

DECO MAGAZINE

28

1/04

MARCH
ENGLISH

Think **parts**
Think **TORNOS**

Two new tips
for the TB-DECO !

New service policy
at TORNOS:
a further benefit to
customers...

Trade fairs 2004

RAVINET INDUSTRIES
ever
more efficient...

Motorex:
A cutting oil for all
occasions



A support that is constantly being developed!



Think parts Think TORNOS

Electronic & connector industry

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Ladies and Gentlemen,

Since the launch of the magazine, we have conducted several surveys amongst our readers and operators with a view to supplying information that is relevant and useful. Over the course of time, the considerable feed-back received has given us much to think about. Covering many aspects relating to both content and form, the results obtained had some repercussions on the development of the magazine over the last 7 years. But nothing compares with the latest version now in your possession!

In fact, from number 27 onwards, the 'general multilingual magazine' will now give way to a version 'per language*' ...hence the reduced size of this edition.

**Depending on regions, it is possible that some editions will still be issued in several languages.*

The first stage will see the production of more targeted versions, with numerous possibilities still waiting to be tapped.

The DECO Magazine is intended to be a tool at your service. Its main objective is to keep you informed of any issue as quickly and accurately as possible, so as to help you become even more efficient.

We are still open to your ideas, comments and criticisms, since this is your magazine.

Please do not hesitate to contact us at the following address:

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Pierre-Yves Kohler
Editor in chief

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Are we having fun yet?

If you are reading this magazine, it's likely you've survived the worst part of the economic downswing. Congratulations. It certainly wasn't easy, and most of us still have easy access to that three year-old clenched in our guts. Even now most of us are saying, "Yes, we're getting more orders and business is brighter, but I'm still uneasy." We're not exactly dancing in the streets yet, are we? It's almost as if all of us in manufacturing are experiencing a collective melancholy, lamenting over the fact that U.S. manufacturing is losing sectors of work overseas that will never return. That's understandable; it's sad. Just remember that all we can do about that is to take the steps necessary to position our own companies for the long haul.

There is still a lot of work that's staying here. Generally, the more complex and accurate the part, the more likely it will be manufactured here, and not by a low-cost producer. As one of our customers, you know that Tornos builds machines for many types of parts, from simple to complex. However, our experience and equipment excels at the higher end of the parts spectrum. The highly versatile DECO and MultiDECO machines can produce intricate components very efficiently. With that in mind, here are some of the trends we at TORNOS are identifying among your peers, which may help you plan for the future:

The markets are up

Materials producers (i.e., steel, brass, aluminum stock) and tooling companies are reporting increased business, which is a good indicator that the market is starting to come back. In the U.S., TORNOS' customers participate in three main market segments – medical, automotive, and electronics. Medical is still growing rapidly, primarily because of our growing population of aging baby boomers who want all the latest medical treatments. The automotive industry is primarily driven by the consumer. If there is strong consumer confidence, we will have robust automotive sales. This, in turn, will allow the automotive manufacturers to release more new programs, such as 42-volt systems, which will have a positive im-

pact on parts orders. In the electronics market, excess inventories are finally diminishing, and new production is starting to pick up. Although much of the simple connector work has gone overseas and across the borders, the more complex electronic connectors are staying put.

The machines are paying off

We're also seeing shifts in how our customers are using our machines. More shops are successfully completing operations in single setups. Even many of the traditional screw machine folks understand that blanking and performing secondary operations (even if it's just deburring) is getting too costly. We see this with both single-spindle Swiss type and multispindles customers. Further, many of our customers are experiencing other advantages besides timesavings – better process control, easier setup, finer finishes, and improved accuracies.

The singles are swinging

This use of "Swiss" style machines in untraditional ways continues to increase. For example, a part may have very little turning, but a lot of milling, or non-turning work, and the small material size makes traditional workholding techniques difficult. DECO users are letting the bar stock itself be the fixture. The part is fed through the guide bushing and milling and other operations are performed to complete the part. The counter (sub) spindle picks the part up, and the back of the part is finished in counter operations. The ability of combining 3 - 4 axes of movement (including "C" axis) allows the user to perform very intricate milling operations, used in many different industries.

The multis are amazing

Cam style multis, while extremely fast, did not always allow the manufacture of complete parts. With the advent of the CNC multispindle, such as our MultiDECO, and the ability to have multiple axis of movement on the cross slides, it is now possible to do more operations than in the past. The two-axis cross slides provide more flexibility

in controlling how the part is turned. With spindle stopping and indexing, milling, drilling and other non-turning operations can be preformed. Dual slides on the cut-off position combined with an independent sub spindle allow us to perform back work and drop off completed parts.

Rather than a decline in the use of multispindles as many predicted, interest is increasing as traditional screw machine shops and others see the need for upgrading and making parts differently than in the past.

A little help from friends

Some other changes in the screw machine industry are the use of more peripheral equipment, such as high pressure coolant for improved finishes, tool life, chip control, and deep hole drilling. Also, more attention is paid to components such as mist collectors for cleaner working environments, chiller units for improved gaging control, and automatic bar loading systems for unattended operation.

Cut loose

The trend of simple work being produced at less cost offshore will continue to increase. We can't change that, so let's put it aside, do what we can in our own companies, and maybe even have a little fun. We believe that the more sophisticated, high-value parts will stay here. That's where you come in. Thankfully and by design, we are in the complex parts business, too. TORNOS will continue to provide advanced technology to serve your needs with whatever level of engineering expertise and "turnkey" systems you desire, and in whichever industry you work.

We would welcome a call from you to explore your specific needs. We often perform thorough engineering analysis and test runs on parts to find out if producing them the "DECO way" makes sense. Otherwise, if you are planning to attend a manufacturing trade show in 2004, such as EASTEC in May, MDM East in June, or IMTS in September, be sure to look us up!



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Multidec®, CUT 3000

Position guaranteed irrespective of the condition of the opposite cutting edge !

