 5 operations to one. One component, an oxygen regulator underwent drilling, milling and turning with 5 set-ups – when moved to the Tornos the 12 minute production time was reduced to 3 minutes with only one set-up. There are many more examples similar to this."

Mr Ward says the average cycle time has been cut by 40-50 % since the introduction of the DECO 26a and believes that the high number of machine axis has increased the company's flexibility. "Whilst 12 axes may seem a daunting prospect, the machine is very flexible, highly productive and extremely easy to set-up. We can now do jobs that were previously outside our scope. It has changed the way we quote jobs and it has increased our capabilities and confidence to go after more complex work. Some of the jobs that come off the DECO 26a are so complex you wouldn't believe they came off a lathe," comments Mr Ward.

Discussing the simplistic set-up of the DECO 26a, Mr Ward says the Tornos control system, the TB-DECO may be different to all other control systems but once understood is very simple to understand. "The TB-DECO enables us to run simulations before starting machining cycles; this has given us a high level of confidence and guarantees we avoid tool collisions. Tornos regularly provides us with TB-DECO updates and enhancements; this improves productivity and makes life easier when programming the machine. We run some extraordinary program variations and the DECO 26a does some amazing things using the combination of axis," continues Mr Ward

When choosing a turning centre, ACSL needed a flexible machine that was easy to set-up, productive and had an easily accessible work envelope. When the company chose the DECO 26a, it found a solution capable of producing batch runs of anything up to 10,000 on an extremely diverse range of products. Commenting on this, Mr Ward says: "There are a lot of product variations going through the machine and during changeovers the spacious work envelope provides plenty of room to change tools. It rarely runs for less than 24 hours and often runs for up to 4 days with just reloading of the barfeeder. Once the tooling & program combination has been established the machine proves extremely productive and cost effective. It has seen us change the way we operate and gets us thinking with a different mindset. The DECO 26a has reduced our costs, improved productivity and capability and has enabled us to relocate staff to alternate tasks and machines."

"Tornos provide us with good service and are a very approachable company. This was epitomised by the well run training course that saw our operators learn their way around the machine very quickly," concludes Mr Ward.

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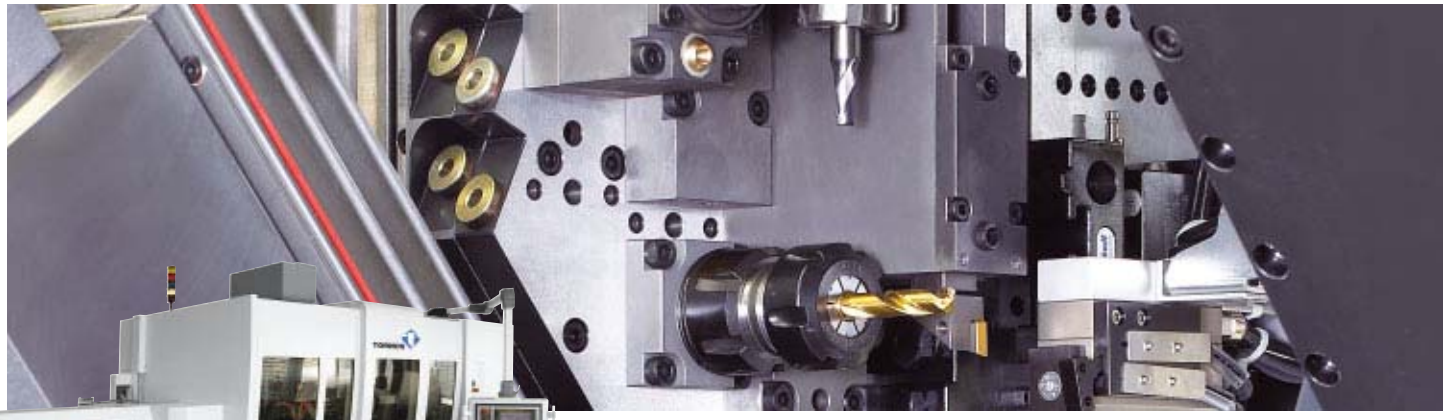
UNIVERSALLY TAILOR-MADE – IT'S TRUE!

How does one reconcile industrial logic, component standardisation and a broad adaptation to very different requirements ?



The launch of the latest Tornos multispindle machine, the MULTIAlpha 6x32 (already widely quoted in our article on names) provided us with the opportunity to meet Mr. Patrice Baume, the product manager responsible for this new machine, and discuss the concept of it being "universally tailor-made".

Innovation

DECO Magazine: Mr. Baume, at the AMB you will be unveiling a new numeric, multi-spindle machine. To start, what are its main innovations and features ?

Patrice Baume: MULTIAlpha 6x32 is a multispindle machine with six independent motorized spindles, with a capacity of 32 mm. The strong points at a technical level include the facility to execute complex counter-operations, the powerful motorized spindles and the general "pick and place" system, which can be adapted to personalised solutions.

DM: Let's take these in order, if you don't mind. You mentioned complex counter-operations. What is the reasoning here ?

PB: Our clients are confronted with challenging developments, where the parts that have to be produced are becoming more and more complex… whilst there is increasing pressure to keep prices down. What we have now is a machine capable of finishing parts at a high output, without having to resort to other means of finishing them. This is obviously an undisputed plus point as far as our clients are concerned. The MULTIAlpha 6x32 perfectly meets this requirement.

DM: In this context, what do the motorized spindles provide ?

PB: The latest generation of motorized spindle has a very high torque and therefore imposes no penalties on machine capacity in terms of machining power. The fact of being able to adapt all cutting parameters finely without any compromise whatsoever, allows our clients to make full use of the new tools. This also enables them to manage tool life very closely.

Now what about the idea of being universally tailor-made ?

DM: Let's now look at the handling and palletization system. You told us that it was a mo-

dular, tailor-made system. Doesn't this somewhat contradict the concepts of flexibility that is now more in demand ?

PB: But this is precisely the strength of our system ! Tailor-made elements are made for the most part in standard time ! Our machine comes with a 'pick and place' system, which is incorporated in the industrial processes of our clients. We have different pallet sizes and systems according to requirements. But in the first stage this is only one aspect. The machine is the very core of an overall material processing system with its swarf evacuation, processing, cooling and pre-setting system. The combination options to achieve the optimum result are vast.

DM: So you must manage a lot of know-how ?

PB : Yes, but we're not alone ! Tornos provides the client with a system that is competent to do everything. But to achieve this we work in close co-operation with other specialist systems companies.

DM: As a hypothesis, let us look at a MultiAlpha 6x32 machine that is delivered tailor-made to a client. After a year, the client needs to make a radical change to his production. What does he do with his 'tailor-made' solution ? Does he have to purchase another solution ?

PB : Not at all ! Yes, the machine is adapted to the client, but the basis – in other words the heart – is a universal machine perfectly capable of operation. Very often it's only the tooling that changes. In the event of a major change to the client's process, we shall work closely with him so that he can "cross the threshold".

DM: So you offer your customers an application and back-up service ?

PB : Yes and this has become more simplified, because the machines are basically very efficient. What we do is actually apply a universal tailor-made solution !

DM: You mentioned processes and performance but we frequently come across clients, especially in the automotive sector, who have to keep to certain PPMs[1]. How would you help them ?

PB : The MultiAlpha 6x32 has well-developed characteristics, which help our clients, achieve even greater performance. The entire machine structure is thermally stabilized; bringing the machine up to the correct temperature is quick and fluctuations are controlled. To achieve this, all the cutting fluids pass along different sections of the machine, especially along the spindles and this guarantees uniform temperatures. Stability and production repetitiveness are exceptional.

DM: Once the machine is installed, do you also have a tip for managing tool life ? Tool wear can "kill" a production run…

PB : At this level, the motorized spindles already mentioned can optimise this wear. We can now correct the machine offset during production based on measurements carried out. We also have the facility to set the alarms once the tool has machined a specific quantity of parts.

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[1] Poor quality parts per million of parts executed.

DM: Well this isn't very automatic…

PB: We are working on a project for carrying out measurements during production and automatic correction of offsets. But for the time being, this is still at the laboratory stage.

DM: So wouldn't it be better to wait before purchasing one of your new multi machines ?

PB: If you don't require a production tool with a phenomenal capacity and if you have no parts that require production, then it would be better to wait. But jokes aside, the current solution is highly efficient and offers high performance. It is normal for us to work for the future – in a few years time; our solutions will be different to what they are now !

DM: At tooling level, you correct offsets. Does this mean that your tools are pre-set ?

PB: In fact, all tools are pre-set. This ensures significant time saving when putting into service.

Programming

DM: To come back to the innovations, I heard that the NC for this new machine was quite special… can you program at the machine ?

