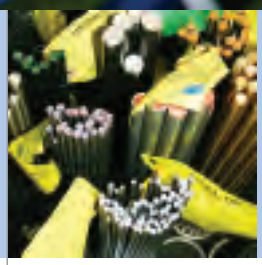
# **deco**magazine

THINK PARTS **THINK TORNOS**

02 US/08 ENGLISH


## Done-as-one

Tornos US uses triathlon to build a stronger team

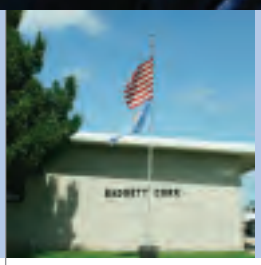


## The finer things

They keep shining through at Swiss Automation

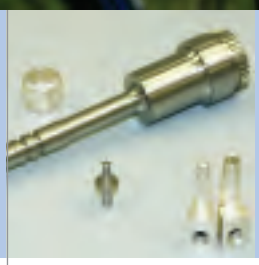

## Tornos Delta

Tornos US enters a new era



## A convenient truth

Badgett's branches out to stay successful



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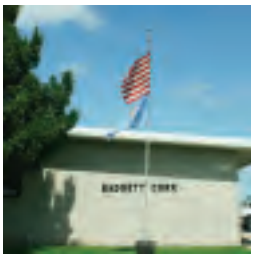

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# Connecting with customers on a new level

**By Scott Kowalski**
**President, Tornos US**

Tornos has always tried to connect with our customers to deliver what they really want. But how close are we to meeting that objective on a yearly, monthly, or daily basis? How can we make sure our mission does not become marketing fluff? In today's fast moving economy, we think the best way is to really listen to what our customers are saying about their day to day business and their plans for the future – and then *act fast*!

Our customers are competing on a global scale; the changes are happening rapidly and they are causing margins to shrink. To help alleviate these concerns, in the last year Tornos has introduced 11 new machines: four Deltas, four 'e' line machines, two Micros, and the Sigma 32. These machines, all featured in this issue of **deco**magazine U.S., have been designed to meet the very specific new needs of our customers competing in this global market. They all do one important thing: help our customers face price pressures on production parts.

As you know, Tornos has a long history of making machines that produce the highest quality parts of medium to extreme complexity. This capability attracts customers like you, the best in the business, who appreciate a solidly built machine. (One customer I spoke with recently said his Tornos had "50-year build quality"). Tornos customers – some of whom are profiled in this issue of **deco**magazine – don't shy away from complex parts and this has historically resulted in a profitable edge in the marketplace. But today – with increasing frequency – even manufacturers and producers of the most sophisticated parts are finding a need for perfect *simple* parts too. Thus, the introduction of the Delta product line – dedicated to cost-effectively machining *simple* parts. The Delta is an exciting venture for us, taking Tornos back into the "entry level" machine market.

Instead of beginning a multi-year R&D project to design a machine for this market, we formed a partnership with Tsugami to have them build the machine you wanted to our specifications in their production facilities. This allowed us to deliver the Tornos machine our customers needed in the fastest possible timeframe. In the U.S. and across the world, the Tornos sales force is receiving extensive training to help all of us better prepare end users for the demanding jobs and deliveries that brought this machine line into existence.

Another recent introduction by Tornos is the Deco 'e' line, a cost-effective alternative for the production of parts. Designed to help our customers win every price war, the cost-effective 'e' line can produce

0.40 to 1.25 inch (10 to 32 mm) diameter parts of medium complexity. It's sold as a package featuring a standard number of options that streamlines the manufacturing process in Moutier. Compatible with the Tornos 'a' line, these 7-8 axis turning centers let you engage three tools on the bar simultaneously.

For our customers who don't want to part with their old mechanically-driven cam systems but feel they *must* to compete globally, we offer the new Micro 7 and 8, modular machines ideal for parts under 0.32 inches (8 mm) in diameter. They have a very small footprint and take up about the same amount of room as the old screw machines they were designed to replace, but they achieve precision of ±2 microns for the Micro 7 and ±1 micron for the Micro 8. They can be programmed in TB-DECO or ISO, and they are built with 20 interchangeable tool positions.

Additionally, the Deco Sigma 32, for part diameters up to 1.25 inch (32 mm), allows for simultaneous machining with two tools. Also available with a choice of TB-DECO or ISO programming, this 6-axis machine boasts 22 tool positions. The ergonomics have been optimized for easy setup and tool changes, and accessibility is unparalleled.

The Sigma 32 joins the BioPak and Pursuit in the Sigma line. The two variants of the Sigma 20 are outfitted with all the attachments and accessories that a customer might need to make parts for the medical and general engineering industries, respectively. The two machines make it easier than ever to break into these more profitable markets. In the past, shop owners looking to transition to a new sector spent a lot of time researching which machine to buy, how to tool it up, and what accessories might be needed. But with the BioPak and Pursuit, customers can easily make a machine purchase and move into these new markets much more quickly.

Our objective in introducing these new machines is not to create buzzwords and taglines. We're adapting to our customers changing needs so we can continuously build and nurture long-term customer relationships. At Tornos, the term *customer service* is not a slogan, it's the mantra we live by. Proof is that we're connecting at a new level with machines for simple parts, simplified purchasing choices, and innovative training and service programs to help you make the most of opportunities in this new global economy.

We hope you enjoy this issue of **deco**magazine, and invite you to visit our IMTS homepage at www.tornos.us/imts. We welcome your input and feedback, so please go to www.tornos.us/company/contacts/contact.cfm or email info@tornos.us to let us know how we are doing. ■

# The finer things keep shining through

## Dedication to quality is a way of life for Swiss Automation

It takes but a single walk through Swiss Automation's facility in Barrington, Illinois, before one thing is abundantly clear: Ken Malo has a taste for the finer things.

From the front door to the back end of the machining room, the space of Swiss Automation is an unlikely amalgam of art, collectibles, and vintage machines that would likely confound the hosts of PBS' Antique Roadshow.

A tour given by Malo, the company's founder and current president, is peppered with phrases like "That's a Diego Rivera," or "This is from a surplus World War II naval observation plane that went down in Lake Michigan in 1965," and "The lamps are all from NASA parts they put together. They were reportedly used in one of the Flash Gordon movies."

Malo's desire for the finer things extends through his entire operation – Swiss Automation is known for turning out nothing but the highest-quality parts from its bustling-yet-immaculate machining floor. And it all starts with his choice of machines.

*Ken Malo, founder and president of Swiss Automation*

*The Swiss Automation facility in Barrington, Illinois*

"For the small diameter – any kind of production, low, medium, high production – the Decos are the best machines," Malo says of the Tornos line. "When we go for quality, we go for Tornos."

And Swiss Automation has been using Tornos machines more or less since its founding in 1965. Back when the operation was just Malo working alone in a $65-a-month storefront, he used four Tornos M7's to make connectors for power window switches for Ford.

"A penny apiece, and the cycle time was three seconds on the old $350 Tornos – that's what each machine cost me," Malo recalls. "Every Thunderbird had like 15 of them in it. I was making them from 8 in the morning 'til midnight as a one-man shop. I was younger. I had seemingly unlimited energy then."

### *More employees, same dedication*

While he might try to deny it, Malo has retained his tireless nature. Only now he has a little help. Swiss Automation has continuously expanded, eventually outgrowing that old storefront and moving into its current space in 1998.

"I try to hire the best – the best and the brightest. It's helped us grow, so we look for the best of the best," he says. "It was a one-man shop for a long time. We now employ 130."

As the numbers have increased, so has Swiss Automation's training infrastructure. The company now has an apprenticeship program to bring new employees in. Each new hire goes through the same regimen, according to Vanessa Malo, Ken's daughter and Swiss Automation's director of human resources.

*Machinist Scott Ensey focuses on his work*

"We'll hire people who have never even seen one of these machines before," Vanessa Malo says. "We look for certain aptitudes, like they're mechanically inclined, or they like to work on their own cars. So they'll join and they start off in inspection. They start using all the tools and developing an eye for detail.

"The goal is for them to develop a perfectionist attitude, and then they'll start learning to read blueprints and experience other inspection techniques. Once they've developed the eye and passed a blueprint-reading test, we'll send them out to the floor, and they'll work with a mentor out there. The mentor will then get them trained on machine operation."

Swiss Automation generally promotes from within, meaning most employees start out exactly where Ken Malo did – at the bottom. But while Malo was forced to acquire most of his skills through a self-directed apprenticeship, his company has implemented an extensive training program.