As a manufacturer of cutting tools since 1915, Utilis SA already launched its line of small parts turning tools – the Multidec® range – back in 1994. Once presented in the relevant sector, the range rapidly aroused a lot of interest amongst the professionals in the trade.

Since its launch, the Multidec® range has constantly been under development in order to adapt to the different requirements of users.

It was with this concept of technical continuity and innovation in mind that Utilis SA presented its latest range of small parts turning tools as a world first, at the AMB 2002 in Stuttgart.

Born out of the Multidec® line, the new range of CUT 3000 tools offers a very interesting original feature never before used for this type of tooling – namely the way the insert is secured to its support.

This new technique of mounting the insert on its support means that the operator can benefit 100% from the second cutting edge, even if the first has been broken or reground several times. In other words the useful life of a cutting edge is no longer dependent on the quality of the other one.

While the majority of current systems use the opposite cutting edge to position themselves in the support, thereby attempting to ensure edge stability during work, things are quite different with the CUT 3000 assembly principle.

Technique

If the obvious choice is now to add a second fixing screw, then the choice of size is based on a dimension of M 3x9.00 for Tx8. The principle of fitting the insert to its improved support of approximately 130 [daN/mm²], means that small screws can now be used, since

an area that is subject to severe stresses.

If the strength of the insert obtained was one of the aims of Utilis, another predominant and decisive technical characteristic was conceived and developed with a view to achieving integral use of the insert.

Utilis was not happy merely to include a second screw to hold the insert on its support, thereby giving the operator the illusion of a perfect fit. These new adjustment and sintering techniques used for the CUT 3000 range, made it possible to achieve a convex parallelogram over a height of 1.00 [mm].

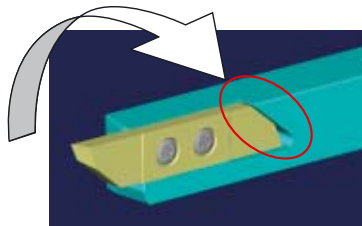


Fig. 1: Two small screws ensure that the insert is held properly on its support. The opposite cutting edge does not rest against the insert holder and allows a certain amount of play.

these are never subjected to shearing stresses. CFAO simulations clearly confirmed that the screws did not absorb such stresses.

This means that when screws of this size are used, one can reasonably dimension the counterbore area of the screw head so as not to embrittle the insert. The destructive tests showed no weaknesses in

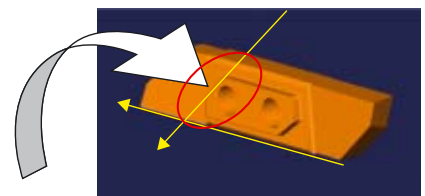


Fig. 2: The rear slant guarantees perfect and fully stable positioning of the insert in its housing. The screws are not subject to any shearing stresses.

This feature ensures absolutely perfect positioning of the insert in its concave housing (male) with its depth of 1.40 [mm], with similar geometric support (female) values.

Self-blocking system

The lines formed by the slant at the rear of the form and that at the main base of the insert, form a cone at the point where they converge, which is identical to the principle of blocking the ISO inserts.

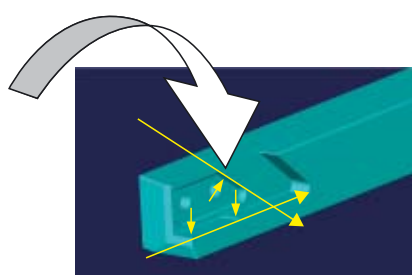


Fig. 3: The insert housing on its support, the internal stop of which guarantees perfect blocking of the insert in the direction of the forces used to tighten the screw.

When assembling two elements, an obvious axial play of the insert in its housing is mandatory. This ensures that the concave and convex forms correlate perfectly, without any pinching impeding their proper positioning. Whilst tightening the screws, this play will disappear completely as soon as the cone of the screw comes into contact with the counterbore of the insert screw. Because of the screw offset in relation to its counterbore, we obtain an axial blocking effect as soon as the two slants come into contact. This bearing force is proportional to the force of insert penetration into the material. The greater this force, the greater the blockage in the cone.

It is easy to imagine the shearing force generated on the screws if these had to absorb directly the turning forces, with the second edge either non-existent or only partially existent.

Perpendicularity

Our tools are ground on four faces. In order to preserve the cutting geometries defined in CFAO, the assembly of the two sections must faithfully reproduce the position of the cutting edges and geometries.

The system designed by Utilis guarantees perfect perpendicularity between the support and insert face, thanks in particular to the large bearing surface around the parallelogram. This surface absorbs all the radial cutting stresses generated during the long turning operation.

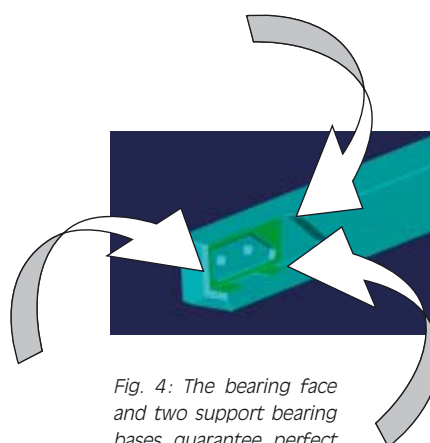


Fig. 4: The bearing face and two support bearing bases guarantee perfect insert perpendicularity over its support.

Figure 4 clearly shows (in green) the bearing surfaces of the insert in its support. In order to avoid, as far as possible, any risk of a "banana" contact, the main seat of the insert will be based on the choice of two contact points, which will ensure its seat. This fixing technique applies to supports of 10 x 10 [mm] or more. For supports with a section of 8 x 8 [mm] the dimensions for the concave form differ slightly from those with larger supports. The seat of the insert is within the concave form itself, which makes it possible to retain the same axial positioning of the insert.

Dismantling without dismantling

What we mean here, is removing the insert without dismantling the machine support.

CUT 3000 also offers a version enabling access to the two screws from the opposite side of the insert.