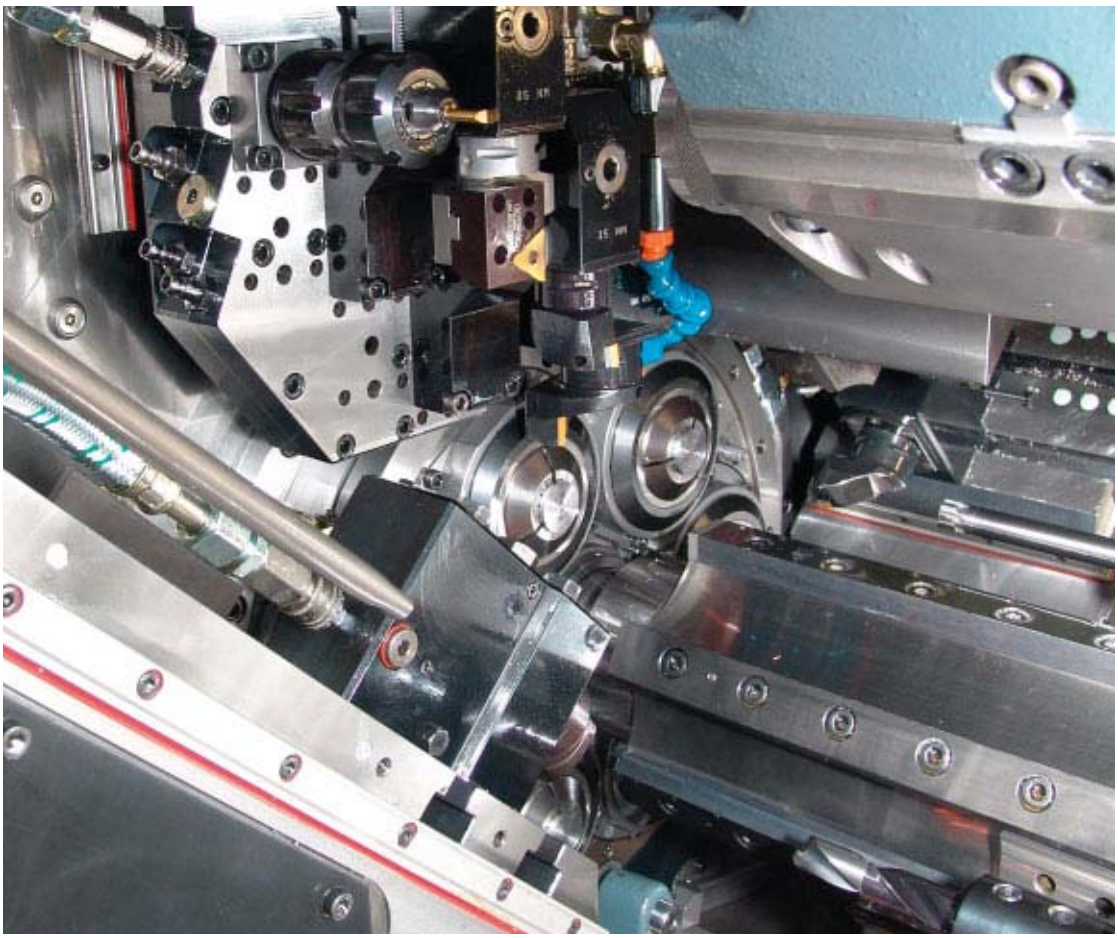
PB: The TB-DECO principle has been tried and tested and it is very easy to use especially for the multi-spindles. Programming takes place as if one were programming six machines with three axes. What is new is that we incorporated a PC into the machine!

DM: So a TB-DECO in Windows ?

PB: Yes, the machine is simply fitted with a PC, which means that our clients can proceed with programming at the machine without having to use a separate PC … but this, of course, is also possible.

DM: One of the strengths of the TB-DECO is that one can program in hidden time…

PB: Nothing's changed! It is possible to work on the



machine (produce a part) whilst at the same time using the TB-DECO to program another part, just like listening to music whilst word processing on any PC.

DM: But what about obsolescence? Isn't one of the advantages of the TB-DECO that it does not have this particular separation of PC and machine ?

PB: Yes, this is why the PC can be removed and perhaps replaced if, one day, it is found to be too slow.

DM: I know of companies that centralize their programming. What will they make of this development ? Not only will they have to pay for a surplus PC but, what is more, there is a risk that non-authorised staff start "playing" with the programs.

PB: Our engineers have thought of everything. The machine is also available without this PC! What is more, even the fitted versions can be managed with rights to ensure that only "authorised persons" can proceed with modifications.

DM: Are you not afraid that you are flooding the market with too many innovations ? How will your clients react ?

PB: We provide training and coaching service and if required, we not only offer a machine that is fine-tuned to requirements, but also guarantee that all operating staff are efficient.

DM: Thank you Mr. Baume for this presentation on universally tailor-made solutions. However, this shows a lot of innovation and messages. If you had to summarise this new product, what would you say ?

PB: That it is a powerful means of production capable of finishing complex parts and which can be finely incorporated into the industrial processes of our clients. We also provide all the support required to ensure optimum incorporation !

DM: You will be exhibiting the machine at AMB. Will you be present ?

PB: Certainly, but I would also warmly like to invite the entire network of Tornos specialists and sales personnel who can advise our clients.

TECHNICAL CHARACTERISTICS OF THE MULTIAlpha 6x32	
Bar passage	32 (34) mm
Max. part length	120 mm
Max. speed of motorized spindles	6,000 rpm.
Motorized spindle torque	25 (32.5) Nm
Motorized spindle power	13.6 kW
Max. speed of counter-spindle	8,000 rpm
Counter-spindle motor torque	8.3 (24) Nm
Counter-spindle motor power	3 kW
Max. speed of counter operation tool motor	5,000 rpm
Counter-operation tool motor torque	4.6 Nm
Counter-operation tool motor power	1.4 kW
No. of slide axes	19
No. of spindle axes	7 (11)
No. of fixed tools in back operation	5
No. of turning tools in back operation	3
Spindle cooling	Yes
Numeric control	Fanuc 30i
Programming system	TB-DECO

EASIER ACCESS TO INFORMATION!

These days, every company or nearly every company has a website. The site provides an interesting showcase for customers but also underlines the feeling of closeness. Tornos is no stranger to this.

With the aim of constantly providing its clients with the latest information on new software developments quickly, changes have also been made to the company's site. Mr. Berger, head of "Software" marketing support at Tornos told us: "We remodelled the technology section of the *www.tornos.com* site. Before, you only had access to a brief description of our numeric control, a few details about the TB-DECO software and some "Tips" that were not updated frequently enough. Now, you can find all the necessary information in this section of the site. By the end of this year we aim to provide four sections".

Programming software

Numeric control

If Tornos develops a new option you will find it here! What is more, information on existing options, such as pre-heating, tool wear management etc, or even on the subject of OEE / MDE / TRS can also be found under this heading.

Are you looking for information about Tornos software products ? This section will show you all you need to know about the **TB-DECO ADV** or the **FAO interface**.

The latest version of the new **ISO text editor** – DcnEdit – which has been developed by ICAM, together with programming samples for the DECO [s-line] machines are available under this heading. You can download these free of charge.

Tips

Do you require an example to use the G96 constant cutting function ? Or does the new G978 threading cycle and its parameter P15 require some clarification ? Well, you've come to the right place.

Technical documentation / support

This section groups together information such as the documentation to convert basic machine data programs.

In the autumn, Tornos will also use this section of the site to provide the facility to make direct contact with the Hotline Software and its departments, as a form of support and assistance.

Updating this section of the site will be executed in several phases (some of which are still being produced). A new element will be added once all these phases are up-and-running.

To conclude, we shall let Mr. Berger have the last word: "All this is merely the start, because it is our aim to keep you informed as and when software innovations are produced. We look forward to seeing you on *www.tornos.com*.

Free TB-DECO update

For all its clients to benefit from the latest programming innovations, Tornos will proceed with a major TB-DECO programming software update this autumn.

Working with Tornos, clients will benefit from the following improvements:

- Faster programming time.
- Improved functionality.
- Simplified ergonomics.

This campaign will concern all clients who have DECO and MULTIDECO machines but who have not yet acquired the TB-DECO ADV. Very soon they will be given a free update of the **TB-DECO 2006**.

For those clients already in possession of the TB-DECO ADV, they will receive the very latest **TB-DECO ADV 2007** this autumn.

The new TB-DECO ADV includes the following innovations in addition to the updated functions such as the various assistants and 2D simulation:

- G 978 threading cycle (see article entitled "Tips").
- ISO plan changes: G17, G18 and G19.
- DECO [s-line] programming.
- And many more improvements…

APPLITEC – SWISS TOOLING PRESENTATION OF 2006 INNOVATIONS

A real tooling reference for small parts turning – the latest APPLITEC 2006-2007 general catalogue is now available.

Hot off the press for SIAMS 2006, the new general APPLITEC catalogue unveils a number of innovations from a manufacturer with a very active development strategy. To help the user locate the correct product, these innovations are clearly summarized on the inside cover page at the back of the catalogue.

These innovations include:

For the TOP-Line series, new steel qualities based on a micro-grain substrate equivalent to ISO K10 (K05 – K15). These qualities are particularly efficient for machining low-alloy titanium when producing medical parts. Even more generally excellent performance has been observed with all materials, which are highly abrasive but not very hard.

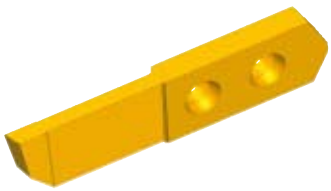
The new CUT-Line series offers a highly efficient groove cutting tool that is economical and very user friendly.

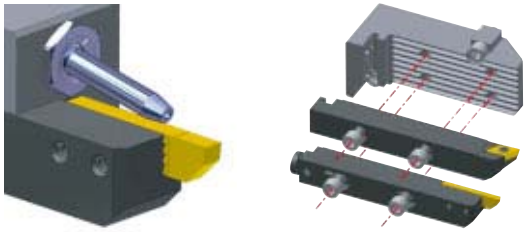
HN
HTiN
HTiAlN

Hard metal circular cutters of very small size (Ø 8, 10 and 12 mm) are available from stock, as are the corresponding chuck mandrels.

The 7060 / 7050 series is a new cutting tool for bar diameters up to 42 mm, based on the same chucking concept as the well-known 700 series, this range is especially dedicated to cutting precious material and very thin parts.

The modular MODU-Line tool system is also featured in the general catalogue with several innovative features.





Chapter 7 lists a directory of articles so that you can find any reference quickly.

The new catalogue is also available for downloading (in PDF format) from www.applitec-tools.com. This IT catalogue makes for easy reading thanks to the advanced search functions that you just click on with the mouse.

In a separate brochure, APPLITEC also presents a new range of hard metal guide bushes.

These top quality guide bushes are currently available with holes of 3.0 to 32 mm diameter for fitting to the majority of modern automatic lathes.

If you require further information or would like to order catalogues, you can:

Visit the website www.applitec-tools.com

Contact the official distributor for your region (see list on the website)

Contact us directly at the address below

Applitec Moutier S.A.
Chemin Nicolas-Junker 2
CH-2740 Moutier
Tel. +41 (0)32 494 60 20
Fax +41 (0)32 493 42 60
info@applitec-tools.com

APPLITEC
SWISS TOOLING

MAIKO, OKAYAMA, JAPAN – A HIGH ACCURACY SUBCONTRACTOR

How Swiss multispindle technology is helping a major player in Asia.

Maiko is a stock company that specializes in high accuracy automatic lathe machining. With production facilities in Okayama, Japan, Malaysia and Vietnam, the Maiko Corporation is well established in the production of high accuracy/high volume parts in the application field of Bearing rings, Automotive parts and HDD.