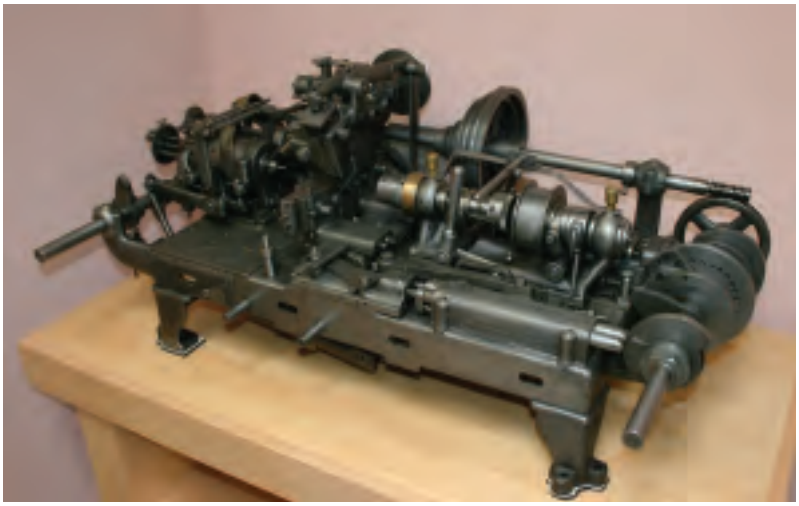
"You have to train a lot. In this day and age, the schools just aren't teaching it," Vanessa Malo says. "So you have to do it in-house; we have a classroom upstairs that seats 20. Plus, if you grow your own, they're used to the way you want things done and it's fantastic. It has worked out very well. We have a lot of guys here that have been here a long time. We have one setup man who is originally from Switzerland. He apprenticed at the Tornos factory in Moutier in 1955, and he's now been here for 32 years. We have some other guys who've been here 19, 20, and 23 years.

"We've had some guys that started off in shipping – our foreman, Marc Moran, he started in shipping, and then he moved to the floor, and now he's our foreman. And then we have another guy who barely made it through high school, and he's one of our best setup guys. It's just about finding the right mental-attitude people."

"Intuitive gearheads," Ken Malo chimes in. "If they've stripped all their nuts and bolts by the time they're 13 years old, and they're still working on things, then we want them. So street-rodders and customizers, motorcycle customizers, model airplane hobbyists, guys that aren't afraid to dive in. Good problem solvers, that's who's most successful in the industry."

### *A family affair*

And Swiss Automation has been successful in the industry. Now producing an upwards of 170,000 parts per day, the company expanded its custom-built facility in 2006 to increase the overall square footage to 42,000. Though the organization and Malo have continued to evolve, at least one thing has remained constant: a loyalty to anything that has served him well.



*A Tornos turning machine from 1896 on display at Swiss Automation*

"My first job was in 1961, on Bechlers," he recalls. "Then I transitioned to Tornos in '62. That was at a small job-shop in Park Ridge, Illinois, at Sanborn Engineering. A third-generation Sanborn now works for me; I worked for his grandfather in '62. He never knew his grandfather. I tell him stories about his grandfather, what a brilliant guy he was, a pilot, an engineer, a real visionary and hero to all of his employees. He appreciates that."

The hiring of Frank E. Sanborn III based largely on his pedigree was hardly an isolated incident at Swiss Automation. Once the company identifies a good employee, they tend to want to corner the gene pool.

"We hire a lot of family members," Vanessa Malo says. "I don't even know exactly how many families we're up to now. We might be up to 20 families."

And the same loyalty goes towards the Swiss Automation's choice of machines. From his first experience with Tornos in 1962 – when the company was renowned as "The Watchmaker's Choice" – Ken Malo has been using its line of precision turning centers.

"We've had a lot of Deco 10s. Our latest acquisition, the 10a, is probably number twelve or so," he says.

"Heritage is important. Certain old cars have a heritage – BMW, Porsche, Bentley – that the new upcoming Korean and even Japanese cars are striving to attain. And you earn it through improvement of products, and creating cutting-edge technology. Just like the European discipline and perfectionist attitude towards engineering and build quality that show up here in the Decos."

*Ken Malo catches some air in one of his racing Porsches*

### *Racing: A shared passion*

It's not surprising that Ken Malo would use a vehicular metaphor when describing the quality of the Tornos machines. The man is almost as passionate about cars as he is about his company. He is a member of various racing clubs, heading to the track during his free time, with family members and employees – and even their families at times – joining in as well.

Given his penchant for the finer things, Malo's choice of automobile is no surprise: his fleet now includes four Porsches. Malo and Swiss Automation mainly use the cars as a tool to promote a positive experience with their customers, suppliers, bankers, and just about anyone with whom they do business.

"The Porsche club rents track time at local tracks," Malo says. "So we invite them out on the track and I'm a driving instructor, my daughter's a driving instructor, and so is my foreman.

"This is how we entertain our customers; we don't play golf. We put them behind the wheel of one of my cars, give them a helmet and put them in a five-point harness. We have three certified track driving instructors to teach them, hands on, racetrack driving techniques," Malo says. "And we take our suppliers, too. We instructed [Tornos US president] Scott Kowalski, and if you look in [North American business manager] Leonard Lanute's office, he's got a whole collage of pictures from his track day that I made up for him. The Swiss Automation Racing Experience, we call it. If we get good service, or we need better service, they remember us for that."

Also memorable is the racing team that Tornos has assembled in connection with its partner, Vici Racing. Like Malo, the team prefers Porsche, with a GT3 RSR currently running in the American LeMans Series.

### *A need for speed*

With all of the time its employees spend racing, it's no surprise that Swiss Automation can be just as fast away from the track. While the company clearly emphasizes quality, it's not at the expense of speed – just like a Porsche. This is especially apparent when a customer is in a tight spot, and needs a job done quickly. One such example came, coincidentally, with a partner company in the automotive industry.

"We delivered to South Carolina in 22 hours from getting the print, quoting it, and setting it up for them. We received the order at 11 a.m., and we were lucky to have the material on the shelf and a machine available. Their parts went out air freight at five in the morning the next day," Malo recalls proudly. "They were on the purchasing agent's desk at nine in the morning. So 22 hours service from Illinois to South Carolina, which is doable when you absolutely have to serve your customer.

"Sometimes when they need their parts tomorrow, if we can squeeze them in, we'll do that. We grandstand once in a while, to show how efficient we can be."

But that is not the only way that Swiss Automation impresses its customers. In the company's solid brick building, Malo has arranged the machining room in a way that emphasizes the positive while making a strong impact: he puts his Tornos machines near the main entrance to the work floor.

"It's very impressive to the customer, putting the Decos here first," he explains, pointing to his row of five identical Tornos machines. "They like to see continuity. They don't like to see a hodgepodge of different machines here and there. Neat, clean, and orderly is what sells. If we bring customers, we show them this first, they see the continuous Deco line and it's their first impression of the shop."


*A line of Decos greets machine floor visitors*

### *Swiss Automation trusts its employees*

Though Malo's influence can be seen in the layout of Swiss Automation's machining floor and the meticulous nature of its employees, he does not feel the need to have his hand in every aspect of the company. The organization hires good people and then trains them well, so Malo trusts them as a group to combine what they've learned with their intuition and do things the right way.

"I give my people more and more free reign," he says. "I don't have to micro-manage them. I trust their decisions and the way they setup their work shifts, do the scheduling, etc. They know their shop floor duties better than I do, so I empower them. The shop culture that we've created is critical to our success. Trust is a two-way street."

That trust has resulted in having every employee be just as exacting about the manufacture of his or her parts as Ken Malo is. Each part undergoes a rigorous inspection process, both on the line and in two separate, technology-laden areas. Swiss Automation has a number of toolmaker and inspection microscopes, surface analyzers, programmable computer-video inspection systems, and a cadre of meticulous employees who work full-time in the inspection rooms.

"We try to have better inspection facilities and equipment than the incoming inspection at each of our customers," Malo relates. "When they initially visit us to check out our inspection procedures, they've almost always lusted for some of our higher tech equipment. 'Oh, if we only had one of these! Oh, you got one

of those? You've got the latest one of this?' We invest an awful lot in that department."

The inspection process, however, is made easier by having machines that produce parts exactly to specification. Swiss Automation's Decos, aided by the TB-DECO software, have a big hand in making sure that very few of the company's parts need to be rejected, while producing them in a timely manner.