The insert used for fitting from the opposite side is a standard model. This is quite an interesting feature because it dispenses with having to use two types of insert of the same size. The bushes and specific bushes required for opposite assembly are individually available.

In order to counter-sink the screw head M 2.5 x 9.00, you will require an offset counterbore of 60 [°] in order to position the insert in its housing.



Fig. 5: The two insertable bushes can easily be fitted or removed from a standard insert and be used again.

Nonetheless, it is quite possible to fit the standard insert on a support that has been prepared to accommodate this type of opposite assembly.

Multidec®, CUT 3000

Substrate

The tungsten carbide (Wc) used in the manufacture of inserts is part of the sub-micrograin family. The size of mean grains does not exceed 7μ (0.007 mm) whilst its cobalt (Co) content is of a somewhat tenacious quality.

This Co content reveals partial mechanical carbide properties. In fact, the average dimensions of parts that undergo small parts turning are such that low cutting speeds generally have to be applied, thereby dispensing with the use of exceptionally hard carbide. Consequently, the choice of carbide quality is normally around an equivalence of 30 (standards ISO 513 and DIN 4990). Consequently, the cutting speeds are between 30 and 150 m/min. By optimising the choice of surface coatings, even higher cutting speeds could be used.

Cutting geometries

These are directly taken from their predecessor, the CUT 1500 series. We find the following types:

- ◆ 3002 cut < Ø 20.00 [mm] (Plate without cut, SP with chip breaker, SPT 20° positive cut for titanium (Ti) and stainless steel)
- ◆ 3003 front turning (Plate without cut, SP with chip roller).
- ◆ 3004 rear turning (Plate without cut, SP with chip roller, CP Parisian cut).
- ◆ 3005 hobbing and turning (CP Parisian cut and plate without cut with $2 \times R 0.05$).
- ◆ 3006 die chaser with complete section (ISO 60 [°] pitch from 0.35 to 1.75 [mm])

All the cutting geometries have been designed and developed for machining difficult materials or for forming long chips.

Availability

Initially introduced purely as a right-hand version (R), the left hand version (L) will be available from March 2004. The choice of support size will be the same as the R version, namely from 8 x 8 to 20 x 20 [mm].



Fig. 6: Left version (L), from March 2004, with the same features as the right (R) version.

Currently being manufactured is a tool of reduced size to cut short parts, so that the tool can be used between two spindles.

An R cutter insert version with grinding L and vice-versa, will also be available.

Summary

For those operators demanding a higher machine and tool output, CUT 300 is, without a shadow of doubt, the tool range that can provide an output well beyond what is currently available in the small parts turning tool sector. Both with regard to the volume of chips obtained and the useful life of the cutting edge, quite amazing results have been demonstrated to the first users of CUT 3000.

Its stop principle means that the cost of the insert can be halved, because it has two real cutting edges and not a second cutting edge of uncertain stability.

Utilis SA precision tooling in France

The deed has now been done – the Swiss manufacturer of tools for small-parts turning – Utilis SA – established its subsidiary in France at the beginning of last year.

Based in Marnaz in Haute Savoie, Utilis France sàrl, wants to be close to its customer base in the Arve Valley.

With a large stock available from its Multidec® range, Utilis France sàrl, is able to respond to the requirements of its machine tool customers.

The company also distributes Hainbuch products and has a running stock of clamping heads for turning and milling machines.



Organisation of Utilis France sàrl:

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Two new tips for the

TB-DECO!

This latest article will show you how to proceed with excess facing thicknesses and set your own cropping speed.

1. Excess facing thickness and macro G915

This tip will detail the programming for excess facing thicknesses, so that you can rework the front face of the part (guide bush operation using thread chaser 1 or 2) and also discuss the consequences. In fact, programming an excess facing thickness involves an end positioning fault of the unit at Z3. This article will provide a small tip to overcome this imperfection.



Reminder:

Each DECO single-spindle machine has a model incorporating the programming of an excess facing thickness. To select it, simply choose option B of the model referred to as "Finishing the front face" during stage 2, when creating a new part using the assistant (see picture 1).

The excess facing thickness value is added to the length of the part (#3003). An additional original offset G54 on axis Z1 must be programmed prior to the first facing operation.

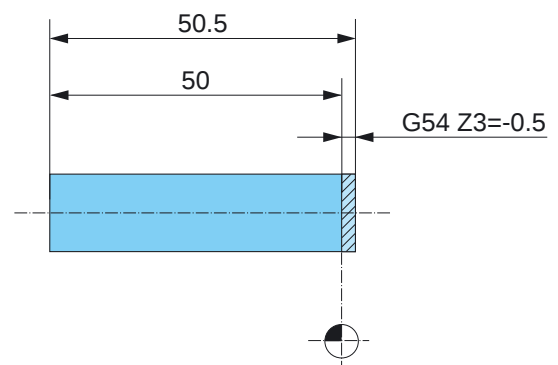
Example:

DECO 13a machine

Part length 50 mm, facing 0.5 mm:

Variable #3003:
#3003= 50.5

G54 to be programmed:
G54 Z1=-0.5



Problem associated with G915:

As the facing operation usually precedes the end operations, we are faced with the following problem:

Positioning of the unit end at Z3 by G915 is distorted. As there is no excess facing thickness, the zero part (front face of the part) is now in a different position. Because the system does not know the value of the excess thickness removed, the machining length executed by the end unit (Z3) will be wrong by a value corresponding to this excess facing thickness. The length or depth of machining will now be too short.