The President and owner of the company is a gentleman named Fumio Ohmori, a person highly skilled in the field of automatic lathes, especially in multispindle technology. His wide experience in application and tooling together with the good collaboration with machine tool makers is the secret of his success which made him a self made man. Maiko always make efforts to make their customers satisfied by machining high quality parts, thanks to their skill levels and knowledge. The company gains customers confidence with proven results.

The presence of Tornos at Maiko is quite impressive with 7 MULTIDECO 20/8b, 1 MULTIDECO 32/6i, 22 SAS 16.6 and 2 BS20. To investigate the "secret of Maiko", DECO Magazine had the pleasure to Interview Mr. Ohmori in the company of M. Ritter from STC.

M. Ritter/STC: Mr. Omori, first of all Tornos and STC would like to thank you for your longstanding relationship with Tornos and for accepting this visit with DECO Magazine.

The bridge to go to Okayama perfectly illustrates the link with the Swiss high precision machines of Tornos and the Japanese Maiko company: Reliable, accurate and there when it's necessary.

DECO Magazine: Yes thank you. To start the interview, what is the common history of Maiko and Tornos ?

Mr Omori: My first contact with Tornos took place at the JIMTOF (Japanese International Machine Tool Fair) in Osaka in 1994, where I showed interest in the SAS 16.6 machine, that demonstrates over 10 years of close collaboration.

DM: Why did you have big interest on the multispindle technology ?

One reason is of course the efficiency! But not only for efficiency. For me, the multispindle process brings more possibilities than single spindles. If you use good tooling and work out a good process you can be much more efficient than on a single spindle machine. Obviously the parts we're producing are very well adapted to that technology.

DM: The trend in Europe is to have a complex multispindle automatic lathe that is able to finish complex parts by the use of the counter spindle. Maiko usually prefers not to use the counter spindle, could you explain your vision ?

Each workpiece has to be evaluated case by case. Sometimes a complex machine that costs more is the best solution, but sometimes doing the part on a simple multispindle with a secondary operation on

At the heart of the high precision valley, Takahashi and Maiko.

another machine can be an interesting alternative. It is my job to work out the best machine concept each time, depending on the accuracy, as well as the quantity and the price my customer is willing to pay for his parts.

DM: Usually you order a multispindle machine with very few options and without any tooling. What is the reason ?

According to our long experience we have developed our own equipment and tooling, therefore we prefer to use our in house technology. In addition, it also keeps the machine price much lower. Another advantage is that we are capable of repairing and exchanging our own equipment, keeping the non productive machining time to a minimum.

M. Ritter/STC: Thanks to the accuracy of Tornos MULTIDECO machines Maiko was able to replace single spindle machines, both fixed headstock and sliding headstock, was it an easy decision and implementation ?

Typically on a multispindle machine we usually achieve an average roundness under 3 microns and diameter variation of 10 microns. On a single spindle machine the roundness is under 2.5 microns and diameter variation is 5 microns. With the new Tornos MULTIDECO 20/8b we achieve roundness under 2.5 microns and 8 microns diameter variation with stainless steel 18-8 (SUS 303) in full production.

Depending on the parts and thanks to this high accuracy we are now able to replace our single spindle machines with multispindle machines. But, that's not always possible and depends on a lot of parameters such as the geometry of the parts and the size of the batches. By replacing single spindle machines as far as we can, we gain productivity and the floor space is reduced.

DM: Maintenance and Service is also an issue that is often named as important by users, what is your position on this ?

If a Japanese company wants to buy imported machines, the first concern is the correct and quick maintenance of the machine by the supplier. Thanks to the skilled maintenance staff from STC, I was able to overcome this worry. One thing I think Tornos could improve is the spare parts lead time. I think a

delay of spare parts delivery influences customers' machining procedures. Tornos should have spare parts in stock.

M. Ritter/STC : Yes, we agree. For your information Tornos Asia based in Hong Kong is now stocking spare parts to overcome this issue.

DM: In which application field lies the future for Maiko ?

My future vision is to manufacture complex and difficult parts (added value parts). Thanks to our know how we can remain competitive especially when machining highly accurate parts. I expect TORNOS develop higher accurate machine decreasing thermal expansion than current DECO series in future. As to export, we are doing our best to conquer competition in south east Asia.

DM: How about the hard disk market ?

We are producing such parts. In the HD business it has risk that the demand can change drastically from one day to the next. Also, specification of products can change every time. However, currently production volume is increasing continuously. I think this HD business is surely one of hopeful field. But, improvement of productivity is indispensable. For that purpose, I hope that TORNOS develop higher accurate machine, which can which take over current single spindle machines, decreasing thermal expansion.

DM: With the strong competition coming from China, what are your assets ?

Japan has an advantage of know-how compared with China. We have skilled operators that are able to improve the process by themselves. However China is catching up very quickly. That forces us to always seek out new technologies but also to dig more and more in the process to improve our way to use the machines that we can find on the market. That way, we stay one step ahead of our competitors.

DM: M. Omori, thank you for your time and the impressive view of Maiko you shared with us, we hope that DECO Magazine will help you to promote your company.

I would also like to mention that the success of Maiko is also due to the good collaboration with Tornos and STC. Maiko would like to thank you for that.

M. Ritter /STC: You are welcome. We wish you all the best and good success for the future.

Mr. Ohmori president of Maiko and his team of engineers.
From left to right: Mr. Morishita, Mr. Ohmori, Mr. Ohata and Mr. Fujinaka.

The STC staff at the service of Japan customers.

Presentation

From left to right: Mr. Sturukai (STC), Mr. Ohmori (President of Maiko), Mr. Froidevaux (Tornos), Mr. Fujinaka (Maiko) and Mr. Ritter (STC/Coret).

Company name	MAIKO CORPORATION
Address	939-1 Harada Minami Machi, Takahashi-shi, Okayama 716-0044
E-mail	mik-co@po.harenet.ne.jp
President	Fumio Ohmori
Established	1967
Staff	170
Sales structure	Compact precision processing 100 %
Related companies	MIK PRECISION INDUSTRIES S-D BH-D (Malaysia) MAIKO.HAIPHONG CO.,Ltd. (Vietnam)

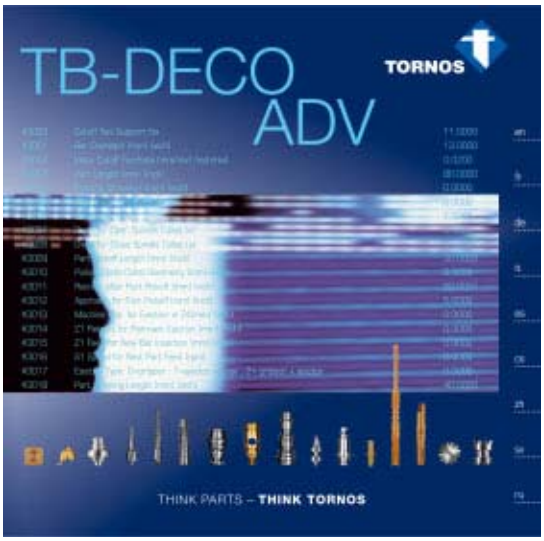
STC (Swiss Technology Company Ltd.), the sole agent for Tornos in Japan has sales and service capacity stationed in Tokyo, Nagoya and Zurich. Last year the staff celebrated their 50 years collaboration with Tornos.

TB-DECO, ALWAYS INTRODUCING INNOVATIONS!

According to its strategy of «making its software more dynamic», Tornos is now unveiling the latest TB-DECO software version – the TB-DECO ADV 2007.

DECO Sigma

The latest software – the TB-DECO ADV 2007 – not only enables programming of all the Tornos machines based on PNC-DECO (DECO [a-line], MULTIDECO and MULTIAlpha) technology but can also be used to program the latest DECO Sigma machines in ISO standard. In order to benefit from the advantages of TB-DECO ADV programming on the DECO Sigma 8 or DECO Sigma 20, there is no need to modify the numeric control. TB-DECO ADV directly generates an ISO program that is compatible with the CNC.



With the introduction of this latest software package, Tornos paid particular attention to adopting the TB-DECO software. Several programming practices used for other numeric controls can be used with the TB-DECO. It is now possible to program:

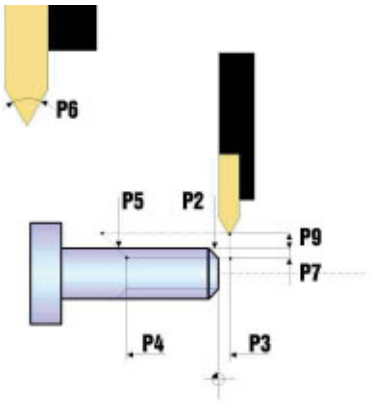
- G0 for a rapid linear feed.
- G17, G18 or G19 to change plane to $(XY)_P$, $(ZX)_P$ or $(YZ)_P$ respectively.
- G98 and G99 for feed modes instead of the European ISO codes G94 and G95.
- And so on…

This extension of programming facilities also relates to the spindle controls, such as the transmit function (milling in polar co-ordinates) or cylindrical interpolation.

The present

New threading cycle

Following the introduction of the G96 constant cutting rate function, Tornos is now offering a new, G978 chisel threading cycle. You can discover all the benefits of this in the article entitled "Tips".



The TB-DECO ADV 2007 will be presented in September at the IMTS in Chicago and at the AMB in Stuttgart and also at the BIMU in Milan at the beginning of October. Please do not hesitate to visit the company's stands.

For all contacts

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Hotline e-mail Software@tornos.ch
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IMTS – Chicago, from 6th to 13th September.
Booth A-8140, Hall A

AMB – Stuttgart, from 19th to 23rd September.
Booth 4.0.110, Hall 4.0

BIMU – Milan, from 5th to 10th October.
Booth G11, Hall 22

MODERN GUIDE BUSHES:
PERFECT LUBRICATION MEANS OPTIMUM GUIDANCE!