"We're real happy with the TB-DECO software," Malo says. "It's easy to learn. We like the parallel programming, and it kicks out the most efficient program. Quality attracts more orders. Quality and on-time delivery.

"A lot of times, these days, price may not be quite as important as delivery. The clock is always ticking, as they say, and if they don't have the parts on time, their overhead goes sky-high. They've got lines down and their production department's waiting, so you have to give them an accurate delivery date. Should they agree to it, you have to stick to it. No excuses."

*Employees in the inspection room meticulously examine every part*

### *No excuses for not being the best*

Of course, even in the present-day climate where time is of the essence, price is still an enormous factor. While Swiss Automation's Decos run three shifts a day, 24/7/365, it's their efficiency that makes the difference on pricing. Malo relates a story about a specific medical part: "We run these like a million at a time, on two or three Decos all the time. The company's target price was half of what they were previously paying. And I could only meet that by putting it on a Deco. The previous shop was doing multiple operations. They couldn't keep up and were charging too much. So it's a lot more efficient, one operation, on the Decos. The parts come out of the machine finished. No secondary operations are needed."

A change of administration has also helped Tornos become more efficient. After Scott Kowalski took over as president of Tornos US, he put a renewed emphasis on customer service. While Tornos' machines were always renowned for their quality, its service in the United States did not have the same stellar reputation.

"Scott has been a refreshing change," Malo says. "It was time for some fresh, young blood with new ideas and new energy, plus a renewed dedication to training and customer service. I appreciate his youth and enthusiasm for the job, and the experience. So he's the right guy for the job. Before I brought him out to the racetrack, he used to be a Corvette guy. We converted him from Corvette to Porsche."

So with a little help from Swiss Automation, you can add Scott Kowalski to the list of devotees to the finer things. ■

*Some workpieces are bisected to ensure quality inside and out*

*Tornos US and **deco**magazine would like to thank Ken Malo, Vanessa Malo, and the entire Swiss Automation team for their participation in this article.*

# Tornos US launches an RSS feed

Tornos recently added an RSS feed to its US website, www.tornos.us. The feed will provide customers with easy, direct access to all the latest Tornos products, services, and company news.

RSS stands for Really Simple Syndication. It's a technology that enables users to subscribe to website feeds and notifies them when there is new or changed content. The notification includes a headline and brief summary of the new article and a link back to the site.

For more information, including instructions for subscribing to the Tornos US RSS feed, please visit www.tornos.us/rss. ■

# Tornos US website now features YouTube page

The website www.tornos.us recently added a YouTube page featuring numerous videos from Tornos, including all the latest virtual presentations the company is debuting at IMTS 2008.

Some of the videos now embedded at www.tornos.us/youtube include photo-realistic 3D presentations featuring the Tornos Micro 7, the Sigma 20, and the Deco line. These groundbreaking presentations allow for the viewing of extreme details that were previously impossible to see.

Tornos also has many more traditional videos available, including several on the Deco 'a' line. Tornos' entire library of presentations can also be found directly on the YouTube site, by visiting the Tornos Channel at www.youtube.com/user/TornosTube. ■

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# Buoyed by increase in U.S. sales, Tornos thriving

In the first quarter of 2008, Tornos booked orders totaling $76 million (79.7 million CHF). Compared to Q1 2007 ($73.7 million) this figure represented growth of 3%, of great significance considering the current economic climate. Gross consolidated turnover for the first three months of 2008 was $71.4 million (74.8 million CHF), an improvement of 3.2% over the same period last year. The strength of the Swiss franc against both the dollar and the euro squeezed earnings down to $3.1 million (3.2 million CHF), a fall of 61.0% versus 2007. However, in drawing a comparison with the previous year, it should not be overlooked that the first quarter of 2007 was particularly robust in terms of orders, turnover and profitability.

Net cash and liquid assets as of March 31, 2008, stood at $12.2 million (12.8 million CHF), compared to $26 million on December 31, 2007. With operating cash flow positive, this reduction is mainly due to the acquisition of Almac SA and Almatronic SA (collectively 'Almac') and share buybacks. The value of the company's holding of its own shares at the March 31, 2008 closing price stood at $12.2 million, compared to $2.6 million at the end of 2007, and this amount is not included in net cash and liquid assets. For updates on financial results for 2008, please visit www.tornos.us/newsroom/press.

### *Final figures for 2007*

For 2007, Tornos was aiming for sales growth of around 10% accompanied by a 7.5 to 8.5% improvement in earnings. Both targets were easily surpassed. Gross sales increased to $274 million (287.4 million CHF), representing a 14.7% improvement over 2006. Earnings before interest and taxes were $31.2 million (32.7 million CHF), an increase of 11.4% over the previous year. The year closed with net profit of $33.5 million (35.1 million CHF) million, more than double 2006's mark of $16.4 million.

Additionally, Tornos wiped out its debts and had a net cash surplus of $26 million (27.3 million CHF) by the end of the year, unlike in 2006 when the company ended with a net debt of $7.1 million.

**The restructuring of Tornos US also paid immediate dividends, with the U.S. market accounting for 15% of overall Tornos sales, compared to just 8% the year prior.** ■

*Tornos' annual report, as well as the consolidated financial statements are available for download at www.tornos.com/invest-reports-e.html.*

# Tornos acquires Almac and Almatronic

In March 2008, Tornos acquired Almatronic SA and controlling interest (95% of the market capital) of Almac SA. Both companies are based in La Chaux-de-Fonds, Switzerland, with some 40 employees between them. The two companies combined for $16.5 million (17 million CHF) in combined sales in 2007.

### *Background*

Almac SA develops, manufactures, and markets CNC machining equipment for small, high-precision parts. These parts are used predominantly in Swiss watchmaking, but the cookmpany also has customers in the dental, medical, and connector fields. Almatronic SA specializes in computerized numerical controls and programming. Its primary customer is Almac SA.

### *Reasons for the acquisition*

Tornos has a significant presence in the automotive, medical, electronic, and precision sectors. Almac's products are tailored to companies in precision, medical, and electronic fields – three of Tornos' four key market segments. With their complementary, noncompetitive machines, the companies share the same target markets, allowing them to benefit from the synergy of sales and service networks.

### *Future organization*

Almac SA and Almatronic SA are still independent companies with their own facilities, and management staff has been retained. Almac products have immediately benefited from the sales and service network established by Tornos, and both companies should continue to prosper moving forward. ■

# This IMTS, Tornos is turning heads!

## Tornos' booth A-8358 in the South Hall is the place to be

CHICAGO – The first thing visitors will notice at this IMTS, September 8 – 13 at McCormick Place, is that Tornos US has invested in a new booth. The smart, modular truss system works very well for the large 50' by 60' Tornos IMTS space in the South Hall, but it can be easily reconfigured to work at all the smaller venues throughout the year too. Designed to make visitors more comfortable and help them more easily obtain the information they seek, the large space is also in an easy-to-find, key location in the South Building Hall.

Showcasing the newest Tornos technology – including the new Delta entry-level turning machine – the Tornos booth is sure to generate a lot of excitement this IMTS. A special, darkened theatre room with leather rumbleseat chairs and surround sound lets visitors immerse themselves in the latest "virtual" movies for the Micro 8, Deco 13a, and Sigma 32. The virtual movies provide 3D tours of all machines in a theatrical style and include part cutting simulations. Interactive touchscreen kiosk stations throughout the booth feature multi-touch laptops with videos, virtuals and machine specs accessible to all visitors. A reception desk greets visitors off the main aisle; and a large "bar" area will make visitors feel welcome to stay a while. Plenty of seating (there are 24 chairs and 5 tables in the booth!) and a private meeting room make the booth functional and comfortable. Daily iPod Touch giveaways are planned during the show as well.

But the big news is that Tornos is introducing eleven new machines (four Deltas, four 'e' line machines, two Micros, and the Sigma 32) designed to meet the very specific new needs of our customers competing in a global market. ■

*If you don't make it to the Tornos IMTS booth in 2008, you can read all about the show on the Tornos website: www.tornos.us/imts. We also hope to see you at MD&M in Minneapolis! For more information about any of the machines on display at IMTS this year, contact your local distributor.*

## Other Events

### *Connecticut Tech Days*

Tornos Tech Days, which helped celebrate the grand opening of Tornos' new East Center of Excellence in Bethel, Connecticut, were an unqualified success. Held May 8th and 9th, Tech Days CT allowed the company to show off its new facility, including the large showroom.

Along with locations in the West (Brea, California) and Midwest (Lombard, Illinois), the East Center of Excellence helps Tornos US provide unparalleled service via blanket coverage of its entire customer base.