Tip:

In order to overcome this problem, it will be necessary to program an additional original offset G54 on axis Z3 for the operation containing the macro G915. The value of this additional offset is the equivalent of that of the excess facing thickness. Hence, axis Z3 will be corrected and the machining operations will be accurate. The additional offset G54 will be programmed in the negative direction (**G54 Z3=-....**)

Programming :

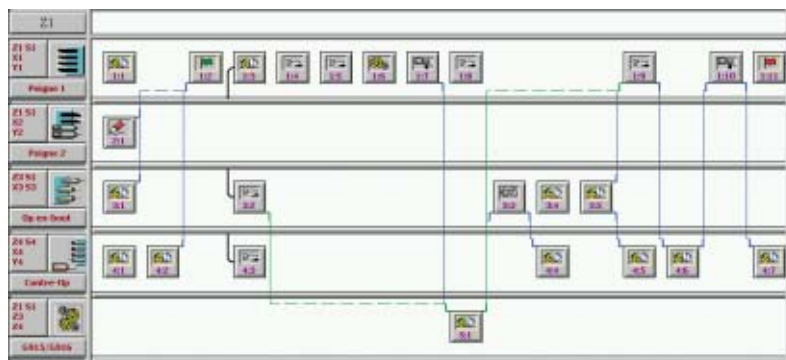
Features:

This tip also applies to all the single-spindle DECO machines. The additional offset must, of course, be added each time the macro G915 is called up.

Operation 1:6 Original offset G54 Z1=-0.5 for part facing

Operation 1:7 Part facing Z1=0

Operation 5:1 G915 + G54 Z3=-0.5



ISO operation code:

Operation 5:1: Macro G915 + G54 Z3=-0.5

ISO code: G915
G54 Z3=-0.5

INTERNET SITE: The www.tornos.ch site will provide you with an example of the program described in this article.

2. New P4 parameter of G914

Description:

G914 P4=speed S1 [rpm] for parting the new bar. By default, the number of revolutions is the value contained in the "Initial spindle speed" window.

Explanations:

P4 will enable you to program a personalised speed, which will be used for parting the new bar in the "NEW_BAR" program. To date, the speed used for cropping the new bar is the value contained in the "Initial spindle speed" window below:

ID	Broche	Vitesse	Etat
1	S1	5000	ON
2	S2	0	OFF
3	S4	0	OFF
4	S5	0	OFF

S1

Vitesse : 5000

Etat : ON

OK Annuler

In some cases, when using tough materials, it is necessary to reduce this speed, especially if the bar ends are damaged. P4 will allow you to overcome this small disadvantage.

Comment:

This new tip applies to all single-spindle DECO machines, from version **6.14/5** TB-DECO onwards.

New service policy at TORNOS:

a further benefit to customers...

To find out more, Deco-magazine met Mr. Joris, manager of Customer Services.

DM: Hello Mr. Joris. We wanted to see you to find out a little more about the latest company policy on services. We've heard things about new services... could you briefly tell us something about these latest issues and why they were implemented at this time?

CJ: Hello. The latest policies consist in creating customer service packages. The choice of service package will relate to a requirement or specific objective of our client. We decided to implement this service range, because the know-how and services have already been available in the company for a long time, but we've never really offered them to our clients. In a few words, we are making good a shortfall by offering our clients the opportunity really to benefit more from any added value.

DM: Consequently, you are updating services. Does this mean that some have not been previously adapted? If so, then why today?

CJ: I'm not going to say that these services were not adapted, but quite simply, we were not equipped to do this and were not in a position to keep promises at this level. With regard to the actual timing, this merely relates to an overall awareness of the situation



by the company (and also as a result of the re-organisation into business units), of the actual importance of the solution we are offering the market. It's no longer a question of selling machines, followed by a customer service. What we are really aiming for is to incorporate fully the solution offered to our clients.

DM: And as regards the client, what has changed in concrete terms?

CJ: The main point is that the service is changing from a reactive situation to a pro-active situation. Based on the packages offered, TORNOS is actually achieving pre-

vention rather than repair. Besides the standard service levels, we can now offer two additional levels. The conventional level, which is intended for customers who cannot wait (see box). The advanced level, the aim of which is to increase the efficiency of fleets of machines (see box).

DM: But excuse me, if, as a TORNOS customer, I do not subscribe to any of these new types of services, will this mean that I will no longer be served with the same level of efficiency as today?

CJ: Absolutely not! The additional services are as well as the added val-

ue we are providing, together with the basic service, which will not be affected in any way !

DM: Then if nothing is changing, aren't you a little anxious that the packages won't take off? Why pay more ?

CJ: You shouldn't really ask this question in this way. We can actually provide much more with tried and tested solutions. To illustrate this, I would say that no one would be surprised to travel by train in a class he has selected and see a difference compared with the other class. It is not merely a question of the same services. The aim of these programmes is to increase the rate of efficiency of TORNOS machines at the client's premises by providing the client with the work and services already available at TORNOS, in the form of predefined packages.

DM: As regards organisation, will this lead to changes ?

CJ: For our clients, everything is quite transparent and their contacts will remain the same. In terms of operation, it is clear that we had to incorporate some business units in order to achieve this "overall vision". The company's new philosophy has helped us a lot. I should also point out that this type of service package is already up and running in many other industrial sectors and aims essentially at providing its clients with even more added value.

DM: With regard to machine warranties, would this mean that modifications have to be made because of these contracts ?

CJ: Certainly not. The inspections have nothing to do with extending machine warranties. The contracts are concluded on an annual basis and can be taken out at any point during the useful life of the machine.

DM: Are we talking about machine contracts or contracts for fleets of machines ?

CJ: All is quite possible, but it is obvious that taking out fifteen individual contracts for fifteen machines would be less interesting for the client than to take out a contract covering his machine fleet. However, we are pleased to give advice on any issue concerning this topic.

DM: When are these new programmes scheduled to start and what are your aims ?

CJ: The programmes will come into force with effect from 2004, meaning that the clients can start subscribing with immediate effect. Our objective is to enhance know-how and offer more to our clients. I can't put any figure on targets but what I can say is that the process is

implemented on the basis of facts and figures. We shall continuously monitor efficiency and reactivity and so on, with the aim of really guaranteeing a process that is improved automatically. We want our clients to succeed with us !

DM: Will these new services apply throughout the world ?