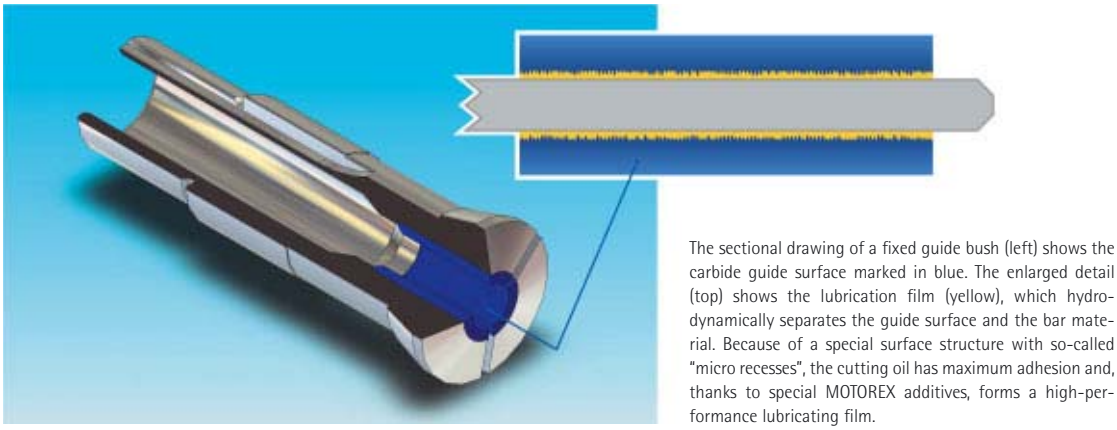
Correctly adjusted and lubricated guide bushes are an essential requirement if the parts being manufactured are to be dimensionally accurate. Even the slightest deviations can have catastrophic consequences – we tell you what to look out for and how MOTOREX ORTHO cutting oil plays a positive role in "guidance".

Photos: Walter Dünner SA

Guide bushes remain an important topic in any small part turning operation – it is through them that the polished bars are fed to the machining process with a play that can be precisely adjusted to 1 hundredth of a millimetre. It is not uncommon for incorrect guide bush diameters or incorrect play adjustment to cause problems in day-to-day production. If cold welding materials, such as stainless steels or titanium alloys are processed for this purpose, then even the slightest deviations or the use of unsuitable cutting oil means that there is a risk of "seizing" in the guide bushes.

Different types of guide bushes

When selecting the guide bush the small part turner can now choose between a large number of types, technologies and manufacturers. Basically a distinction is made between two types: the "fixed" and the "turning" guide bush. In the case of the fixed guide bush, friction occurs on the guide surface as a result of the rotation of the material bar. During turning, the temperature in the bush with a carbide guide surface averages between 30 and 60°C. When parting off, the temperature can very quickly rise to between 120° C and 180° C for a short time! This



The sectional drawing of a fixed guide bush (left) shows the carbide guide surface marked in blue. The enlarged detail (top) shows the lubrication film (yellow), which hydrodynamically separates the guide surface and the bar material. Because of a special surface structure with so-called "micro recesses", the cutting oil has maximum adhesion and, thanks to special MOTOREX additives, forms a high-performance lubricating film.

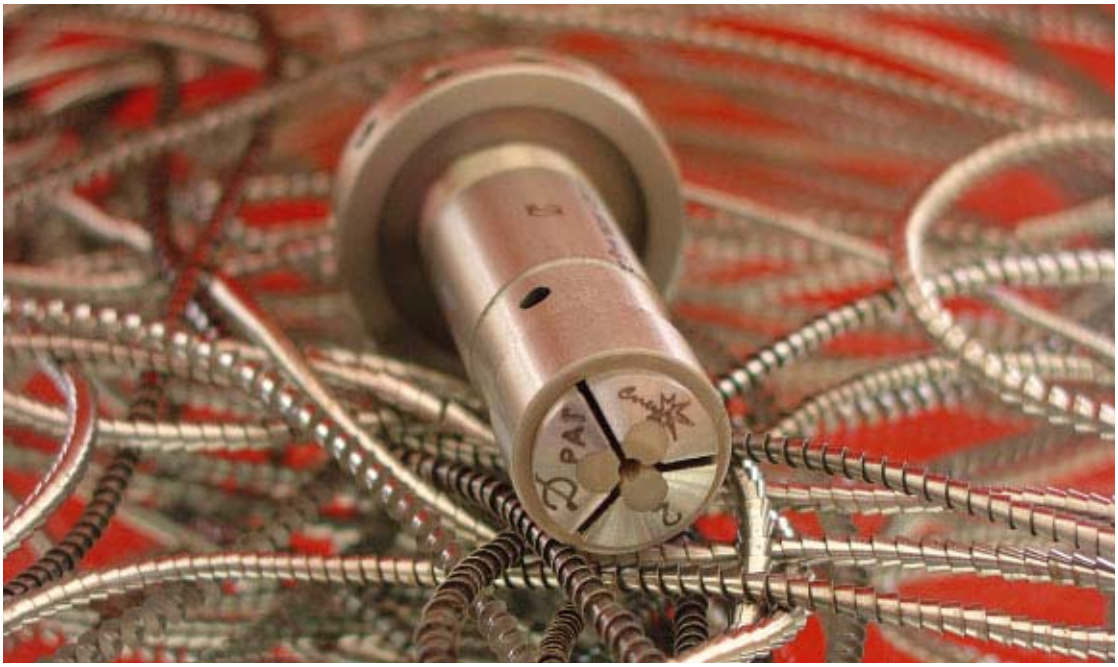
(Sketch 1)

precipitous rise in temperature severely reduces the viscosity of the lubricant and demands maximum performance from the machining fluid. For this reason, MOTOREX uses a combination of temperature-stable extreme-pressure additives in its ORTHO cutting oils.

In the case of the "turning" guide bushes, direct friction between the surfaces can be prevented. The turning movement takes place in the spindle and its ball bearing. However, the spindle bearings must only have minimum play. In the case of the "turning" guide bushes, they heat up linearly, which can be described as unproblematic.

The latest carbide and ceramic guide bushes

For carbide guide bushes various manufacturers, including Walter Dünner SA of Moutier, now use hard metals containing cobalt. In detailed series of tests, it has been discovered that cobalt has a desirable, friction-reducing effect. At Dünner the guide surface is also given a special grinding, which leaves behind the required "micro recesses". This enables the cutting oil to adhere better and to convince, by providing a highly stable lubricating film (sketch 1). In all events, the guide surface should be lapped, which unfortunately is not always the case today with all manufacturers. It is precisely in the case of



The well thought-out MAGIC guide bush system from Walter Dünner SA enables the bush to be opened and closed automatically. If a bar is worked, apart from a small residue, then this simplifies the ejection of the remaining bar from the bush. Once the new bar has been inserted, the MAGIC guide bush automatically adjusts to the preset value!

guide bushes that the cheapest solution is not always the best.

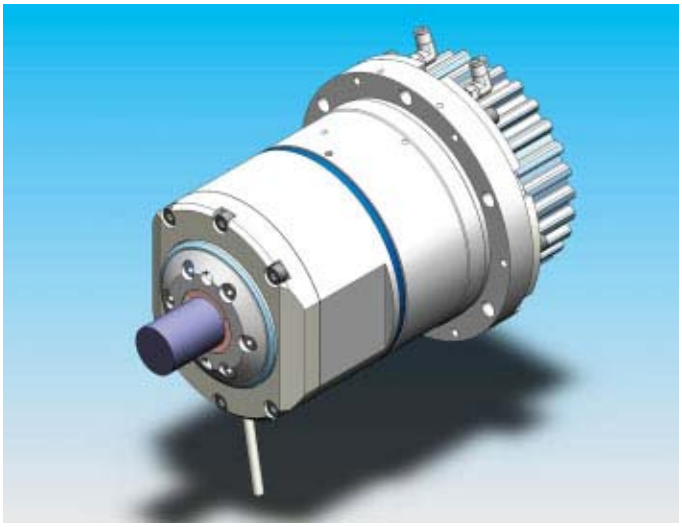
With regard to safety, guide bushes with ceramic guide surface lead the way. They are extremely temperature stable and they convince by their outstanding reliability and longevity. However, they are slightly more expensive than conventional guide bushes. Also, in the case of demanding knurling, for example, vibrations can cause chipping. From a lubrication point of view, ceramic presents absolutely no problem and is best suited to modern, chlorine-free cutting oils. A sensible option would be to fit special cross-holes to the guide bushes in order to optimise lubricant feed. Your supplier will be pleased to help you here.

Strict demands on cutting oil

Chlorine-free, environmentally neutral cutting oils are now the rule. For some time chlorine has been considered an undesirable additive in modern cutting oils. Previously, the chlorine in the cutting oil gave the lubrication film the desired extreme-pressure characteristics – now, however, the basic formulation and a modern package of additives has to give the cutting oil all the essential characteristics. Whilst leaving out the chlorine means that the machining fluid is indeed "chlorine free", it no longer has the necessary safety limits with respect to the extreme pressure characteristics.

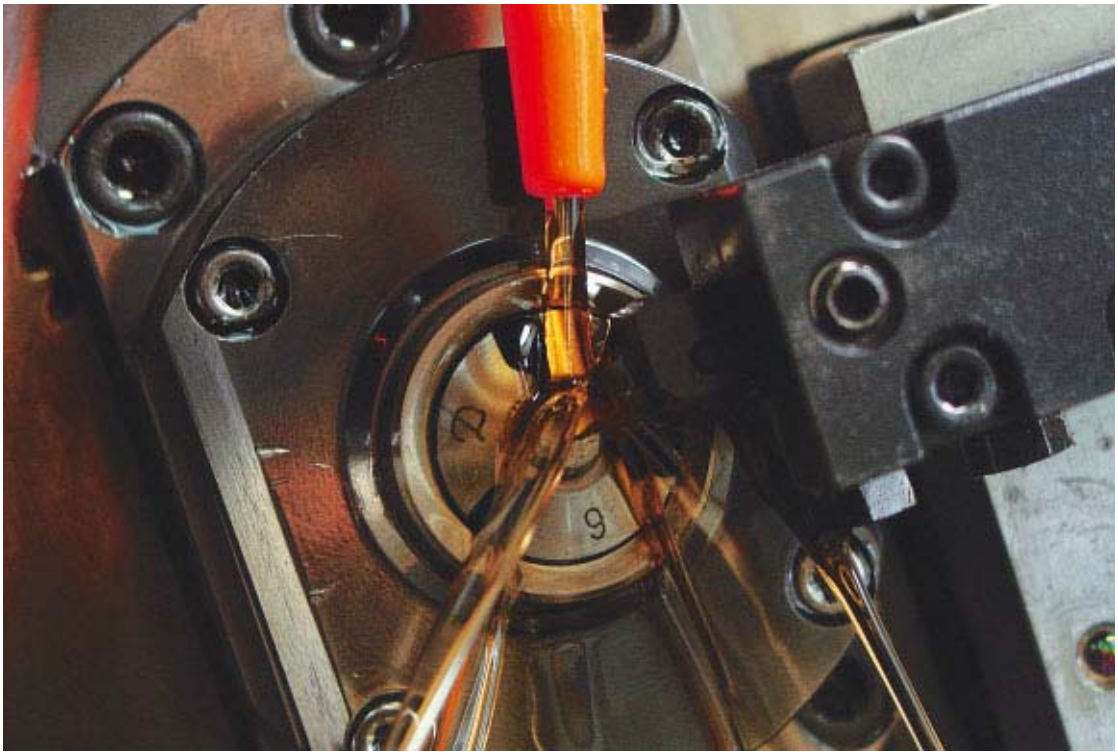
A new kind of additive technology in the MOTOREX ORTHO NF-X enables all materials to be machined. In addition, the characteristics of the active substances, including the extreme pressure characteristics, are reinforced within a defined temperature range. This provides maximum process reliability, advantageous cutting values (MOTOREX v_{max} Technology) and perfect surfaces. Outstanding machining results can be obtained with ORTHO cutting oils without the use of undesirable substances.

