



TORNOS MULTISWISS 6x14 AND THE JOSEPH MARTIN COMPANY: A SHARED SUCCESS STORY

During the 2011 EMO, a new concept of machine forming a link between sliding headstock lathes and multi-spindle machines was unveiled by Tornos. In the edition of decomagazine which came out at this time (decomagazine number 58), we introduced the French company Joseph Martin SA, which was the first to be able to test the MultiSwiss 6x14 turning machine.



From left to right: Messrs. Eric Rethoré, Laurent Martin and Yves Gabillet.

At the end of 2012, Joseph Martin purchased a second MultiSwiss machine, this time in Chucker version. We met with Laurent Martin, CEO, Yves Gabillet, Technical Director and Eric Réthoré, NC Single-Spindle Workshop Manager to discover this new machine with them.

decomagazine: Mr. Martin, when we last met, you said you had suggested a number of ideas to Tornos about how they could take this further. Was the Chucker part of this?

Laurent Martin: Indeed. This machine and its design are perfect for reworking billets; all that was needed was to find a smart, economical solution to

the loading problem, as we wanted to avoid having a 6-axis robot. Loading simply uses a vibratory feeder, and the billets are conveyed to the machining area via a pneumatic system that we have developed.

dm: We have seen that loading takes place in position 5 and that the barrel rotates in reverse. This is rather unusual - can you tell us more?

Yves Gabillet: We actually asked Tornos if it was possible to reverse the cycle to facilitate loading of the workpiece; we worked together to resolve this issue. The machine now turns perfectly in Chucker

mode, but it can also be converted back into a machine working with bars in a few operations. To do this, we simply load the TB-Deco model for the "bar" machine and dismantle the loading system if necessary, and the machine is ready for production using bars.

This machine is characterised by an incredible flexibility, which is made possible by the replacement of the Hirth gear with a large torque motor which turns the machine barrel. Without this technology, the feat of reversing the machine's rotation would not have been possible. In addition, the MultiSwiss torque motor is equipped with hydrostatic bearings.

Eric Réthoré: We were pleasantly surprised by the very long service lives of the tools on the MultiSwiss with the first machine, where the high level of rigidity has a positive effect. The workpiece that we need to machine contains phosphorous and silicon, a material which is therefore very abrasive. With a tolerance of 15 microns for the diameter and 2/100 along the length, we needed a very precise and rigid machine. Following our positive experience with our first machine, a second MultiSwiss was an obvious choice for us. MultiSwiss and its hydrostatic bearings provide an unbeatable advantage in terms of the service life offered by the tools. In certain cases, the gain is over 70%, which makes it a perfect choice

A SIMPLE, HIGH PERFORMANCE MACHINE

MultiSwiss has 6 powered spindles, which means the machine is programmed like 6 lathes with 3 axes. The integrated PC equipped with a TB-Deco ensures programming is incredibly intuitive. Unlike other multi-spindle machines on the market, MultiSwiss is very accessible, meaning a single-spindle operator can get to grips with the machine very quickly. In addition to its simple programming, the MultiSwiss certainly remains the most ergonomic machine on the market. The operator effectively 'enters' the machining area, which allows him to be very close to the tool holders, thereby facilitating their changes and reducing set-up time.

for difficult materials. To ensure the high levels of precision and repetitivity required, the machine temperature is controlled.

The Chucker machine is directly connected to the company's cold water network, whereas the first machine is equipped with a water chiller, which makes it easy to install in any kind of environment. Filtered cutting oil is used directly in the hydrostatic bearings, and unlike systems where the hydraulic oil is mixed and changes the viscosity, the MultiSwiss oil does not require any additional maintenance.



A COMPANY AT THE CUTTING EDGE OF TECHNOLOGY

Joseph Martin has been specialising in the automotive industry for several years; offering extremely high levels of performance, this company has one of the most modern workshops, comprising single-spindle and multi-spindle machines. This structure is supported by employees boasting the latest knowledge.

Company:	a family company founded in 1946
Employees:	180
Turnover:	24 million Euros
Machine inventory:	50 cam-operated multi-spindle turning machines 19 CNC multi-spindles 32 CNC single spindle turning machines 2 MultiSwiss
Materials machined:	mainly high alloy steels
Facility:	over 7500 m ² . Plus a second site of over 10,000 m ² acquired in 2009
Markets:	more than 80% automotive (specialist in parts for the fluid regulation systems up to 2500 bar!) and miscellaneous equipment
Geographic coverage:	International
Certifications:	ISO TS 16949 – Automotive

dm: And how are adjustments made?

Eric Réthoré: Adjustments are very quick. The Tornos tool holder system is truly practical, and in the case of our Chucker part, we have a lubricating system integrated into the tool holders. During drilling, the bit is directly lubricated from its centre, so the system and its integration have proven highly practical during use. All adjustments are numerical, each Z axis can be adjusted independently, and it is possible to define different offsets on each spindle. Obtaining precision workpieces on the MultiSwiss is therefore not a problem.

We now understand: The MultiSwiss is a surprising machine! This new Chucker version stands to further expand its machining scope.

dm: And how is it to use and what about the results?

Yves Gabillet: On this type of workpiece, and with the kind of machining that we do on this machine, it is not necessary to use the preheating programme; the first workpieces are good despite the restrictive tolerances. This proves beyond doubt that the machine is well-designed. At just 6 metres in length, the MultiSwiss takes up no more room in the workshop than a single-spindle machine, which gives the Tornos turning machine a serious advantage over its competitors.



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