### *SABC open house*

The Swiss American Business Council and Tornos US held an open house in June 2008 at the Midwest Center of Excellence in Lombard, Illinois. Sponsored by David Kouidri of Polydec, the event was attended by Tornos CEO Raymond Stauffer, Tornos CFO Philippe Maquelin, Tornos US president Scott Kowalski, and many other influential professionals.

The Swiss American Business Council is headquartered in Chicago, and its purpose is to assist companies, trade groups, entrepreneurs, and professionals in expanding their business opportunities.

### *SIAMS 2008*

The 11th annual SIAMS expo – for the automotive, machine tool, and subcontracting industries – was held May 20 – 24, in Tornos' hometown of Moutier, Switzerland. The show is intended as a meeting place for all microtechnology across several industries.

Tornos was one of approximately 500 exhibitors, around a third of which were machine tool manufacturers. With about 16,000 people in attendance, Tornos enjoyed immense traffic flow without ever leaving the confines of its proverbial backyard.

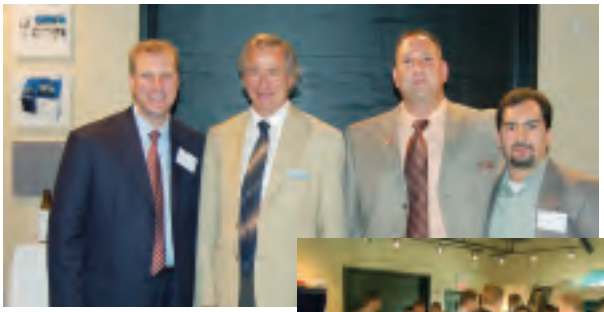
### *MD&M Minneapolis coming soon*

The 15th annual Medical Design and Manufacturing Minneapolis exposition and conference runs October 21 - 23. The MD&M showcases all of the latest developments in medical manufacturing.

Anyone attending MD&M at the Minneapolis Convention Center is invited to visit Tornos in booth 1417, where Tornos' Sigma 20 BioPak – which has been designed to produce high-precision medical and dental parts – will be on display. ■


*Scenes from SIAMS 2008*

*The festivities at Connecticut Tech Days*



*The Swiss American Business Council open house hosted by Tornos Top, from left: Paul Karlin, Charter One Bank, VP Foreign Corporate Group; Raymond Stauffer, Tornos CEO; Scott Kowalski, Tornos US President; David Kouidri, Polydec International President*

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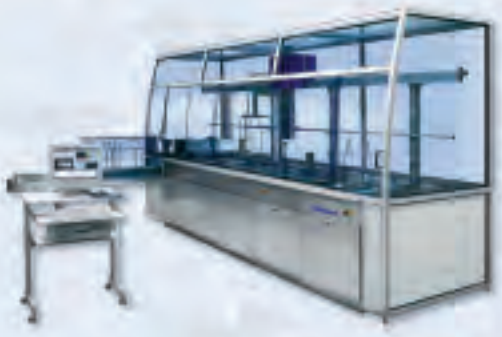

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## Andy Stemler

**Midwest Regional**
**Sales Manager**
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***Andy's territory includes: Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Canada (Ontario, Manitoba, Quebec, and New Brunswick)***

With over 15 years of experience in the machine tool industry and a marketing degree from Lewis University, Andy Stemler joined Tornos as Midwest regional sales manager earlier this year.

In his previous role as manager of HiTech Machinery's used machinery division, Andy met Tornos US president Scott Kowalski, who was then with Agie. "I always had a good relationship with Scott and felt comfortable with his sales style and approach," Andy says. "Tornos and I are a good fit. I want to offer the customer a competitive advantage in his market, and in doing so, make the customer, Tornos, and myself as successful as possible."

A native of the South Side of Chicago, Andy now lives on the city's North Side with his wife, Nicole, and two cats. He enjoys most outdoor activities, particularly golf and fishing. ■

## Juli Honaker

**Marketing Coordinator**
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After a 15-year career in training and consulting as a creative services and production manager, Juli Honaker joined Tornos in 2007. While employed at 4Next, Inc., Juli worked on projects with Tornos US president Scott Kowalski, who quickly brought her on staff. "When I first started, I did a little bit of everything, helping out Scott and the other guys in the office," Juli says. "They made me feel a part of the team from Day One."

Juli's first order of business with Tornos was getting the Midwest Center of Excellence up and running. Following the successful grand opening, Juli was named marketing coordinator in September of last year.

Juli lives in Naperville, Illinois, with her daughters Taylor and Janelle, and their boxer Marlee. She loves spending every bit of her free time with family and friends. ■

# Tornos Delta: Quality and simplicity, together at last

## New Tornos line designed to machine parts with simple geometries

Tornos machines have received acclaim for precision, reliability, and build integrity, and have long been known for turning the highest quality parts of medium to extreme complexity. Tornos US, therefore, is proud to introduce its first line of machines dedicated to producing simpler parts, the Delta, a product range that diverges from its predecessors only in the type of parts it produces.

In the U.S., the Delta 12 and the Delta 20 both come available with four or five axes, and are dedicated to helping customers produce simple parts cost effectively. These lower price-point machines are backed by the same Tornos service team and are built in conjunction with the Tsugami Corporation.

"Instead of beginning a multi-year R&D project to design a machine for this market, we formed a partnership with Tsugami to have them build the machine we wanted to our specifications in their production facilities," says Tornos US president Scott Kowalski. "This allowed us to deliver the Tornos machine our customers needed in the fastest possible timeframe."

Tornos has long been the choice of the best parts manufacturers in the business, but even those customers now need to produce high-quality yet simple parts at a lower price. As do newer businesses trying to bring parts production back to the United States en masse. "The Delta is an exciting venture for us," Kowalski says. "It takes Tornos back into the 'entry level' machine market."

But the Delta line's entry-level status does not bring with it a corresponding drop in quality – the machines' cast iron bases, wide working areas, and large-capacity chip pans will make them instantly recognizable to long-time Tornos users.

While the Delta line represents a new foray for Tornos, what the machines represent for Tornos is nothing new: the same exceptional quality of parts and service for which Tornos is known come standard on the Delta. The Delta is, quite simply, Tornos made simpler. ■


## Delta 12/4

- Four axis machine for part diameters up to 0.47 inches (12 mm)
- Accepts up to 17 tools
- Spindle speeds up to 12,000 rpm
- Works with or without guide bush
- Maximum part length 8.25 inches (210 mm) with stationary guide bush, 3.15 inches (80 mm) with rotary guide bush
- Cast iron base
- Wide working area
- Large capacity chip pan
- Optional high-pressure pump

## Delta 12/5

- Five axis machine for part diameters up to 0.47 inches (12 mm)
- Two independent tool systems, with up to 21 tools
- Spindle speeds up to 12,000 rpm
- Works with or without guide bush
- Maximum part length 8.25 inches (210 mm) with stationary guide bush, 3.15 inches (80 mm) with rotary guide bush
- With fully-equipped pack, maximum part length with rotary guide bush increases to 6.7 inches (170 mm)
- Cast iron base with small footprint
- Standard ISO programming
- Clear information panel

## Delta 20/4

- Four axis machine for part diameters up to 0.79 inches (20 mm)
- Accepts up to 17 tools
- Spindle speeds up to 12,000 rpm
- Maximum part length 8.25 inches (210 mm) with stationary guide bush, 3.15 inches (80 mm) with rotary guide bush
- Cast iron base with small footprint
- Standard ISO programming
- Wide working area
- Large capacity chip pan
- Clear information panel

## Delta 20/5

- Five axis machine for part diameters up to 0.79 inches (20 mm)
- Two independent tool systems, with up to 21 tools
- Spindle speeds up to 12,000 rpm
- Works with or without guide bush
- Maximum part length 8.25 inches (210 mm) with stationary guide bush, 3.15 inches (80 mm) with rotary guide bush
- With fully-equipped pack, maximum part length with rotary guide bush increases to 6.7 inches (170 mm)
- Cast iron base with small footprint
- Standard ISO programming
- Optional high-pressure pump




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# Amsonic cleaning machines help ensure biocompatibility

## Due to the rapidly-growing market, surgical implant manufacturers may want to consider increasing their cleaning capacity

Biocompatibility is a crucial quality element in connection with the cleaning of surgical implants, with the removal of cutting oils after mechanical processes of critical importance. As demands on the cleanliness of parts have grown, degreasing in open tanks with chlorinated solvents has been eliminated due to the toxicity, and cleaning machines using these toxic solvents have been progressively replaced with new, enclosed systems like those from Amsonic.

