

# PRESS RELEASE

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## Real machining solutions for practitioners

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**A machine-tool manufacturer for more than 130 years, Tornos has vast expertise in machining workpieces, from straightforward to highly complex, on automatic single-spindle and multi-spindle turning machines. This experience is demonstrated not only by a large range of ultra high-performance machines, but also by our machining solutions dedicated to different market sectors. Thanks to this approach, producers of components for the medical, micromechanical, automotive and electronics industries can choose the production tool most suited to their needs.**

### **A chuck on the counter spindle**

Tornos is introducing a number of new features for the **medical** industry. The **DECO 20a** single-spindle automatic turning machine with sliding headstock is now available with a chuck on its counter spindle, which increases its ability to grip, a not insignificant point when you are looking for increasingly advanced levels of flexibility. Its orthopaedic thread-whirling system is designed for machining at increased cutting speeds, leading to a vast reduction in the time needed to manufacture a part.

The fact that it is possible to carry out high pressure drilling of deep holes on this turning machine, both as an operation and as a secondary operation, makes this machine a particularly suitable production tool for medical parts. Not forgetting the automatic swarf and cutting oil filtration peripherals; these are elements which allow maintenance to be significantly reduced, thus increasing productivity. The quality of the surface finish is thereby improved and the service life of the cutting tools increased.

With the **Tornos Almac FB 1005**, a milling machine for machining three-metre bars, Tornos completes its range for the **medical** industry. The company, which has lengthy experience in the medical-dental domain, has designed this machine particularly with this industry in mind, although this milling machine – equipped with Fanuc 31i-6 axis CNC control system – allows a wide range of other components to be machined. In this machine, which offers completely autonomous operation, the bar is allowed to tilt and turn on itself. This incredible ability allows the user to machine workpieces of an unprecedented level of complexity and, of course, in their entirety. The sixth face can also be machined, demonstrating the ease with which it can produce finished parts with a precision down to less than a hundredth of a millimetre.

This milling machine has up to sixteen spindles, conveying the tools rapidly to the machining area, thus significantly reducing non-productive time. Its autonomy is so great that it can work without being monitored, even throughout the night. A large range of options, such as a system for detecting tap breakage, complete the offer for this milling machine.

### **Ever greater precision**

The **Tornos Almac CU1005** machining centre, a machine primarily designed for manufacturing parts for the **micromechanical** industry, is a well-proven piece of equipment. Its design has now been completely overhauled and this has led to a new model: the **Tornos Almac CU1007** which has 3 to 5 axes and can be equipped with a 6-axis robot. This machine, with its high level of temperature stability and its cubical Z slide and four guide rails, guarantees a machining capacity within tolerances to the  $\mu\text{m}$ . It is equipped with a Fanuc Oi MD CNC control system. Despite having a tool changer which can house up to 64 tools, it has surprisingly low space requirements. This machining centre is well provided with basic equipment to make it a machine that is immediately ready for set-

up and production. As an option, a loading and unloading robot can be added to this machining centre, along with a second "mirror" CU 1007 which gives it incredible autonomy.

Also designed for the **micromechanics** industry, the **DECO 10 e** multi-spindle automatic turning machine with sliding headstock is available as a "more straightforward" model, without compromising in terms of precision or productivity. This turning machine benefits from a new tool and equipment design which increases the number of available tools by 50%. The machining possibilities are thereby greatly increased when working with the guide bush and for secondary operations, which is a useful plus point.

#### **"Chucker" or no "chucker"?**

Due to the variations in the cost of raw materials, every subcontractor is starting to wonder the same thing, especially those working in the **automotive industry**: would it be more useful to machine workpieces from a bar or a chucker? Tornos has addressed this question with its **MultiSigma Chucker** multi-spindle automatic turning machine, designed to machine workpieces in the form of forged or formed parts. The machine is loaded in 4.5 seconds by a robot which offers up the rough-finished workpieces, angled not by a gripper collet but by a chuck, which provides greater flexibility when gripping each new workpiece. The machined parts are unloaded using a manipulator able to place the parts in pallets or another container.

So as to further increase its productivity, this automatic turning machine can be equipped with one or two counter spindles, a significant benefit if you hope to further improve the machine's productivity.

To provide yet another useful option: this machine is available in a 2 x 4 version. This means that two straightforward workpieces can be machined in parallel, further increasing productivity. Thanks to its high level of flexibility, this turning machine is equally suited to machining long and short production runs.