CJ: Initially, these programmes are intended for clients in countries where TORNOS has a subsidiary and in Switzerland (editor's note: France, Germany, Italy, Spain, United Kingdom, USA). Not all the agents are necessarily 100 % equipped to carry out the complete programmes. Where customers in these countries are interested, it will be necessary to discuss the solutions on a case-by-case basis.



New service policy at TORNOS:

a further benefit to customers...

Interested customers should contact their usual agents, whether they are located in a subsidiary or agency.

DM: I would like to thank you Mr. Joris, for your explanations, clarifying the "TORNOS solution" for the future. Would you like to add a few words in conclusion?

CJ: It is our vision to provide a customer service based on customer requirements and act as the customer spokesman within TORNOS. Our programmes meet this requirement. We would really like to provide that little bit extra to our clients. To ensure that these programmes are properly implemented, we organised additional training for all our relevant engineers, so that we can also guarantee optimum performance at this level. We firmly believe that these new services will provide added value and would invite the operators to communicate their experiences.

DM: If you would like further information on these programmes, please contact your usual TORNOS agent or send an e-mail to the editor's office at decomag@tornos.ch which will then deal with this.



STANDARD TORNOS SERVICES

TORNOS service to help you plan for the future

- ◆ A free direct line for one hour with Technical Support from Monday to Friday, during office hours
- ◆ On-site after-sales service
- ◆ Original spares dispatched within 48 hours
- ◆ Twelve months' warranty for new equipment
- ◆ Six months' warranty on spares
- ◆ Study of part execution time with client ⁽¹⁾
- ◆ Preventive maintenance programme from Monday to Friday ⁽¹⁾
- ◆ On-site inspection of machine fleet
- ◆ Customer training centre in Switzerland and in the subsidiaries ⁽¹⁾
- ◆ Operators and maintenance training programmes on site or in Switzerland ⁽¹⁾
- ◆ Test centre for client parts in Switzerland ⁽¹⁾

¹ request a quotation

CONVENTIONAL TORNOS SERVICES

Complete TORNOS service where you cannot afford to wait.

This package includes the following services :

- ◆ Original spares dispatched on the same day
- ◆ Free part execution time study by contract
- ◆ Preventive maintenance programme from Monday to Friday inclusive
- ◆ Free inspection of the equipment used for the preventive maintenance programme, plus recommendation of spares, to include a 5 % discount



ADVANCED TORNOS SERVICES

TORNOS provides a complete service aimed at improving efficiency this package includes the following services :

- ◆ Free direct and unlimited line from Monday to Friday with Technical Support from Monday to Friday during office hours
- ◆ Priority emergency service with on-site engineer
- ◆ Original spares dispatched on the same day
- ◆ Free part execution time study, by contract
- ◆ Preventive maintenance programme from Monday to Friday inclusive
- ◆ Free inspection of the equipment used for the preventive maintenance programme, plus recommendation of spares, to include a 5 % discount
- ◆ Free upgrade of TB DECO and CNC software during the preventive maintenance programme
- ◆ Free training programme for 5 days for a client in Switzerland or at the subsidiaries.

Trade fairs 2004

Several opportunities to discover the targeted TORNOS solutions !

The trade fair scene is constantly changing, with new events continuously adding to the range on offer by the machine manufacturers, giving the latter with the opportunity to meet their clients and provide them with even more information. Notwithstanding the "non-EMO" year, TORNOS has now whittled down its choice from the vast array of trade fairs, so that it can continue to offer added value to its solutions. The company will be pleased to see you in several countries at almost 40 events.

Apart from the new products, like the MULTIDECO 20/6b for example, this year's objective is for the company to adopt a very targeted approach for each sector of activity under the slogan **"Think parts – Think TORNOS"** and to continue along these lines, which were first conceived at the EMO.

This also explains why the company is participating in highly specialist trade fairs "per sector of activity", such as MDT or MedTech, in the medical sector, for example.

You will see from the tables below, that certain areas of activity frequently recur. However, the solutions developed by the company to respond to the problem are not the only ones offered by the company! A targeted "car" trade fair, for example, does not mean that TORNOS cannot provide solutions for the other sectors !



**TORNOS would be delighted to see you...
anywhere in the world !**

Would you like more information on the trade fairs or the solutions proposed ?

Please do not hesitate to contact your normal dealer or visit the company's website on: www.tornos.ch

Note: The information in the tables relating to the trade fairs was accurate at the time of going into print. However, TORNOS reserves the right to change their machines or areas of activity at any time and would ask that you contact your nearest dealer if you have any queries.

Medical



Name of exhibition	Country	Dates	
		from	to
NORTEC – Hamburg	Germany	21.01	24.01
SAMUMETAL – Pordenone	Italy	05.02	09.02
MDT – Birmingham	UK	11.02	12.02
SIMODEC – La Roche sur Foron	France	02.03	06.03
MEDTEC – Stuttgart	Germany	09.03	11.03
MACH – Birmingham	UK	19.04	23.04
MTA / METALASIA – Kuala Lumpur	Malaysia	05.05	09.05
SIAMS – Moutier	Switzerland	11.05.	15.05
BIEMH – Bilbao	Spain	07.06	12.06
EMAH – Buenos-Aires	Argentina	14.10	19.10
BIMU – Milan	Italy	October 2004	
ENQUIP – Dublin	Ireland	October 2004	
METALWORKING – Shanghai	China	12.10	15.10
MAQUITEC – Barcelona	Spain	19.10	23.10
MEDICA – Düsseldorf	Germany	November 2004	
EMAF – Porto	Portugal	10.11	14.11
PRODEX – Bâle	Switzerland	16.11	20.11