### *New machines, new cleaning solutions*

Because the medical sector requires completely clean surfaces, the use of detergents has been widespread. But detergent is rapidly saturated by cutting oils, thus reducing its cleaning power, and its cleaning of tapped blind holes is also insufficient.

However, due to continuous distillation, cleaning technology using non-chlorinated A3 solvents guarantees a constant cleaning quality. Because of this, most of today's cleaning in the medical sector is based on A3 solvent for the preliminary and intermediate cleaning phases, and water-based processes for the final-phase biocompatible precision cleaning. The advantage of this cleaning sequence is the very low pollution of the detergent, as basically all oils are removed during the A3 solvent cleaning process. Two types of Amsonic cleaning machines, the 4000 and the 4100, have proven remarkably effective using this method.

### *Amsonic 4000 and 4100*

The four gallon (15 liter) basket capacity Amsonic 4000 uses continuously distilled solvent to guarantee cleaning quality. The solvent tank, the cleaning chamber, and the distillation are kept under vacuum to ensure inflammability. The cleaning cycle consists of the following steps: ultrasonic immersion cleaning with hot solvent, pressure flooding and spray cleaning, vapor phase, and vacuum drying. The entire cleaning cycle takes approximately 6 to 12 minutes, depending on the requirements and the chosen cleaning program.

The Amsonic 4100 features a much higher capacity, cleaning basket volumes up to 8.75 gallons (33 liters). The machine is equipped with two under-vacuum solvent tanks, a preliminary cleaning tank and a final cleaning tank containing distillate, and cycle time is the same as the 4000.

A main advantage of vacuum technology is the solvent's improved throwing power within tapped blind holes. In a single application on an Amsonic machine, boreholes eight inches long and cooling bores just 0.04 inches (1 mm) in diameter were cleaned perfectly using A3 solvent under vacuum. Such cleaning results could not be achieved with a water-based cleaning system.

### *Immediate return on investment*

Among the reasons for choosing an Amsonic system are the cleaning quality, Amsonic's experience with A3 solvents, and the Swiss company's stellar reputation within the medical sector.

Additionally, an Amsonic system's servicing is eased by its maintenance software. The software allows for preventive maintenance and notifies operating personnel of elements that need attention. Maintenance efforts are limited to approximately five minutes per day.

Amsonic technology guarantees the optimal cleaning of complex implant structures. The initial investment is amortized by the automated process and the low operating expenses, as well as the exceptional cleaning quality that ensures all surgical implants will meet the stringent cleaning specifications of the medical implant industry. ■

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## Jon Dobosenski

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Born in Des Moines, Iowa, but raised in Minnesota, Jon Dobosenski got his start in the machine tool industry after moving to Michigan in 1986. Since then, his experience has been varied and extensive. "I have worn a bunch of different hats: service manager, parts manager, product manager, and applications manager," he says. "With Tornos, I have the unique position of being able to help in all departments and utilize my experiences."

Jon was brought to Tornos US as project integration manager by president Scott Kowalski, who had worked with "Dobo" while both were at Agie. While Jon says that he thoroughly enjoys every aspect of his job, he especially appreciates the flexibility and freedom the position affords him.

Jon lives in Downers Grove, Illinois, with his wife Janet and their four children, ages 9 to 15. In his free time, he enjoys singing with the award-winning West Towns Barbershop Chorus. ■

A native of Downers Grove, Illinois, Leonard Lanute has over 20 years of experience in the machine tool industry. Following a nine-year stint at Citizen, Leonard began working for Tornos US as national product manager in 2005.

After Scott Kowalski joined the company as president, Leonard became Midwest regional sales manager, and earlier this year he was promoted to North American business manager. "I enjoy the flexibility Tornos gives its employees, which allows us to find creative solutions to meet the demands of day-to-day business," Leonard says.

Leonard lives in Sugar Grove, Illinois, with his wife and two daughters. His favorite pastime is bicycling, though he recently added running and swimming as he trained with Team Tornos for the Naperville Sprint Triathlon (see page 36 for details). ■

## Leonard Lanute

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# QA Technology pairs PartMaker with Tornos

## PartMaker SwissCAM software allows QA to efficiently turn around small lot sizes on its Tornos Deco 7a

To listen to Dave Coe, vice president of QA Technology, Inc., a world-leading manufacturer of printed circuit board test probes, tell it, his customers have a simple view of the benefit his company provides.

"The shorter the better as far as our customers are concerned," he says.

When Coe says shorter, he's referring to short lead times and small prototype lot sizes of the array of components and connectors his Hampton, New Hampshire-based company engineers and manufactures. Historically, QA Technology's component manufacturing had been outsourced to a number of vendors with a variety of CNC machines. Because of the demand for quick turnaround and small lot sizes, QA Technology decided to add CNC Swiss capacity, in order to fill customer requirements that outside vendors simply could not economically and reliably meet.

As a result, QA purchased a Tornos Deco 7a, a machine used by some of their current vendors and one that offered flexible turning and milling capabilities and superior cycle time-savings potential for longer running jobs. But since speed of every job was critical and the company lacked TB-DECO programming skills, QA turned to PartMaker to help them bridge the gap between CAD and NC program for their Tornos Swiss turning center. They chose PartMaker SwissCAM, a CAM system specifically designed for programming Swiss-type lathes and one that integrated directly to the TB-DECO operating system that controls the Deco 7a.

PartMaker provides the link between QA's engineering department, which designs its product using both 2D drafting and 3D solid-modeling methods, and the manufacturing department that is tasked with producing the part.

"The really big benefit to having PartMaker is the ability to take the solid model or even the DXF file coming out of our engineering department for the part and immediately import it and be able to view, edit it as necessary, and generate accurate tool paths that are not subject to human error as they often are when you are using manual programming methods," says Coe.

"After programming the part in PartMaker, we are able export to the TB-DECO advanced environment."

*An array of parts machined on QA Technology's Deco 7a*

### *How it works*

The SwissCAM module of PartMaker is a CAD/CAM system dedicated to automating the programming of Swiss-type lathes such as the Deco 7a at QA Technology.

PartMaker SwissCAM generates a CNC program by allowing the user to either create or import part geometry into the system, apply tooling to the geometry by choosing a variety of cutting strategies, simulate the part cutting in a virtual 3D environment, and then generate an NC program.

PartMaker SwissCAM is unique in its programming of Swiss-type lathes


*Vice president Dave Coe (left) and programmer Phil Pierce stand in front of the company's Deco 7a*

because it makes use of two patented technologies to do so. The first of these technologies is known as the 'Divide and Conquer' programming strategy. This approach allows the user to look at a multi-axis Swiss lathe for what it really is, a lathe with a main and sub-spindle with up to nine different types of milling possibilities, including polar interpolation on the face, cylindrical milling on the diameter, Y-axis milling on the diameter, C-axis indexing, and so forth.

The second of PartMaker's patented technologies focuses on automating process synchronization, or the method by which operations that are running simultaneously are handled. This 'Visual Synchronization' approach lets a programmer quickly optimize a program graphically by choosing from a selection of pictorial diagrams that indicate the synchronized state in which he wants his machine to operate. From this, the software produces an optimized time study showing just how long the part will take to manufacture.

Once the tool paths have been defined and the process has been optimized, the user can simulate the process to check for any errors or tool collisions off line. If the user is happy the part is running well, he chooses a post processor to generate an NC program his machine can understand.

### *A unique combination*

This is where the Tornos Deco platform presents a unique challenge. 'A' line Tornos machines, like the Deco 7a at QA Technology, are not CNC machines, they are PNC machines, which means they do not accept a standard ISO-based G-code program like other machines a system like PartMaker would typically support. (Please note that standard ISO-based G-code is standard on the Tornos Sigma line of machines.)

In 2004, in a collaboration between Tornos and the developers of PartMaker, Tornos opened TB-DECO to accept input from PartMaker via the import of a special file format called a TTFT (Tornos Text Format) file. The invention of this file format, which can be automatically generated by PartMaker and directly imported into TB-DECO, allowed PartMaker to directly interface to Deco machines the way it would to other CNC machines. To interface PartMaker and TB-DECO, the user must have the TB-DECO ADV software along with the accompanying CAM Interface module. This partnership between Tornos and PartMaker now benefits many parts manufacturers.

"If it looks good in the simulation in PartMaker, it will look good when it comes off the machine," according to Phil Pierce, CNC programmer at QA Technology.

