

Nomination for the Exhibitors' Grand Prix – Tornos SA

Summary of our innovation:

For the Exhibitors' Grand Prix, Tornos is proud to present its Tornos SwissDECO 36 TB machine. The SwissDECO range concentrates more than 100 years of experience in a single machine. More than simply a range of machines, it is a vision of the future of bar turning. All equipped with 3 independent tool systems, SwissDECO machines are designed to offer their users unparalleled flexibility, whilst remaining exceptionally easy to use. In particular, the SwissDECO 36 TB is equipped with a B axis on the turret, to transform the machine into a turning/milling solution giving users the ability to perform complex milling operations on a single machine. The machine can also perform machining operations on five simultaneous axes. It is also possible, as on the t version, to adopt the quick-change tooling system. The machine is quite simply the most powerful in its category, in terms of its spindles, rotating tools and the machining length possible. Available in a 25.4 mm or 36 mm diameter, the machine offers 57 tool positions, 36 of which can be rotating tools.

The SwissDECO features the latest innovative version of TISIS: in addition to enabling programming, this software can also be used to control the SwissDECO. As a result, the machine is now capable of calculating the actual machining time with great accuracy. This means that our customers can now produce highly precise offers and more meticulous production planning. TISIS Optimove offers a multitude of additional advantages. The most important of these lies in the reduction of machining times. Just like TB-Deco, TISIS Optimove calculates the ideal tool path and the ideal feed rate for each tool. This may occasionally give the impression that the machine is slow, but the numbers don't lie: thanks to its three systems, the productivity of the machine is excellent. TISIS Optimove enables time savings of almost 25% in some cases. Add to this the 11% reduction in electricity consumption, and this solution is undoubtedly able to deliver significant added value to its users without human intervention. Another advantage lies in the reduction of mechanical wear. In fact, thanks to the optimisation of travel, unnecessary acceleration is eliminated, thereby protecting the mechanical system, while vibration and interference are avoided during the machining process.



Further information:

Outstanding performance

Based on the structure that is the hallmark of the entire SwissDECO range, the SwissDeco 36 TB has a high-power spindle and an ultra-rigid cast machine base equipped with extra-large guiding elements, allowing the user to leverage the full potential of the machine. In combination, these characteristics mean that the machine can withstand high loads even when machining the toughest materials.

Comprehensive equipment

The SwissDECO 36 TB can be equipped with 57 tools including 36 driven tools. "Today, a Swiss GT-type machine is also impressively equipped with a B axis and a number of tools, even if it has fewer tools than the SwissDECO. But the SwissDECO opens up a new era. The first noteworthy difference — besides the extremely rigid machine structure — is perhaps the SwissDECO 36 TB's 36 mm machining diameter. If the user opts for the 36 mm spindle, the solution's 53 Nm of torque is simply titanic; even the 25.4 mm diameter spindles deliver more than 27 Nm of torque. The machining capabilities of the SwissDECO 36 TB are really impressive — to such an extent that we can turn parts based on the parameters used for machining with a fixed headstock even if the machine is operated close to its limits. Furthermore, Tornos builds ease of use into its solutions. Since we want our customers to easily achieve success in their applications, we provided our machine with long axis strokes and the market's fastest and most powerful driven tools. Our SwissDeco 36 TB manufactures the workpieces required while ensuring perfect management. We offer various solutions for workpiece ejection, whatever the part's dimensions. Nevertheless, the machine is easy to use and set up, even during machining of complex workpieces. Furthermore, it simplifies tool changes because its turret can approach the machine door so that the operator can change tools without having to bend into the machine.

12-position turret with B axis

Like the SwissDECO T, the SwissDeco 36 TB has a 12-position turret. It is mounted on a B axis, driven by a torque motor, and can be swivelled by +/- 130° and used both for primary and secondary machining operations. That means the full diversity of turret tools can be utilised to perfectly execute applications requiring angular machining. Furthermore, the turret can be operated by means of the TISIS CAM software; this computer-aided design/computer-aided manufacturing (CAD/CAM) solution enables multi-point programming for workpieces. TISIS supports almost every CAD/CAM program on the market, putting manufacturers on the road to headache-free programming.

Efficiency: quick-change system

Optionally, the turret as well as other tooling systems can be complemented by a quick-change system that is compatible with the presetting devices, enabling setup to take place outside of the machine. The system can be used both for stationary and driven tools to ensure maximum flexibility. It permits ultra-fast setup changes, which is another big plus, considering the SwissDECO's vast array of tooling. Any changes become effective within a few seconds and the design guarantees superb concentricity and repeatability. The fact that the tool head can be unlocked by turning a single screw is another value-adding efficiency booster.

Efficiency: hydraulic brake

The SwissDeco is the first Swiss-type lathe featuring a high-precision hydraulic brake, guaranteeing high machining quality in any situation. The brake is actuated when the

material deforms, enabling the bar to be precisely locked in the correct position, so spindle bearings and the spindle body are relieved in case of four- and five-axis machining. Surface finish is considerably improved because the bar is maintained in the correct position, allowing the SwissDECO 36 TB to tackle tasks previously unachievable on conventional lathes or bar turning machines.

Efficiency: TISIS Optimove

The latest TISIS version became available with the launch of the SwissDECO. TISIS has evolved from a programming tool to become a true means of control for SwissDECO machines. The machine can now pre-calculate the real machining time with great accuracy. This enables our customers to now perform machining jobs requiring extreme precision as well as to plan production in fine detail. TISIS Optimove offers a multitude of additional advantages, the most important of which is the reduction of machining times. Just like TB-Deco, TISIS Optimove calculates the ideal tool path and the ideal feedrate for each tool. One might assume this would make for a rather slow machine, but the numbers speak for themselves: Thanks to its three tool systems, the SwissDECO 36 TB's productivity is simply excellent. TISIS Optimove enables time savings approaching 25% in some cases. Combined with an 11% reduction in energy consumption, it provides significant added value, without operator intervention. Another benefit is the reduced mechanical wear afforded by optimised axis stroke, eliminating unnecessary acceleration. The mechanical system is thus protected, while vibrations and interference are avoided during the machining process.