The effects of optimum oil feed to the guide bush must not be underrated either. If possible, cutting oil should always be fed in the direction of the bar feed. Hence, the oil is drawn in pulses by the new bar material onto the guide surface. If, in addition, guide bushes with cross-holes for improved oil feed are used, then you are 100 % on the safe side!



High performance spindle for rotating guide bush.

Additional oil ducts can be fitted to the side of most guide bushes on request. In this way, an adequate amount of lubricant can lubricate and cool the critical spots. Some suppliers provide their products with cross-holes as standard.



If possible, the cutting oil should always be supplied from the back and in the direction of the bar feed. In this way the oil is drawn in pulses by the new bar material onto the guide surface and the points, which are severely thermally stressed, are cooled.

Refer to the following guide bush checklist:

- **Choose a suitable type of guide bush for the kind of material/machining**
- **Always set the play correctly at the guide bush**
- **Check for correct concentricity of guide bush/collet/headstock**
- **Use only a high-quality, modern cutting oil, such as MOTOREX ORTHO**
- **Optimise oil supply to the guide surface of the bush**
- **Ensure maximum machine cleanliness**

We will be pleased to give information on the new generation of ORTHO cutting oils in connection with the guide bushes that you use.

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IT'S TORNOS TIME AT IMTS 2006!

September 6 - 13, 2006 – McCormick Place – Chicago, Illinois USA – Booth A-8140

By Mark Saalmuller
Tornos USA

Most of our customers are curious about what's new on the technological front at Tornos, and there's no better place to see our machines in action than at IMTS. We cordially invite you to visit us in booth A-8140 at our industry's Big Show where you can study our solutions and virtually any other manufacturing product available on earth. Everyone involved in manufacturing, from CEOs to operators, will benefit from experiencing the vast array of technologies available at IMTS. Plus, early September is the best time to come to The Windy City – the weather is simply glorious.

We at Tornos are excited about our display at IMTS. It's a great representation of our current product line put through its paces, running parts. Further, the exhibit is designed so you can really see what's going on behind the glass doors of the machines. We will have four large-screen video monitors displaying movies that were filmed as the machines ran without oil to provide high-detail, clear views of the various machining operations producing medical, automotive, and connector parts. And while on the subject of parts, you are welcome to bring samples of yours so we can take an initial look at what you are doing and how Tornos can help.

Here is the innovative Tornos technology that you will see at IMTS:

International Manufacturing Technology Show

IMTS 2006

September 6–13, 2006
McCormick Place
Chicago, IL USA

Tornos Booth A-8140

Single Spindle Machines

DECO Sigma 8

This brand new machine will be shown for the first time in the US at IMTS. This "extreme" precision machine boasts accuracies of ±1µ. Yes, 1 micron. This machine was initially developed for new markets in the electronics sector, particularly for mini disk parts for mobile IT units, however this machine is being applied in Europe for many other types of short parts requiring extreme precision in the watch, medical, automotive industries also.

DECO Sigma 20

This machine addresses a significant customer need for a versatile Swiss-type that sets up and produces simple to moderately complex parts quickly, and at under $200,000, it's well within most budgets. This

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Tornos Booth A-8140

is also what we call our "two machines in one" as there are an equal number of tools available for both the main and counter spindle. The Sigma 20 is the perfect machine for those making the switch from conventional type machining – turning, milling, drilling – to the Swiss-type concept.

DECO 13a & DECO 20a

These machines will feature the newest developments from Tornos for parts produced for the medical industry, specifically parts required for orthopedics. We will be demonstrating the new 24 degree helix tread whirling attachment. Typical bone screw in the past only required helix thread angles of up to about 16 degrees, but newer designs called for higher helix angles and Tornos has responded by building a new thread whirling attachment that can produce these screws. The completely independent end-working unit on the DECO 26a give us the ability to support the screw while it is be whirled. The 26a will also feature whirling in counter operations to show case the flexibility available on this machine Escomatics.

This is the first time Tornos will have an Escomatic at IMTS. We began representing Esco's unique coil-fed machines in North America about 18 months ago, and the customer response has been astounding. They fulfill a special niche for technology that can produce long, thin parts such as pin connectors, other electronic parts and parts for the medical and dental industry fast. These machines are interesting to observe in action. Just don't blink or you'll miss the show. And keep in mind that the ESCO machines can run from barfeed and not just coil stock.

Those are the broad strokes of what we will have in store for you at IMTS. We usually have surprises as well, so please stop by, say hello, and kick some proverbial "tires". If you can't make the show and you would like more information on these machines or any others, please contact us for all the details. Otherwise, see you in Chicago!

HONEY, I SHRUNK THE PARTS!

Swiss CNC technology produces micro parts profitably for New Hampshire manufacturer

Kerry, Barry, and Wayne Podmore of Barry Podmore, Inc., have built a business specializing in micro parts for the test and measurement and electronic device industries.

[Pittsfield, NH – July 2006] Barry Podmore enjoyed a laugh recently when he inquired about an equipment company's definition of micromachining: it was 1/4" diameter parts.

"In our world, quarter-inch diameters are considered huge," chuckles Barry Podmore, president and owner of Barry Podmore Inc., in Pittsfield, NH. "That's the largest size of raw material we use, never mind the parts. Some of our parts have a major diameter of 0.010".

Barry Podmore has earned a reputation over the last 25 years as a company that can produce these small parts for the electronics, automotive, and aerospace industries. As the end products get smaller and more complex, the technology with which the company produces the parts has become more sophisticated and efficient.

"I started out in 1982 with three Escomatic cam machines. My background is designing and cutting cams for Escos, so it made sense to continue doing what I knew best when I struck out on my own," says Podmore who came to America in 1976 from England with his wife and three small children.

While the shop in the front yard was a quick commute from the house, the company outgrew the space and in 2000 purchased and renovated a 17,000 sq. ft. facility in Pittsfield. The first things a visitor notices are Gail (Podmore) Glidden's smiling face and gleaming epoxy-coated floors, upon which are rows of dozens of cam and CNC Escomatics lined up like soldiers, and eight Tornos DECO CNC Swiss machines. All of the machines look brand new, even though some of them are decades old and have been very busy. This year alone, Podmore expects to produce almost 100,000,000 parts.

"There are very few companies that can do what we do," says Barry. "Fortunately, we have the technology and bright people who can keep up with our customer's demands for more parts that are plus or minus perfect and delivered on time."

In the electronics test and measurement market, Podmore makes plungers for spring-loaded pogo

probes for testing electronic circuitry. In the test fixture these probes look like a bed of nails, but looking at these parts under a microscope they are intricate, some with holes, 3-sided chisel heads, 4-point crowns, 9-point serrations, etc., for a variety of shaped and sized circuits. There can be thousands of these tiny wear parts in one test fixture, depending on the size of the circuit board and/or how many boards are being tested at once.

"Micro machining is growing, not necessarily because we as a company want to do it, but because it's what our customers demand," says Podmore. "When we first started doing these, we produced plungers for what the industry refers to as hundred mil grid pattern, which is a hundred thousandths on centers, then we made parts for fifty mil, then twenty five, and now ten. The grid pattern keeps getting closer and closer, so naturally the test probes have to follow suit. It's like, honey, I shrunk the parts again."

Barry says as the probes are getting smaller they are also getting more complex. When he first began making them, the probes he made had fairly simple tip styles and the Escos accommodated them just fine. The simpler tips are still running on the Escos day and night. In fact one machine has run one part continuously for twelve years. All of Podmore's machines, including the DECOs, run 24 hours with "lights out" from about 10:00 pm to 5:30 am.

The company has eight Tornos DECO 10mm 9-axis machines to perform multiple intricate operations in a single setup. The ability to successfully perform polygon-milling operations on the machines is one of their hallmarks.

Interior view of one of the DECO machines; at top is the helpful polygon milling attachment.

"We won't take a job if we can't run it 24 hours," says Barry.

Although Barry's comfort level was with the cam Escos, he did leap to CNC Escos, with nudges by sons Wayne and Kerry, when he needed more flexibility for shorter runs, and recently added the top of the line Esco, the New Mach 649.

"About four years ago, it became clear we needed to go up several sophistication levels if we wanted to get the more complex work that was out there, and we purchased our first Tornos DECO 10 millimeter, 9-axis machine, and now we have eight. Our customers are pushing us to do additional work, so we may have to expand the building and get even more," adds Barry.

The ability to perform polygon milling is one of the DECO features most remarked about by the three Podmore men. Polygon milling can be accomplished in both the main and subspindle on a Tornos. The part spindle and the live tool spindle synchronization are key for successful polygonning.

Elaborating on the operation sequence, Wayne takes a visitor step-by-step through a typical application. The part isn't necessarily the smallest part produced in the shop, but the beryllium copper test probe barrel has numerous features on it for its size, which is 0.084" long and 0.030" major diameter. The first operation is to spot and drill a 0.016" diameter hole on the front end of the part that goes to a depth of 0.060". The critical tolerance on the ID, OD, and length is 0.0005", which is common for Podmore. The DECOs even held a 15,000 part run to +/- 0.000080" recently.