And this turning machine has yet another advantage: depending on the fluctuations in the raw materials market, it may make more sense to machine from bars. In addition, the "chucker" version of the MultiSigma does not require any modification of the turning machine itself, which gives the user complete freedom to 'transform' it into a turning machine for machining bars. All that is needed for this is to simply equip the machine with a bar feeder. Every subcontractor's workshop can benefit from this incredible flexibility.

#### **Delta: the economical solution.**

With the **Delta 20/5** CNC single-spindle automatic turning machine with sliding headstock, Tornos is offering an economical means of production for producing parts for sectors as diverse as the electronics and automotive industries, and for subcontracting in general. This turning machine, on show for the first time at Siams 2008, is designed for creating straightforward to moderately complex parts. The turning machine is available in versions with 3, 4 and 5 linear axes. It is available in 12mm and 20mm versions and is offered in "pack" form, containing a more or less complete range of equipment, able to fulfil the precise needs of its users. The model shown is the most complete machine in the range with 5 numerical linear axes and one C axis on the main spindle. The equipment also includes a rotating 3-spindle device for working with bars, a powered guide bush with an integrated motor which allows the user to machine workpieces up to 170mm in a single clamping operation. Another important benefit is the option allowing the user to work with and without a guide bush. For some workpieces with a favourable diameter/length ratio, being able to work without a guide bush is of benefit, especially considering the savings in terms of the quality of the bars and the maximum use made of the length of the bar.

With Delta, Tornos can offer a complete line of turning machines for all manufacturers of bar turning workpieces who are looking for modern production equipment with a highly competitive price/performance ratio.

#### **World first for turning machines...**

At the EMO in Milan, Tornos is presenting a world preview of its **Gamma 20** single-spindle turning machine. This extremely versatile turning machine is the ideal solution for machining all types of workpieces up to 20 mm in diameter. It is designed for widespread use in various sectors of activity, such as the automotive, electronics and medical industries. To enable this, the turning machine has two independent tool systems which can house a large number of turning tools, and also driven tools for drilling, milling and other operations.

The **Gamma 20** turning machine is available in a 5- or 6-axis version, with both models able to work with or without a guide bush so that it can be optimally adapted to the requirements of the workpiece. The 6-axis turning machine, known as the **Gamma 20/6**, sets itself apart from the 5-axis version by having a greater number of tools and increased options during secondary operations thanks to the addition of a Y4 axis on the secondary operation unit. Fitted as standard with an easy-to-operate Fanuc 31i type A control system, which is designed to manage high performance machines and complex operations. **Gamma 20** is extremely ergonomic and easy for the operator to access. In addition to the increased standard equipment, the new turning machine in the Tornos line is available with a large range of equipment and accessories all at a competitive price.

### **...and introduction of a new concept in machine control**

Software created for bar turners by bar turners, this was the aim behind DECOdrive when the project was launched a few years ago by Tornos engineers as a successor to the celebrated TB-Deco software. This new high-tech concept will be available on new Tornos single-spindle products which integrate the built-in PC technology. Programming will then be possible on the machine or on an office PC, with transfer provided by a network connection or USB port. DECOdrive will offer not only numerous benefits when programming machines, but will guide bar turners throughout the set-up and production processes. Future Tornos machines are firmly oriented towards "zero set-up time", "zero faults" and "zero availability delays".

To meet these three challenges, the concept offered here is subdivided into 3 solutions benefiting from a shared interface, namely:

- DECOdrive Programmer
- DECOdrive Operator
- DECOdrive Services

The programming part of DECOdrive uses the concept of precalculation of movements taken from TB-DECO, which allows cycle times to be minimised. Our customers will be able to use either ISO, graphic or macro languages for programming. Amongst other benefits, it will also be possible to display the machines and their movements in 3D, along with the complete workpiece machining process. The user will therefore be able to get a virtual overview of the workpiece to be machined. The 3D motor is also accompanied by a "collision check" module, which allows accidental collisions between the various pieces of machine equipment to be avoided.

DECOdrive Operator will provide the operator with a step-by-step aid when starting production with the machine. Thanks to the built-in PC, it will now be possible to optimise the programme on the machine with the same interface, and management of production is also integrated into DECOdrive Operator, thus allowing the production status of the machine to be checked in detail. Predictive maintenance components will also be included in this module.

Finally, the Service module provides an active aid in the event of any problems with machines, with clearly identified alarms, and an active aid is also provided to guide the operator step-by-step towards the resolution of their issue. DECOdrive will also allow alert emails to be generated for machine shutdowns, when a compatible network is used. The service part of DECOdrive will also allow different access rights to be defined.

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