Car



Name of exhibition	Country	Dates	
		from	to
SAMUMETAL – Pordenone	Italy	05.02	09.02
SIMODEC – La Roche sur Foron	France	02.03	06.03
TECHNI SHOW – Utrecht	Holland	16.03	20.03
INDUSTRIE 2004 – Paris	France	22.03	26.03
VENETA MECCANICA – Padova	Italy	April 04	
MACH – Birmingham	UK	19.04	23.04
SIAMS – Moutier	Switzerland	11.05	15.05
BIEMH – Bilbao	Spain	07.06	12.06
METAV – Düsseldorf	Germany	15.06	19.06
GEWATEC – Wehingen	Germany	01.07	03.07
AMB – Stuttgart	Germany	14.09	18.09
IMT'04 – Brno	Czech Republic	20.09	24.09
MICRONORA – Besançon	France	28.09	01.10
BIMU – Milan	Italy	October 2004	
METALWORKING – Shanghai	China	12.10	15.10
TORNOS FRANCE – St Pierre en Faucigny	France	18.10 ?	23.10 ?
MACHINE TOOL – Stockholm	Sweden	19.10	23.10
MAQUITEC – Barcelona	Spain	19.10	23.10
PRODEX – Bâle	Switzerland	16.11	20.11

Trade fairs 2004

High precision



Name of exhibition	Country	Dates	
		from	to
MDM WEST – Anaheim	USA	06.01	08.01
IMTEX – Bombay	India	28.01	03.02
MONDIALE DES METIERS – Lyon	France	29.01	01.02
SOUTHTEC – Charlotte, NC	USA	02.03	04.03
CINTERMEX – Monterrey, MX	USA	02.03	04.03
BORDERLAND TRADE SHOW – El Paso, TX	USA	16.03	17.03
WESTEC – Los Angeles, CA	USA	22.03	25.03
INDUSTRIE 2004 – Paris	France	22.03	26.03
MACH TECH – Budapest	Hungary	May 04	
HOUSTEX – Houston, TX	USA	04.05	06.05
HEGMAN OPEN HOUSE – in Mn	USA	18.05	19.05
METALOBROBOTKA – Moscou	Russia	24.05	29.05
EASTEC – Springfield, MA	USA	25.05	27.05
MACHTOOL – Poznan	Poland	June 2004	
WESTERCO MFG. & TECH SHOW	USA	01.06	01.06
BIEMH – Bilbao	Spain	07.06	12.06
MDM East – NY	USA	15.06	17.06
IMTS – Chicago, IL	USA	08.09	15.09
AMB – Stuttgart	Germany	14.09	18.09
MDM MINNEAPOLIS – Minneapolis, MN	USA	October 2004	
PACIFIC COAST – Santa Clara, CA	USA	October 2004	
ENQUIP – Dublin	Ireland	October 2004	
TORNOS FRANCE – St Pierre en Faucigny	France	18.10 ?	23.10 ?

Electronics



Name of exhibition	Country	Dates	
		from	to
SIMODEC – La Roche sur Foron	France	02.03	06.03
MACH – Birmingham	UK	19.04	23.04
METAV – München	Germany	27.04	30.04
MICRONORA – Besançon	France	28.09	01.10
METALWORKING – Shanghai	China	12.10	15.10
TORNOS FRANCE – St Pierre en Faucigny	France	18.10 ?	23.10 ?
JIMTOF – Tokyo	Japan	01.11	08.11
PRODEX – Bâle	Switzerland	16.11	20.11

Europe

Name of exhibition	Country	Dates	
		from	to
NORTEC – Hamburg	Germany	21.01	24.01
MONDIALE DES METIERS – Lyon	France	29.01	01.02
SAMUMETAL – Pordenone	Italy	05.02	09.02
MDT – Birmingham	UK	11.02	12.02
SIMODEC – La Roche sur Foron	France	02.03	06.03
MEDTEC – Stuttgart	Germany	09.03	11.03
TECHNI SHOW – Utrecht	Holland	16.03	20.03
INDUSTRIE 2004 – Paris	France	22.03	26.03
VENETA MECCANICA – Padova	Italy	April 04	
MACH – Birmingham	UK	19.04	23.04
METAV – München	Germany	27.04	30.04
MACH TECH – Budapest	Hungary	May 04	
SIAMS – Moutier	Switzerland	11.05	15.05
MACHTOOL – Poznan	Poland	June 2004	
BIEMH – Bilbao	Spain	07.06	12.06
METAV – Düsseldorf	Germany	15.06	19.06
GEWATEC – Wehingen	Germany	01.07	03.07
AMB – Stuttgart	Germany	14.09	18.09
IMT'04 – Brno	Czech Republic	20.09	24.09
MICRONORA – Besançon	France	28.09	01.10
BIMU – Milan	Italy	01.10	06.10
ENQUIP – Dublin	Ireland	October 2004	
TORNOS FRANCE – St Pierre en Faucigny	France	18.10 ?	23.10 ?
MACHINE TOOL – Stockholm	Sweden	19.10	23.10
MAQUITEC – Barcelona	Spain	19.10	23.10
MEDICA – Düsseldorf	Germany	November 2004	
EMAF – Porto	Portugal	10.11	14.11
PRODEX – Bâle	Switzerland	16.11	20.11

USA

Name of exhibition	Country	Dates	
		from	to
MDM WEST – Anaheim	USA	06.01	08.01
SOUTHTEC – Charlotte, NC	USA	02.03	04.03
CINTERMEX – Monterrey, MX	USA	02.03	04.03
BORDERLAND TRADE SHOW – El Paso, TX	USA	16.03	17.03
WESTEC – Los Angeles, CA	USA	22.03	25.03
HOUSTEX – Houston, TX	USA	04.05	06.05
HEGMAN OPEN HOUSE – in Mn	USA	18.05	19.05
EASTEC – Springfield, MA	USA	25.05	27.05
WESTERC MFG. & TECH SHOW	USA	01.06	01.06
MDM East – NY	USA	15.06	17.06
IMTS – Chicago, IL	USA	08.09	15.09
MDM MINNEAPOLIS – Minneapolis, MN	USA	October 2004	
PACIFIC COAST – Santa Clara, CA	USA	October 2004	

Rest of the world

Name of exhibition	Country	Dates	
		from	to
IMTEX – Bombay	India	28.01	03.02
MTA / METALASIA – Kuala Lumpur	Malaysia	05.05	09.05
METALOBROBOTKA – Moscou	Russia	24.05	29.05
EMAQH – Buenos Aires	Argentina	14.10	19.10
METALWORKING – Shanghai	China	12.10	15.10
JIMTOF – Tokyo	Japan	01.11	08.11

New options :

Milling for inclined implants for DECO 13a

Inclined Milling for bar machining.