### *Just like they imagined*

Even though QA Technology is a first-time Swiss user, they have found themselves using the integrated PartMaker SwissCAM-TB-DECO system exactly the way the product's designers intended.

The idea behind the partnership between PartMaker (and other CAM developers who followed) and TB-DECO was to automate the programming of a part. For shorter running jobs, the user might not even make any adjustments to data imported from PartMaker into TB-DECO. For longer running jobs, where every fraction of a second counts, the programmer can use the unique optimization capabilities of TB-DECO to achieve the fastest possible cycle time.

Since PartMaker does the handle-cranking work of creating the program and setting up a working program in TB-DECO, Pierce can use his expertise to wring additional cycle time out of the job in the TB-DECO environment, all of which is of course done on an off-line PC. *On other Swiss-type lathes, additional optimization is typically done on the shop floor at the machine control, while the machine is down and not making parts.*

For QA Technology, it just comes down to how fast they can program and run the part.

"For me, its all about speed," says Pierce. "It's easy for me to take a job that's come in, throw it into PartMaker, generate a program, and have high-quality parts coming off the machine." ■

## David Porth

**Midwest Spare Parts Coordinator**
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A native of central Illinois, David Porth became a field service engineer for Charmilles Technologies after receiving his Associate's Degree from Illinois Central College. After working for Charmilles – where he met Tornos US president Scott Kowalski – for 23 years, David followed Scott to Tornos in early 2007. "The opportunity to make a positive change and contribute to improving the operations of the company appealed to me," he says.

David finds his role as Midwest spare parts coordinator to be both challenging and satisfying. "I am very happy in this position, and I will be for some time," he says. "I enjoy seeing our dream of improving performance and service realized."

David resides in Palatine, Illinois, with his wife Nancy and his two dogs. In his free time, he enjoys watching science fiction and doing small woodworking projects. ■

After starting as a warehouse receiving clerk for Agie, Jennifer Bryk has been working in the machine tool industry for eight years. Jennifer's stepfather, Midwest spare parts coordinator David Porth, introduced her to Tornos and Scott Kowalski in 2007. Jennifer knew of Scott from his time at Agie, but had never met him before joining the team and assisting in the setup of the Midwest Center of Excellence that year. "Tornos has a great reputation in the industry," Jennifer says. "The opportunity to grow with an established company like Tornos was very attractive."

Jennifer later moved into the spare parts department and recently began working in customer service administrative support. "What I like about Tornos is the strong team of employees we have," she says. "It is a pleasure to come to work every day."

Jennifer lives in Chicago with her golden retriever, Avis. She likes going to the city's parks and beaches, and also enjoys bike riding, camping, and traveling. ■

## Jennifer Bryk

**Assistant Spare Parts/**
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# Tornos Micro delivers macro quality

## Micro 7 and Micro 8 offer high levels of precision, take up low levels of space

Long known for making the finest quality parts, Tornos is proud to introduce the Micro line for small diameter workpieces that require an exceptionally high degree of precision.

The Micro 8 is designed for shorter parts, while the Micro 7 is perfect longer workpieces. Both are characterized by their very high standards of precision, along with unrivaled productivity and superior operating flexibility.

The Micro line is ideal for shop owners who are loathe to part with their old mechanically-driven cam systems but feel they must to compete globally. These modular machines have a very small footprint and take up about the same amount of room as the old screw machines they were designed to replace.

The Micro 7 can turn parts up to 2½ inches (60 millimeters) long and 0.28" (7 mm) in diameter, with precision of ±2 microns. The single-spindle machine achieves speeds up to 20,000 rpm, and offers up to 20 interchangeable tool positions. For ease of use, the Micro 7 provides a choice of TB-DECO or ISO programming.

The Micro 7 can eliminate costly secondary operations, lowering overhead and simplifying the production process. The low cost and fast cycle times produce such high quality parts that its users can focus on value-added operations.

Like the Micro 7, the Micro 8 has immense structural rigidity that results in unparalleled machining stability in production. This allows the Micro 8 to deliver remarkable precision of ±1 micron.

Having a 'bushingless" machine means saving money on the inventory of different guide bushings as well as their maintenance. Eliminating the time required to make adjustments to accommodate different bar stock sizes also significantly lowers costs.

The Micro 8 has a 0.31" (8 mm) diameter capacity, and is ideal for part lengths up to three times the diameter. However, it is capable of doing much more. For example, the Micro 8 can be used to perform light endworking operations on a 3/8" diameter part up to 12" long – a 32:1 depth-to-diameter ratio.

Like the Micro 7, the single-spindle Micro 8 offers a choice of TB-DECO or ISO programming. Both machines have five axes, meaning they are perfectly adapted for complex parts, and have a superb price-to-performance ratio. While the Tornos Micros might be made for small parts, they are sure to have you thinking BIG. ■

## Micro 7

- A single-spindle sliding headstock lathe with capacity up to 7 mm
- Two independent tool systems, with capacity for more than 20 simultaneously mounted tools
- Five linear axes are perfectly adapted for complex parts, and give the machine an excellent price-to-performance ratio
- Precision of ±2 microns in production
- Great for longer workpieces of average complexity
- Eliminates costly secondary operations
- Simultaneous operations on spindle and counter-spindle
- Choice of TB-DECO or ISO programming
- Optimum swarf removal prevents unforeseen stoppages
- Extensive access to machining area
- Identical power and speed of spindle and counter-spindles
- Pre-setting system allows for major time savings at tool changeover
- Rigid, cast-iron structure offers great stability, minimizes thermal and vibration effects
- Spindle speed up to 20,000 rpm
- Ideal for electronics and also emerging mini-disc sector for mobile IT applications

## Micro 8

- A single-spindle sliding headstock lathe with capacity up to 8 mm
- Five linear axes are perfectly adapted for complex parts, and give the machine an excellent price-to-performance ratio
- High productivity through fast cycle times and quick changeovers
- Precision of ±1 micron in production
- Multiple configurations available for different applications
- Small footprint
- Spindle speed up to 15,000 rpm
- One piece casting for machine base and bed, with highly rigid tool frame mounted directly to the bed
- Up to 20 tools for maximum flexibility
- Visible and highly accessible working area
- System of linear tools mounted on a main 2-axis cross slide
- Simultaneous machining on the headstock and counter-spindle
- Choice of TB-DECO or ISO programming
- Removable coolant tank and chip tray
- Easy accessibility to maintenance areas
- Ideal for electronics, medical and dental applications

## Nate Giles

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A native of Los Angeles, Nate Giles grew up around his father's machine shop, deburring parts from the age of 10. As time passed, he became very familiar with the Tornos product line, and his early exposure to the industry now gives him 20 years of experience programming and setting up CNC machinery.

Nate joined Tornos US as a West Coast service engineer, and he has been the Midwest applications manager for just over a year. "I like the challenges of working for a manufacturer," he says. "We have to be on top of all the latest and greatest tools and techniques."

Nate now lives in Chicago, Illinois, with his fiancé Emily. He enjoys playing guitar, and often records music in his home studio. ■

## Steve Canty

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Steve Canty just might have been destined for the machine tool industry, as his father and both of his grandfathers worked in machine shops. "I always knew I'd be involved in the machine tool industry in some capacity," he says, "but I never would have thought I'd be working for a manufacturer like Tornos."

Steve began his career in 1982, and joined Tornos in March 1999. After starting as a service technician, he has been Northeast applications manager for two years. "I love the day-to-day adventure," Steve says. "We are always performing the most complex setups and turnkeys, things that other manufacturers have a tendency to shy away from. This makes my job very challenging."

Steve recently purchased a home in Winsted, Connecticut, where he lives with his wife Lorrie and stepson, Justin. The family is expecting a baby boy in September 2008, adding yet another debut to Tornos' IMTS 2008 lineup. ■

# No guide bushing?

## No Problem with Tornos Micro 8

For a company to remain competitive in the United States, it must stay in the technological lead, and this is especially true in metalworking and machining.

Many manufacturers still employ old cam systems; they work, but are they running smart? To become more profitable, American shops should invest in technology that will not only produce better parts, but do it faster, and with less downtime. This is precisely the goal Tornos has in the design and manufacture of its machines.

Tornos machines are on the cutting edge of technology, and Tornos aims to keep its partner companies on the cutting edge as well. But one look at the sliding headstock Micro 8, and it is apparent that something is very different. And it starts with the bar feeder.