The next operation is turning the first length down to 0.020", and then put in a cross drill hole of 0.007". Tooling is a considerable issue with micro machining. Podmore developed a 0.010" cross drill that can drill I.D.s virtually burr-free.

"I break more tools just handling them than the machine does. We have very little breakage on the machine," says Wayne.

Next the remainder of the part is turned down to a 0.014" diameter and the pick off spindle cuts off the part from the bar and transfers the part to the top of the work area to expose the back end of the part for polygon milling the four-point crown, and the part is complete. Meanwhile the main spindle operations are underway on a new part. Cycle time per part is under 25 seconds.

Gail Podmore, Barry's daughter is the smiling face at the reception desk and holds about 1,000,000 typical Podmore parts in her hands.

Tornos provides a tool presetting device with its DECOs to help set the tools for the next run while the machines stay in production.

"I can't stress enough how important the synchronization is between the spindle and the live polygon attachment. To get the four points, the cutter has to rotate four times faster than the spindle, exactly, perfectly burr-free which they have to be, and the DECO does it every time," says Wayne who also programs the DECOs with Tornos' TB-DECO software. "The programming is different, but I think it's different in a positive way. The way the software is laid out, I have better visualization of each operation than with conventional ISO programming and can readily see what each axis is doing. Bottom line is it helps to cut cycle time. It's just one more tool that Tornos has developed to eliminate dead time and use that time for tool changes. It just makes sense to me and did from the first time I used it."

Machining minute parts impacts the entire manufacturing process and even the company culture. It's more than just having the right machines. The actual cutting tools are an important aspect for success. Podmore sometimes makes their own or uses a handful of resources. The polygon tools and the custom drills, for example, are made in Switzerland.

"We also have to do some work on the collets ourselves," adds Kerry Podmore. "Any imperfection in the collet is going to create an imperfection on the part. If the collet has a miniscule ding or if concentricity is just 0.0005" off center, the part is scrap. If concentricity is off by 0.001" on a 0.25" part, you won't even see it, but when you are talking about a 0.012" diameter part it's a big percentage."

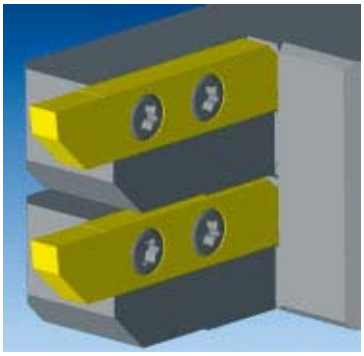
Other differences with micro parts are the options to accomplish post-processing tasks such as cleaning, heat-treating, finishing, and inspection. Podmore has found that conventional methods simply aren't appropriate for parts that when viewed with the naked eye look like tiny shards of swarf. The company uses ultrasonic cleaners, chemical etching when a special edge or finish is required, and microscopes, laser micrometers, and video inspection for random batch inspection.

"Perhaps most importantly, along with all of the technology, you must have the skilled people attuned to the mindset of making these small parts," says Barry. "It's not for everyone and it takes more than a few months of training. It's engrained in our culture. It's who we are. And we're grateful for the smart suppliers, such as Tornos and Esco, who understand what we are trying to do and have helped us be successful at it."

A POWERFUL TOOL AT THE SERVICE OF THE MODERN BAR-TURNING OPERATOR!

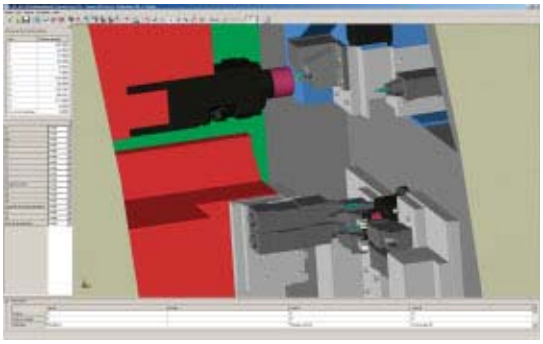
Following the certification of SylvieXpert by Tornos SA earlier this year, the new version of this CAM (computer-assisted manufacturing) software dedicated to bar-turning operators was unveiled with a sneak preview at SIAMS 2006 in Moutier. This article briefly presents its new functional capabilities and also describes a collaborative project involving the CTDT training centre in Tramelan and testimonials from Burri SA and Tectri SA, users of SylvieXpert for the operation of DECO machines.

SylvieXpert is an axis-based CAM system used for operating CN bar-turning units. Developed by Jurasoft SA, a company located a stone's throw from Moutier, SylvieXpert is marketed in Switzerland by Jinfo SA. Its main features are its ability to control an unlimited number of axes and channels, as well as realistic, comprehensive simulation of machine functions.



The new version 2.5 comprises numerous features including:

- display of component pickup and complementary operations such as retrieval of components
- new types of operation (polygon cutting, thread whirling, mortice cutting etc)
- new control system for chamfering during a turning operation
- new concept for using shape-cutting tools
- enhancement of the library of tool elements.



For more information:

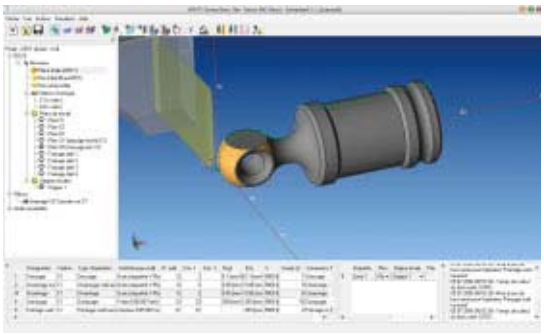
www.sylviexpert.ch

The Technical Training Centre for the Bar-Turning and Shaping Industry (CTDT-CIP), established in 1994, has become an essential complementary service to the traditional training avenues. It was established in Tramelan in the Centre Interrégional de Perfectionnement (CIP). CTDT-CIP offers a wide range of personalised courses to develop expertise and retraining of staff, thereby responding to the demands and growing needs of an industry undergoing continuous change.

For many years, the CTDT-CIP has been offering specialist CAM training courses specialising in milling and, when classes restart, it will be possible to follow courses in CAM aimed at bar-turning operations.

To this end, a close collaborative relationship has developed over the last few months with Jurasoft, the company that developed SylvieXpert CAM software.

A fully comprehensive course combining theory and practice will be offered from this August at CTDT-CIP.



It will then be possible to test programs devised in CAM on the Tornos Deco 10a and on the Tornos Deco 13a. The number of participants will be limited to 3-4 people. The price for the basic course (3 days) is SFR 1400.–, specialisation (2 days) costs SFR 1100.– and the full 5 days cost SFR 2200.–. Customised courses can be arranged on request.

The advantages of using SylvieXpert according to the CTDT

This software has a different approach to CAM. It has a simple interface capable of managing a large number of complex operations which are more difficult to program without assistance, e.g. an operation centring on the C axis. The programmer works on a 3D model. This approach is not an easy undertaking when machining complex workpieces on multi-channel machines like the DECO 10a or the DECO 13a. The scope for creating ranges of operation models can be of great benefit when designing families of identical components, and it delivers an appreciable time saving.

Finally, a 3D simulation rounds off the software and gives the use a means of checking the program before running it on a machine.

This software can therefore act as a complementary tool, indeed as an indispensable one for programming any workpiece with a high value-added component.

For more information:

www.ctdt-cip.chBurri

BURRI
DÉCOLLETAGES ET PIÈCES À FAÇON

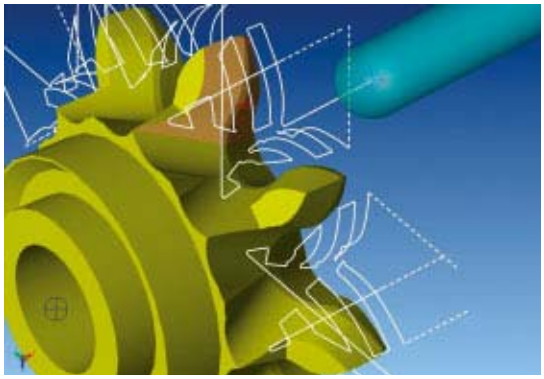
Burri SA is a company in the BM Group. Burri places its dynamism and its expertise in the field of bar-turning at the service of its principal markets: automotive, medical, watchmaking and security.

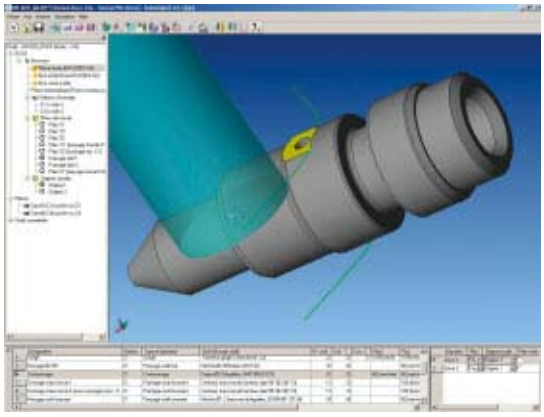
With its 100-strong workforce, Burri SA believes that its future lies in having a perfect command of ever more precise, ever smaller and ever more complex workpieces.

Burri SA has been using SylvieXpert since early 2005.

The advantages of programming CN bar-turning lathes with SylvieXpert can be summarised in three points for Burri SA: flexibility, productivity and capitalisation on expertise. At Burri SA, flexibility is the top priority in its production operations. It is indeed now essential to have the capability to launch very short production runs of components featuring very diverse technologies and to do so in record time. In the following example of a machining operation, the use of a ball miller working in 3D makes it possible to produce this workpiece with a standard tool instead of a custom-made tool, which would entail a delay in the start of production work.

Now that operations combining milling and complex geometries are becoming more frequent occur-





rences, it is very important to be able to deliver the right programs parallel to production operations. With TB-DECO and SylvieXpert, you can now save days that were previously spent on programming tasks. Detailed final adjustment is possible with real 3D simulation based on the precise kinematics of the machine.

For more information:

www.bmgroupe.ch

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tectri
Precision machining
for high-tech industries

Tectri SA is a specialist in the machining of turned and milled metal and synthetic workpieces. Its work is centred upon high precision and complies with the standards in force in the leading-edge technologies associated with the medical, aeronautic and metrology sectors.

Mr. Fabien Bouduban, Director, answers our questions.