Inclined Milling for counter spindle machining.



Application

These two new options, which are connected to specific macros, mean that the company can now provide pertinent responses to trends in implantology (see also DECO Magazine 27). The complexity of geometric shapes to be executed by milling these particular types of parts, is mastered by combining two elements, i.e. :

1. Milling sub-programs to assist compound programming (calculating the miller machining path by contouring and interpolating 3 axes (x, y, z).
2. Inclinaible millers to execute the inclined section from the bar (through the guide bush) or in hidden time, in back-operation mode (counter-spindle).

This principle allows all manufacturers involved in implant production to benefit both from the high production output of the DECO and from all the machining options for inclined implants.

Main benefits of the process developed by TORNOS.

- ◆ Machining implants without having to rework the part, including deburring.
- ◆ Facility to execute rough and finishing milling cycles on the inclined part, leading to superior surface qualities.
- ◆ Back-operation machining in hidden time to reduce the overall machining cycle times for the implant.
- ◆ High performance tool lubrication and chip removal by the additional 15 bar sprinkler pumps (option 5255) or the high pressure sprinkler pumps 120 bars (option 5013).
- ◆ Skilled team of engineers and computerized tools to define part feasibility with the client.

Specific macros for milling implants.

- ◆ Allow simplified programming of the contour undergoing milling in several "rough and finishing" cycles.
- ◆ Defines the number of milling points.
- ◆ Programmable feed rate (mm or inch / min).
- ◆ Automatic calculations based on the implant cone incline.

Compatibility: DECO 13a



Technical characteristics

Variable mechanical incline units based on the angle of implant incline.

Machining the inclined part from the bar

- ◆ Assembly positions: thread chasers 1 and 2
- ◆ Machine incline: 0 – 90 degrees
- ◆ Max. speed: 8000 rpm
- ◆ ESX12 clamp - capacity: 7 mm
- ◆ Supplied with specific support



Machining the inclined part in back-operation (hidden time)

- ◆ Assembly positions: T51– T53 max. 2 machines
- ◆ Machine incline: 0 – 90 degrees
- ◆ Max. speed: 6000 rpm
- ◆ ER 11 clamp: 0.5 – 7 mm



Macros

- ◆ Milling the inclined cone with joint perpendicular to the part axis (G954)
- ◆ Milling the inclined cone with joint perpendicular to the cone (G955)
- ◆ Elliptical milling by polar co-ordinates (joint G956)

RAVINET INDUSTRIES

ever more efficient...

The beginnings of numeric control at RAVINET Industries go back to 1998, a year, which saw the creation of a highly efficient team serving its clients.

Against the background of stagnating, if not falling, sales prices for small turned parts and in view of the constantly soaring production costs in the French industrial sector, this company implemented a policy based on investments in technology to secure its future and retain the confidence of its clients.



Could you describe your activities and how RAVINET INDUSTRIES is organised?

The activities of RAVINET Industries are in turning small parts, from 2 to 65 mm, of which 2 to 32 mm are machined on TORNOS DECO 2000 lathes, in all materials, from small to medium series runs (from 500 to 50000 parts).

We work for all sectors of activity with the largest being the car industry (approx. 35 %), followed by hydraulics...

The bulk of parts processed by RAVINET are destined for export, mainly to the countries of northern Europe.

RAVINET Industries employs 16 staff and is managed by the family, comprising the father, Christian, chairman and managing director of the company, Alban who is in charge of the commercial side, Steve who is in charge of the technical sector and finally, Ludovic who is responsible for methods and quality.

It is the quality aspect, which, at the end of the day, led to the company's rapid growth.

Such an organisation means that the company's output is very high, thereby enhancing the company's response rate.

Alban RAVINET, former trainee at the managers' school and director of RAVINET Industries, based in an ultra-modern plant in THYEZ since July 2003, will be answering our questions:

How did RAVINET Industries start out?

At the time, the RAVINET company was seeking to develop both at commercial and technical level.

The first goal was quickly achieved through the purchase of three small parts turning companies in the Arve valley. These were small companies, whose machine fleets

essentially comprised conventional cam-operated lathes.

The breaking-up of batches and trend towards machining tougher and tougher materials led us to review our policy of in-house production, essentially focussing on blanks undergoing small parts turning and highly complex re-working operations.

This organisation, however, meant that we were unable to react quickly enough to the benefit of our clients.

In 1998 the decision was taken to use NC lathes to machine parts.



This response, which is further improved by our fleet of 10 DECO 2000 lathes, with a capacity of 32 mm, together with two GILDEMEISTER lathes with a capacity of 65 mm, mean that we can change series quickly, thereby responding efficiently to our customers' requirements.

And why TORNOS and DECO 2000 lathes ?

We chose TORNOS on account of its good reputation and the professional approach adopted by its team in France and, above all, on account of the productivity and flexibility of the DECO 2000 concept.

What made us invest in our first ever DECO 2000 lathe was that it could produce a series run of 1 million parts, with a cycle time of 10

parts per minute from steel with a diameter of 19 mm !

The unique kinematics of the DECO 2000 lathes meant that we could save 300 m² of surface area, which was previously dedicated to reworking. Reworking is now carried out directly on the lathe therefore saving time and eminently coping with work-in-progress that had previously been difficult to manage.

The CNC lathes provided us with the flexibility required, as well as the level of quality that has now become compulsory and evident in our sector.

Where does RAVINET Industries stand with regard to quality ?

Thanks to our organisation and the fleet of machine tools in our workshop, we were awarded certifica-

tion to ISO 9001/2000 and are now striving towards achieving the ultimate standard, ISO TS16949 for 2005.