Unlike most Swiss turning machines – including those in Tornos' own line – the Micro 8 has a left-hand feeder. In itself, this might not seem all that unusual. But then, something else is missing: the Micro 8 does not have a guide bushing, which ordinarily acts as a chuck to keep the bar stock on the proper path.

"Many of the old cam-operated Swiss machines allowed an operator to remove the guide bushing to produce short, tight-tolerance parts," says Tornos US North American business manager Leonard Lanute. "Many parts being turned today can be machined faster, cheaper, and with tighter tolerances on a non-bushing machine."

The Micro 8 is remarkably precise, boasting tolerance results of 1.4 µ in production. That's because while it might lack a guide bushing, its spindles and tools move along rather rigid guide rails to guarantee machining stability.

Built to turn parts up to 8 millimeters in diameter – hence Micro 8 – the single-spindle machine respects the traditional 3:1 length to diameter ratio of the short, tight-tolerance parts made by the cam-operated machines it is intended to replace, and does so while operating without clearance. This makes it ideal for any number of precision parts – especially those with medical or dental


*As seen in the January 2008 issue of Machining Magazine*

applications – that need to be competitively priced. But it can also turn a 3/8" diameter part that is up to 12" long. That's a 32:1 depth-to-diameter ratio.

"To turn longer parts," Lanute says, "you have to think differently. You want to get creative and make the machine as productive as possible."

With bigger parts or the precision ones needed for an application like watchmaking, a portion of the increase in productivity is the direct result of the shorter bar remnant that results when guide bushing is removed. According to Tornos, the average remnant on a conventional Swiss turning machine is 7", as opposed to just 2" on the Micro 8.

"Just think of how many more parts you can make," Lanute says, before pointing out that having to change bars less frequently will save time and money. "If it takes 45 seconds to do a bar change, over the course of a week, month, or year, that's a lot of idle time."

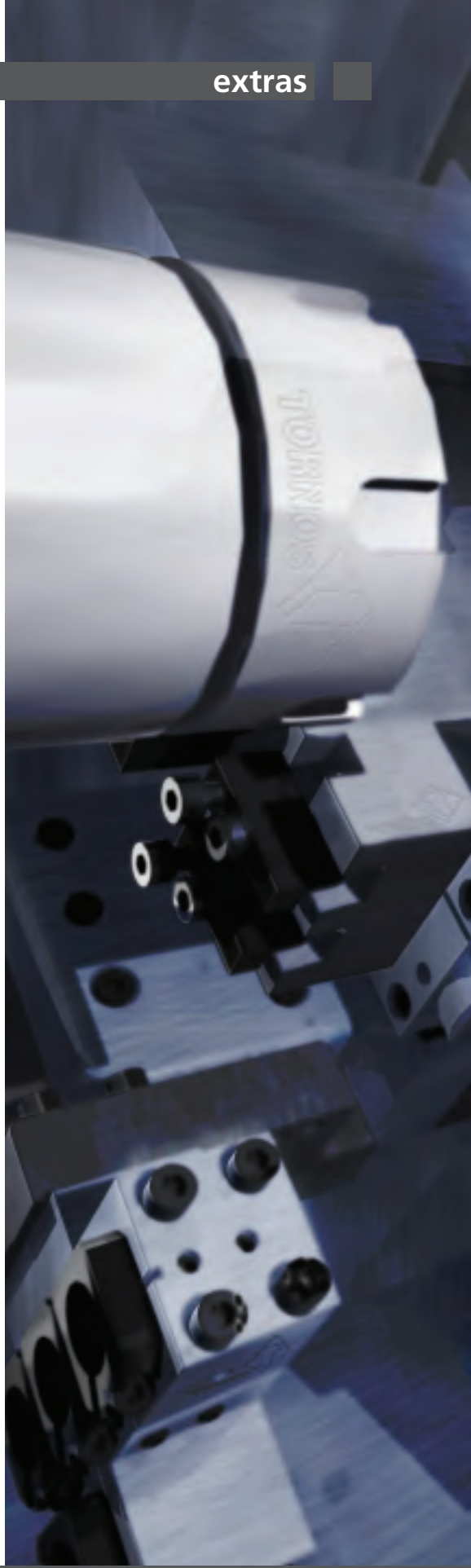
Of course, convincing watchmakers and the medical and dental set that using a non-bushing machine could increase their productivity and the quality of their parts takes some doing, says Lanute. That a guide bushing can be eliminated, and tolerances still made tighter, is a difficult concept to grasp.

"But we worked with a few of our watchmaking customers and had them try the nonbushing machines, and on the short parts these machines fit such a niche in the watchmaking industry that they're becoming the standard now," says Lanute. "The watchmakers looked at the process and realized the value, saying, 'We should have done this years ago.'"

The Micro 8 has two entirely independent and identical tool systems, enabling workpieces of the same complexity to be machined simultaneously on front and back working tools. With 20 total tools, five simultaneous axes, and a maximum rotational speed of 15,000 rpm, cycle times on it can be as quick as six seconds for shorter, simpler parts.

"Bushingless machines don't require ground stock and they are a lower capital investment as well," says Lanute. "And because bushingless design reduces accumulated error due to fewer moving parts, we're able to hold microns."

And holding microns will help any company grab hold of new business, which is exactly what Tornos had in mind for its customers when it designed the unorthodox Micro 8. ■



# The ‘e’ stands for exceptional, economical, and easy

## Tornos introduces the Deco 'e' line

With the Deco ‘a’ line one of Tornos’ most overwhelming successes, the company has debuted the Tornos Deco ‘e’ line, four machines that provide a cost-effective alternative for the production of parts that don’t require an end unit.

With the Deco 10e (0.4 inch diameter capacity), the 13e (0.6 inch), the 20e (1 inch), and the 26e (1¼ inch), there’s an ‘e’ machine for virtually every producer, for part sizes from 1 millimeter to 32, and selecting the right Deco turning center is now easier than ever.

The reliability that has become the hallmark of the Deco line is alive and well with the ‘e’ range. Tornos has literally thousands of hours of experience on these machines, and the TB-DECO software ensures familiarity for Deco ‘a’ users.

The ‘e’ line boasts three fully independent tool systems (four on the 10e), and all three can engage the material simultaneously, reducing cycle times by balancing operations between the main and counter spindles. Tool systems are completely modular and also interchangeable with the ‘a’ line.

Made for medium-to-complex parts for the automotive, electronic, and medical-dental sectors, the Tornos Deco ‘e’ line’s various configurations, options, and capacities ensure a maximum return on every investment. Just like the more-familiar ‘a’ line. ■

## Deco 10e

- For part diameters up to 0.4 inches (10 mm)
- Machine with four tools simultaneously, 15 tool positions (11 front, 4 back)
- Main spindle speeds up to 16,000 rpm; counter spindle up to 9,000 rpm
- Reliability for which the Deco line is known
- 7-axes total, with independent control of all programmable axes
- Fine adjustment for counter-spindle collet
- Windows™-based TB-DECO™ software for easy programming, real time calculations, graphic simulation of paths, ISO compatibility

## Deco 13e

- A cost effective alternative for part diameters up to 0.6 inches (16 mm)
- The three tool systems are 100% independent, allowing all to simultaneously engage the workpiece
- Main and counter-spindle both boast maximum speed of 10,000 rpm
- Fine adjustment for counter-spindle collet
- Tool system designed to be modular and adaptable for various machine tools
- Provides solutions for electronics, automotive, and medical-dental sectors

## Deco 20e

- For parts up to 1 inch (25.4 mm) in diameter that do not require an end unit
- Maximum part length of 8 inches (200 mm)
- The three tool systems are 100% independent, allowing all to simultaneously engage the workpiece
- Main and counter-spindle both boast maximum speed of 10,000 rpm
- Production standardized with other machines in the Deco line through TB-DECO programming software and identical kinematics
- Interface for swarf conveyor
- Tool system designed to be modular and adaptable for various machine tools

## Deco 26e

- A cost effective alternative for parts up to 1¼ inches (32 mm) in diameter
- The three tool systems are 100% independent, allowing all to simultaneously engage the workpiece
- Main spindle speed up to 8,000 rpm; counter-spindle up to 6,000 rpm
- Production standardized with other machines in the Deco line
- Tool system designed to be modular and adaptable for various machine tools
- Provides solutions for electronics, automotive, and medical-dental sectors
- Multitude of options allows requirements of all markets to be met, while keeping machine price highly competitive

# Done-as-one: Tornos triathletes look to finish race as a group

## Tornos US uses triathlon to build something different: a stronger team

Tornos is known for building high-quality CNC lathes, machines where all the components run in perfect harmony. Now some members of Tornos US are hoping to generate that same continuity by taking on one of the most grueling challenges in the sporting world – a triathlon – and completing every leg as a single, cohesive unit.