What types of component do you manufacture using bar-turning equipment ?

Primarily short production runs of complex geometry components, which require relatively long machining times, in some cases more than 20 minutes.

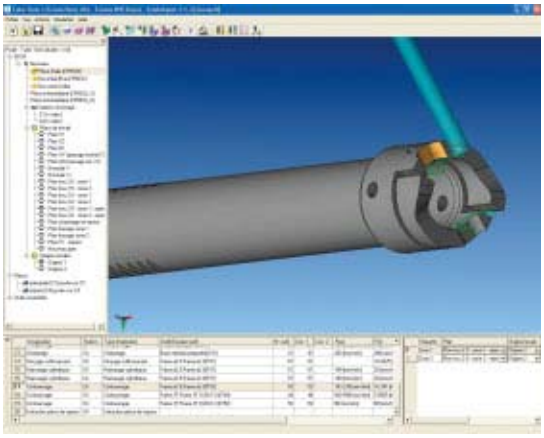
Our range of bar-turning units comprises the Tornos DECO 13a and Tornos DECO 20a. We have expertise in the machining of a large number of materials, from the toughest of metals to the most distortion-prone of synthetic materials.

What is the biggest technological challenge you face at this time ?

Our hope at this time is to find a way of rationalising as much as possible the lead time involved in getting a new component to the machining stage. The objective we are hoping to achieve: «the third component used for adjustment meets the standard».

Why did you choose the SylvieXpert CAM system ?

We have been working closely with Jinfo SA for the last three years on GOélan CAM software for the operation of our machining centres. After-sales service has a very important part to play in computerised applications. We knew that Jinfo was offering new software for bar-turning operations and we discovered SylvieXpert when we visited the Simodec in 2006.



A demonstration at our site then convinced us with its practical approach and its ability to take full account of the distinctive features of bar-turning operations.

For more information :

www.tectri.ch

EHN & LAND CONCENTRATES ON BEING

THE BEST SUPPLIER TO CUSTOMERS WHO ARE MACHINING SMALL PRECISION PARTS!

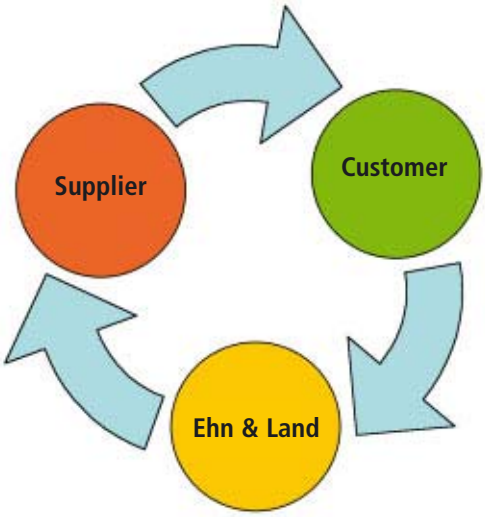
As a natural step in our development as preferred partner to Tornos our product strategy also has come to maturity and we venture to assert that we today have the widest and probably also the best program on the market.

Now we would like to put all efforts to focus on the companies who produce small precision parts. We know that the requirements form you customers will increase as regards tolerances, as regards cleanliness, as regards products and also with an ongoing price pressure as well. It is one of the main reasons why we have been successful in getting strong partners for machine tools, tools, accessories, cutting fluids, cleaning etc.

we put focus on the whole package

Apart from our excellent machine tool partners we have also a terrific and practically complete sales program of tools and accessories with Magnus Wahlquist in charge.

We would like to take part and work for the fact that the jobs and investments stays in Europe and do not move out to Asia a.o. We believe that we together with our suppliers and you customers can be successful.



In the neighbourhood to our suppliers

Through our subsidiary company in Switzerland we can be helpful with picking up parts, pass on information and solve problems very quickly. The office is situated in Hünenberg, right in the middle of Switzerland and we reach the majority of our suppliers within two hours car drive. It is very valuable to have a deeper and continuous personal contact with these to keep up long standing cooperation relations.

As production of small precision parts requires quality and delivery security we have chosen to work with practically exclusive Swiss products.

Ehn & Land shall, as agent for our selected suppliers, be the leading company in the Nordic Countries and the Baltic States to supply products for manufacturing of small precision parts.

Our service department – your security

Our service department with 7 engineers, 5 in Sweden and 2 in Denmark, is very competent and helps the customers to reduce their costs with regular service and preventive maintenance. They make rebuilding, service and training and all of the engineers have a long experience in this field.

Here you will find our service engineers in Sweden and in Denmark.

Full speed ahead at the track.

Big distribution of prizes.

Well-earned dinner.

Siams

As a part or our customer service Ehn & Land arranged in May this year a trip to the SIAMS exhibition in Moutier. Around 40 persons met up early in the morning to be transported to Switzerland where they visited suppliers and customers to Tornos and Amsonic.

The exhibition, which was the highlight of the trip, was successful for Ehn & Land and we even received some machine orders among other things a DECO 8sp (DECO Sigma 8) – the first one in Scandinavia!

One of the evenings Tornos arranged a much appreciated carting race where the competition spirit of the competitors came out and it was a hard and funny match at the race-track. After a hard final heat Erik Källiden form Nobel Biocare was the worthy winner. The evening finished with a tasty barbecue before the bus took us back to the hotel.

NEW G 978 TURNING TOOL THREADING CYCLE FOR TB-DECO

A new, multiple, repetitive, threading cycle to execute threads using a turning tool is now available with the TB-DECO ADV 2007.
This cycle can be used throughout the range of Tornos machines using TB-DECO and also for the DECO [a-line] and MultiDECO machines. At the same time, the G933 cycle can always be programmed.

Why this new cycle ?

Tornos is committed to satisfying its customer requirements. This is why we can now offer the following three major improvements:

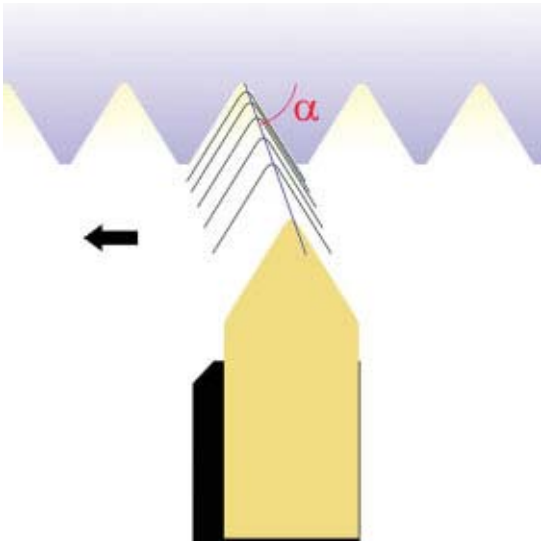
- Use of stronger tools for your internal thread cutting operations using the turning tool.
- Optimising the useful life of your turning tool, depending on the material undergoing machining.
- Optimising the finished quality of your thread.

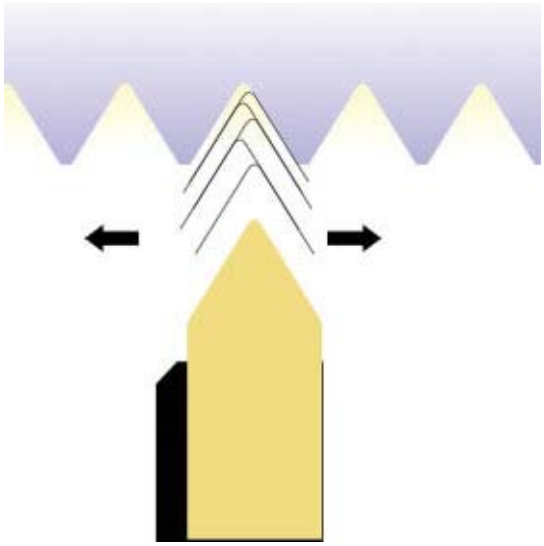
Innovation

Managing the penetration of the turning tool according to a given angle in order to follow the flank of the thread thanks to a parameter (P15). This same parameter allows you to execute an alternating thread (zigzag). In such instances, the turning tool will successfully remove the material from one side of the flank and then from the other, so as to optimise its wear for hard materials.

Other strong points

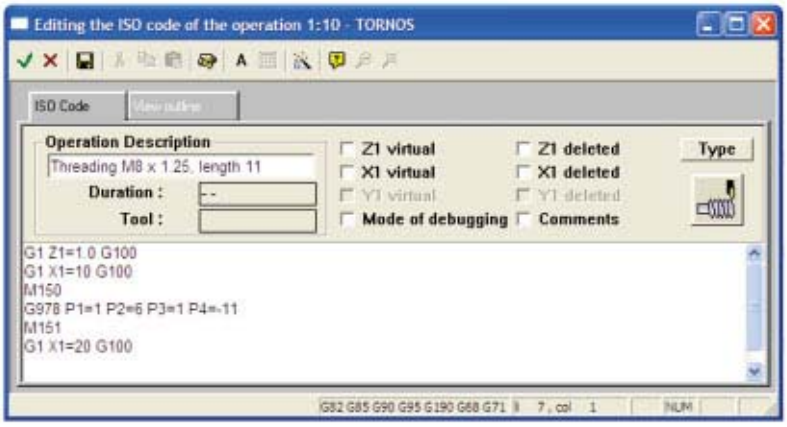
- Perfect management of the number of passes in relation to the programmed parameters.
- Unique return path of the urning tool on axis X. This means that a commercially available tool can be used for the internal threads, whose diameter is practically equal to that of the drilling diameter.
- Similar to the cycles used on a CNC ISO.
- Comprises the same inlet parameters as the G978 cycle available on the DECO [s-Line] machines.

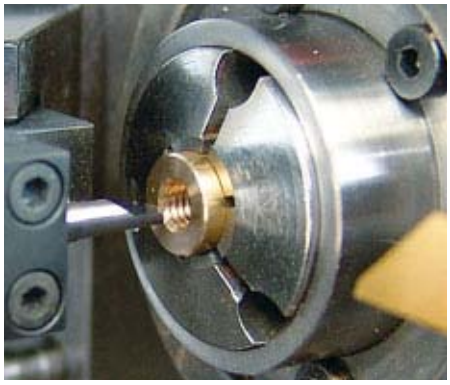




Programming

Programming example of a thread using cycle G978.