This step goes hand in hand with our consistent increase in sales in the car sector and supports our unwavering, voluntary commitment to develop exports.

These projects were made possible thanks to the support of all the colleagues in RAVINET Industries and the rapid exploitation of the DECO 2000 system.

And furthermore...

In our very much future-orientated company, the output of the NC lathes was optimised to the extreme:

The cumbersome handling operations have now been reduced to an absolute minimum and the automation around the machines has been increased to a maximum, thereby leading to optimum output.

The bars are now conveyed directly from the lorry to the lathe by a pulley block system.

With respect to average and somewhat larger series runs, the bundles of materials are directly controlled by the bar feeder that supplies the lathe.

The increased autonomy means greater weekly production output, thereby benefiting the client directly.



RAVINET INDUSTRIES

ever more efficient...

On leaving the lathe, the parts are directly conveyed on belts to continuously monitored containers, thereby providing the necessary degree of traceability.

In order to increase tooling autonomy, the oil is constantly filtered and cooled on the machines, from which the oil vapour is automatically evacuated.

The workshop is air-conditioned to make it more pleasant for the engineers and to provide reliable machine operation over a period of time.





Assessment of the DECO 2000 machines after 6 years' operation

It can clearly be seen that the latest DECO 2000 lathes eradicated the few teething problems that appeared with the first lathes, which operated on a 24-hour basis, almost 6 out of 7 days, at high production outputs of between 2 and 3 parts per minute on average.

The progress demonstrated by these latest machines in production, convinced us to remain with TORNOS in the future. As for the new generation DECO 2000 lathes, they will be a bonus for our operators, who have become somewhat forgotten in their user-friendly working atmosphere.

The lathe peripherals, like the chip conveyors, HP pumps and other tooling, now provide greater efficiency and working comfort, which, in the long-term, is quite significant.

The upgrade to the TB-DECO software and its use in the workshop makes a significant contribution towards safety and rapid assembly especially for those lathes operating 4 tools simultaneously.

And the future ?

As already explained, these consistent and decisive investments for the company now place RAVINET Industries at high output level. But the company must nonetheless strive to achieve even more!

Our line of development has already been established and is marked by the continuing and long-term relations with the TORNOS company. The changes to the single-spindle and multi-spindle TORNOS lathes, coupled with our know-how, mean that we can conquer new markets together.

We wish RAVINET Industries and its colleagues much success in the future and hope that the company will remain a major partner in this wonderful industrial success story.



A cutting oil for all occasions:

MOTOREX SWISSCUT ORTHO NF-X

Anyone who wanted to machine high-alloy steel, non-ferrous metal or even castings with a high-performance cutting oil, could not avoid having to operate separate production lines or make compromises. The Swiss lubricants company, MOTOREX, has recently been offering a high-performance cutting oil suitable for all materials.

Some may say, "universal cutting oils have been around for a long time". This is quite true, but the user had to take certain disadvantages on board with these multi-talented fluids. Compromises, such as lower cutting speeds and feed values etc., quickly had an effect on productivity. Many took the lesser evil on board and topped up the machine again. The fact that such scenarios no longer fit in the present day is almost self-evident. In introducing the new "max-technology (increasing the cutting data and hence productivity) MOTOREX has acknowledged the needs of the industry and now offers a complete novelty within the SWISSCUT ORTHO family: the high-performance cutting oil, MOTOREX ORTHO NF-X.



Dramatically improved flexibility

Anyone who frequently has to produce small and medium-size series, is acquainted with the great advantage of being able to deploy the fleet of machines in an optimum way. We all know that today, customers' deadlines are fixed requirements, which have a marked influence on the successful conclusion of the order. This fact requires maximum flexibility from the small part turners and new solutions from suppliers.

With the new type of machining fluids of the "max-generation, MOTOREX has skilfully made the re-

quest for improved productivity, longer tool life and optimum machining results, a reality. A further concern that was aired in a survey was the reduction of the number of tools and lubricants needed for production. SWISSCUT ORTHO NF-X matches this latter request perfectly.

SWISSCUT ORTHO NF-X One for all

The recent development of ORTHO NF-X means that for the first time in more than 30 years' history of MOTOREX AG, all materials, degrees of complexity and operations can be covered by just one cutting oil. The product is free from chlorine and heavy metals and is available in

three ISO viscosity classes: ISO 10, 15 and 22. It is suitable for machining:

- ◆ Steels, which are extremely difficult to machine
- ◆ Non-ferrous metals
- ◆ Aluminium
- ◆ Castings
- ◆ Plastics etc.

Chemical synergy effects produced by heat

Up to now the concern has always been to dissipate and avoid heat as efficiently as possible. With the new "max-technology" from MOTOREX this has now changed. A clearly defined high temperature at maximum production speed can trigger desirable chemical synergy effects

MOTOREX SWISSCUT ORTHO NF-X



The "max-technology" from ORTHO NF-X lies in special additives, which are only activated at specific temperatures. This means that all materials, ranging from stainless steel through brass to aluminium, can be machined with optimum cutting data.



Parts made from non-ferrous metal heat up much less than those parts made from steel that is difficult to machine. In both cases, MOTOREX ORTHO NF-X has proved itself and guarantees outstanding surface quality.

at the decisive moment in the machining process, thereby making an exponential increase in output possible in the first place. A balanced package of additives in ORTHO NF-X is responsible for this. More than a dozen active substances make it possible to achieve such optimised cutting values and perfect surfaces in a wide variety of materials.

Anyone who frequently intends to machine materials on particular machines will find in the new SWISSCUT ORTHO NF-X the ideal, low-vaporisation, high-performance cutting oil that is also gentle on the skin. The newly acquired flexibility is also supplemented by a measurable increase in output in conjunction with MOTOREX "max-technology."

We will be pleased to give you further information about the new MOTOREX "max-technology" and the SWISSCUT ORTHO cutting oils and recommend that you conduct a practical test at your plant:

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