Internal threading
Illustration of a standard commercially available internal threading turning tool for an M5 x 0.8 thread in the cycle interpretation phase.

PARAMETERS THAT CAN BE PROGRAMMED :		
P1	Threading pitch (NEGATIVE for internal cutting die)	[mm] [inch]
P2	Start of threading in X	[mm] [inch]
P3	Start of threading in Z	[mm] [inch]
P4	End of threading in Z	[mm] [inch]
P5	End of threading in X	[mm] [inch]
P6	Angle of the threading tool	[°]
P7	Height of thread (depth)	[mm] [inch]
P8	Outlet angle on completion of threading	[°]
P9	Safety margin	[mm] [inch]
P10	Number of rough passes	
P11	Height of first (rough) pass	[mm] [inch]
P12	Number of finishing passes	
P13	Height of finishing passes	[mm] [inch]
P14	Number of blank passes	
P15	Inlet angle in thread. Measured from the flank of the thread	
P16	Override for the return segment to the starting point	[%]

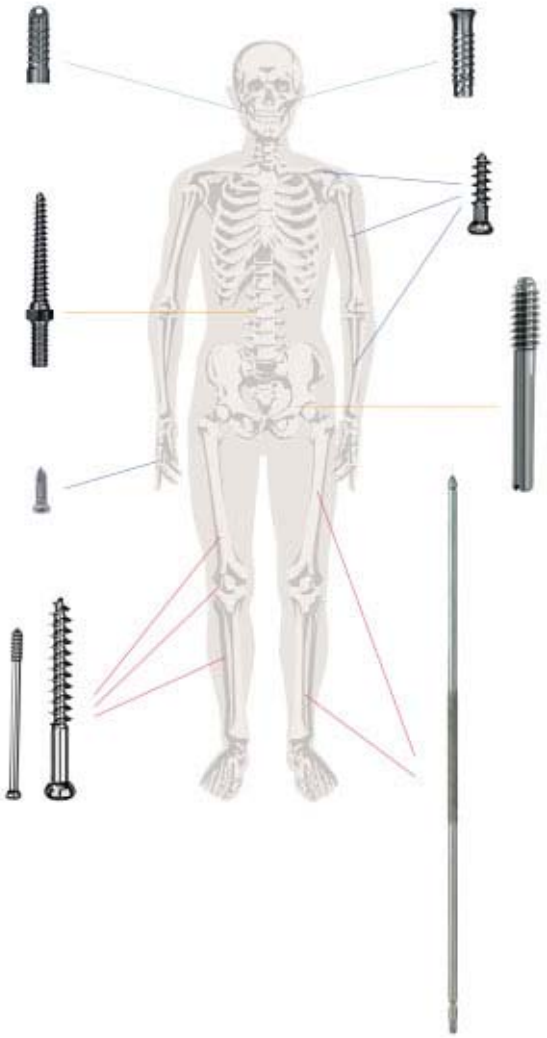
IN 2007: mediSIAMS in Moutier (Switzerland)

Horology was the launch vehicle of micro-technology in the Jurassic Arc. Machine tools, metal alloys and manufacturing techniques (rather than 'secrets') that are still in use today, were designed and developed in order to meet the requirements of this sector.

During the twentieth century, car manufacturers joined the list of large consumers of micro-technical solutions. To a lesser degree, the armaments sector also proved to be a major client for this technology.

The extension of telecommunications – starting with the telephone and then the explosion of information technology – pushed the connector industry into becoming the major user of micro-technology.

More recently, coupled with the progress, both in the medical and surgical sectors, the demand for so-called bio-medical products snowballed. In this sector, requirements ranged from producing adequate alloys to mastering the multiple facets of micro-technology and the numerous ways of assembling highly different components – micro-technology components combined with those of the plastics and connector industries and, in particular, with IT applications. Not forgetting, on a more mundane level, those products used in corrective surgery, such as screws, dental implants, nails, plates, femur heads and other "technologically replaceable" elements of the human body.



It will be this range of tools and micro-technological products geared to the health sector that mediSIAMS will be exhibiting in 2007 in Moutier.

The Jurassic Arc is perfectly located for the medical and dental sectors – one can even go so far as to say that it is the nucleus. All companies manufacturing or assembling these products are now invited to submit the fruits of their labour, resulting from their research and skills deployed in this sector, to mediSIAMS.

For their part, the parties responsible at mediSIAMS will prepare to visit:

- potential customers, who are sometimes unaware of the fantastic skills of the region in medical technologies;
- companies already active in this sector, which will be given the opportunity to discover the latest technological innovations in this sphere;
- companies that are thinking about becoming involved in this area of production, which is full of technological promise, especially for the medical sector;
- professionals, multi-disciplined engineers, small parts turners and engineers who may like to discover this fascinating industrial world at the service of the health industry;
- finally, all those hoping to create a skills network with the regional players in order to encourage co-operation and the transfer of know-how and technology.

2007

mediSIAMS

Meeting point for medical technologies

BLASER SWISSLUBE IS AN AMERICAN SUCCESS STORY.

THIS YEAR THE SWISS LUBRICANT BUSINESS IS CELEBRATING 25 YEARS OF BUSINESS IN AMERICA.

It all started back in 1981 in White Plains NY when Hans Schneider, a Swiss-American, set up his sales office. He visited the metalworking businesses in the area and with great enthusiasm, told them about the new types of Swiss cooling lubricants, kind to both the human skin and the environment. The people he spoke to then wanted to try out the product and that was where this success story began.

Uli Krähenbühl, Chief Executive and President of Blaser Swisslube Inc., USA.

Just five years later, a production facility and office complex was erected in Goshen NY and went into business. Now Blaser Swisslube Inc. is one of the USA's leading providers of water-mixed cooling lubricants and cutting oils. Many customers consider Blaser to be the best supplier on the market, offering exceptional products and superlative standards of service, something which our customers confirm time and again.

We ask Uli Krahenbühl, Chief Executive and President of Blaser Swisslube Inc. USA, just what it takes to be successful in this tough and highly competitive market.

DECO Magazine: Mr Krahenbühl, what is the secret to the success of Blaser Swisslube in America?

Uli Krahenbühl: Hard work and motivated employees! Just like anywhere else, success does not come out of nowhere. We are fortunate enough to have very good products. In addition, the people who sell our cooling lubricants have extraordinary levels of expertise at their fingertips. These people are sales engineers who know the requirements of the metalworking industry and who can therefore give our customers really valuable advice.

DM: Every supplier claims to have very good products. What sets the Blaser cooling lubricants apart?

UK: Our cooling lubricants are actually liquid tools. They are characterised by very high performance, exceptional service life and good compatibility with the human skin. These are just three qualities delivering genuine benefits to customers.

DM: How do these benefits communicate themselves to customers?

UK: Well, the performance is something customers can experience directly, simply by being able to run machine tools at higher cutting speeds, thereby increasing daily output levels. The good lubrication provided by our products also extends tool service life. This means that each tool can produce more units. Long service life is demonstrated by the fact that the cooling lubricant does not need to be disposed of – at least not very frequently – and this helps to reduce machine downtime. Then in terms of skin sensitivity, mechanics will find eczema outbreaks less common, so will lose less time off work through sick leave.

View of Blaser Swisslube Goshen, NY.

DM: What then is the secret behind the long service life achieved by your cooling lubricants?

UK: The unique 'bio concept' of our water-mixed Blasocut product line prevents any undesirable bacteria or algae from growing. As a result, emulsions remain stable for years at a time. This occurs in a completely natural way without the need for control and without needing to add any biocides. This is something which a major study conducted by the University of Heidelberg, under Prof. Dr. Sonntag, has been able to verify convincingly.

DM: What is the status of Blaser cutting oils?

UK: I need to explain something to you: When we talk about cooling lubricants, we are referring to water-mixed fluids, i.e. emulsions, which are cutting oils by another name. As you would expect, our cutting oils offer customers tremendous benefits. They deliver quite exceptional performance characteristics. Tests have demonstrated that, by using the right products, improvements in performance of up to 40% can be achieved. As you can see, using our Blasomill cutting oils, and in particular our vegetable oil-based Vascomill oils, our customers can achieve very impressive productivity improvements.

DM: Do you develop any of your products in the USA?

UK: No, we simply produce cutting oils and water-mixed cooling lubricants for North America, Canada, Mexico and Brazil. For a company of our size, there is no point in developing products at several different sites. However, our senior product engineers all ensure that any insights gained during contact with our customers is passed back and incorporated in the development of new products. In Switzerland, Blaser Swisslube operates the largest R&D operation in this sector. Over 40 chemists, tribology specialists, analysts, microbiologists and laboratory staff conduct research into new materials, which improve performance and reduce vapour formation. As a consequence Blaser is always developing state of the art products.

DM: Given this amount of R&D effort, your products must surely be expensive?

UK: Quite the reverse! You see, our business is to provide our customers with cutting oils which increase their productivity. Let me explain: to increase productivity, customers are always looking for faster machines and better tools. The coolant is only ever considered, if indeed it receives any attention at all, as a second or third level priority. Our sales engineers have the expertise to deliver a decisive contribution towards increased productivity through their grasp of how machines, tools and cutting oils interact to greatest effect. I can assure you that the performance improvements that our customers achieve when they use our products more than cover the costs of acquiring our cutting oil. Then there are the substantial benefits gained through lower tool

Three generations of Blaser: Peter Blaser (left), who now runs Blaser Swisslube AG, company founder Willy Blaser (centre) and Marc Blaser (right), representing the third generation at work in this family-owned company.

costs and a reduction in machine downtime. As you can see, with Blaser cutting oils, customers can run their production equipment much more cost-effectively. When used properly, these products really are liquid tools. This is precisely why we are so successful.

Blaser Swisslube AG is a lubricant company based in Emmental, Switzerland. This family-owned company was founded in 1936 by Willy Blaser. It is now being managed by Peter Blaser, the second generation of family ownership. For more than thirty years, Blaser has been making cooling lubricants and cutting oils as its primary products. The company operates production facilities in Switzerland, the USA, India and in the near future China. With 10 subsidiaries and 33 representative offices in 45 countries, Blaser Swisslube has a presence in every industrialised country. Blaser Swisslube employs a global workforce of 450 and achieves annual sales of approximately SFR 160 million.

Own production facility since 1986.