Tornos US president Scott Kowalski and five of his employees are participating in the Naperville Sprint Triathlon on Sunday, August 10 in Naperville, Illinois. Daniel Rigby, the president of HRMS, whose company facilitates the human resources and benefits for Tornos US, was instrumental in the formation of Team Tornos.

"Daniel Rigby really pushed us to enter," Kowalski says. "He was doing his pay-it-forward thing. He started doing triathlons, lost about 50 pounds, and wanted us to do it for our health and for teambuilding. He was relentless."

Kowalski quickly saw the value, both personally and professionally, in training for and competing in a triathlon. North American business manager Leonard Lanute, project integration manager Jon Dobosenski, Midwest regional sales manager Andy Stemler, operations manager Bob O'Hara, and ESCO product manager Stephan Swanson all agreed to join in as well.

For training purposes, the group broke up into pairs, and dove into a thorough regimen. Even though the race is a sprint triathlon, meaning that the distances each competitor must swim, bike, and run are half that of the Olympic length, that certainly doesn't mean it will be easy for the first-time triathletes.

Take Stemler, for instance. A veteran of some 5k runs – the same length as the Naperville Sprint's concluding footrace, or 3.1 miles – Stemler says, "I haven't swam more than 10 yards," and therefore finds the 400 meter swim to be more than a little daunting.

However, Stemler will have his teammates by his side the entire way. The group will start and finish every event together, meaning they won't move from the swim to the 12.4-mile (20k) bike ride until every man has completed the leg.

"We're doing the whole thing as a team," Kowalski says. "There are no individual goals, because we're doing it all together. Our only goal is to finish on Sunday."

### *Pedaling like a monkey*

A few short months ago, even the relatively modest goal of finishing in one day would have seemed unachievable. Most of the team admits that they weren't as active or

*Team Tornos (left to right): Bob O'Hara, Leonard Lanute, Scott Kowalski, Andy Stemler, Jon Dobosenski, Stephan Swanson*

cardiovascularly fit as they should have been, but that all changed once their extensive training program began.

The training started in earnest in early April, with the most rigorous sessions coming in May, according to Stemler. Each pair trains several times a week, getting in the pool, taking to the track or the streets to run, and participating in spinning classes to hone their biking skills. Which for some of them, apparently, could use some work.

Sitting atop their matching Felt Z80 bicycles, the men joked about some of the mishaps that have occurred when they've tried actual street biking instead of the stationary bicycles used in spinning.

On one occasion, Dobosenski's derailleur fell off during a group ride, but even with his bike stuck in his higher gears, he gamely made an effort to not lag too far behind his teammates. "I had to pedal like a monkey just to keep up," he says.

Then there were two falls, one by O'Hara and another by Swanson, both of which were blamed on an inability to "get clipped back in"; that is, the men were so focused on getting their specially-designed biking shoes reconnected to their pedals that they either lost track of their bearings or their rate of speed and tumbled to the asphalt.

### *Tornos team grows stronger, gets smaller*

Still, all the skinned knees and sore muscles have served their purpose. With the easy banter the men exhibit when together, it wouldn't seem that they need any sort of teambuilding. But they believe that the experience has brought them even closer together. Both figuratively and literally, as they have collectively lost over 100 pounds.

Even Lanute, who the rest of the team pointed to as the best conditioned of the bunch going in, has lost 12 pounds. A swimmer and distance runner in high school and a competitive bicyclist afterwards, he will nonetheless be participating in his first triathlon.

"I never had the desire," Lanute says. "But I enjoy the challenge. This is a great opportunity to do it with five people I work with and bond. To not compete by myself, but to help each other as a team effort."

Another crucial part of the team effort – though technically not a member of the team – has been marketing coordinator Juli Honaker, who is referred to as "Team Mom" (and "Office Mom" when the team is not in training). Honaker has helped with logistics, supplies, and keeping the squad on the proper diet, to ensure Team Tornos is in tip-top condition.

However, as the race approaches, the team is looking forward to a different type of sustenance. After having a carbohydrate-heavy pasta meal to fuel up before the race, the post-race celebration will be a barbecue at

*Leonard Lanute enjoys a light-hearted moment atop his racing bike*

Kowalski's house that will include a Chicago-style hot dog cart and, under the strictest supervision, a kegerator.

### *No names, just Tornos*

Part of the team concept is reflected in the uniforms, which are, in every sense of the word, uniform. There are no names on the team's jerseys.

"That's part of the team concept," Kowalski says. "No names, just Tornos."

*Andy Stemler (left) and Leonard Lanute cross the finish line together*

Team Tornos has also received support from the Conneticut and California offices, Moutier, and some of the race's sponsors, including AHP, Tanita, Life Start Fitness, HRMS, Spokes, and the Naperville Running Place, a local sporting goods store. The sponsors provided personal trainers and much of the team's equipment, helping them go a long way towards improving their techniques and endurance. And ultimately, they hope, their performance.

Kowalski and his training partner Stemler recently completed a simlated triathlon as part of their preparation. They swam the full 400 meters, spun for 18 miles – going beyond the 12.4 miles they will have to cover on the actual course to compensate for any difficult conditions they might face – and ran a 5k. Both men surprised themselves by finishing in less than two hours. While the team would love to complete the course within that time frame, they steadfastly insist it is not the goal.

"We just want to complete it," O'Hara says. "That's the goal. Just to finish."

As the novice triathletes tease each other about one thing or the other – be it losing their balance on the bikes or an inability to swim – it is clear that in many ways, another more important goal has already been accomplished – Tornos US is a stronger team than it was before. And, provided they "finish by Sunday," they will grow even more when they cross the finish line, as a group, at the Naperville Sprint Triathlon. ■

*Team Tornos congratulates one another after the Naperville Sprint Triathlon*

UPDATE: On a picture-perfect August morning, Team Tornos did far better than "finish on Sunday" at the Naperville Sprint Triathlon. All six men completed the course in less than two hours, and stayed true to the team concept they had preached beforehand. Though some of the men finished individual segments quicker than others, they always waited for all of their teammates before moving on to the next leg.

"It is amazing how a little blood, sweat, and tears can bring a group closer together," Kowalski said. "I was extremely proud of the way everybody competed and finished, as well as those in the company that did not compete but still chose to get up at 5 a.m. on a Sunday to cheer on Team Tornos. It was a great day for everyone."

# New parts & logistics organization makes a world of difference for customers

Over the last year, Tornos US has been placing great emphasis on developing necessary systems, networks, and tools to allow us to provide better service and support to you, our valued customer. We have opened new Centers of Excellence across the U.S. to give you easier access to local Tornos service, sales, applications, parts, and distribution. Showrooms are now closer to you, making it more convenient for you to see machine demos and participate in training sessions.

One important change that was finalized late last year was the move of our main spare parts operation from Connecticut to Illinois. The new parts facility configuration enables us to offer extended hours of operation – and we've been shipping parts to you from 8 a.m. to 9 p.m. EST (5 a.m. to 6 p.m. PST). All three parts locations – the main facility in the Midwest and the secondary parts departments in Connecticut and California – maintain three sets of warranty and spare parts for each customer at all times.

In addition, spare parts coordinator David Porth has dedicated substantial time and effort into enhancing the parts inventory database – adding and updating parts photos, ID numbers, descriptions, and model cross-referencing tables. You may not see this database with your own eyes, but you'll appreciate how much quicker you can get an answer when you need a part identified. David has also organized other useful internal Tornos documents in an easy-to-use online system. Both of these tools are helping Tornos to continuously improve response times. We're sure you'll notice! ■

*Tornos Midwest spare parts coordinator David Porth takes a call in his office*

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# A convenient truth: Badgett's branches out to stay successful

## Company moves away from oil industry and forms a more diverse base


*Badgett Corporation's headquarters in Chickasha, Oklahoma*

Recent talk in the U.S. has centered around the need to eliminate the dependence on oil. Alternative fuels, hybrid cars, and power generated by wind or nuclear reaction have been posited as possible solutions to what is an ever-growing problem. However, if the people of the United States need a model for how to become less reliant on oil, they need look no further than the Badgett Corporation in Chickasha, Oklahoma.

Founded in 1922 as the Badgett Steam Lubricating Company, the company worked almost exclusively with partners in the booming oil industry for its first 25 years. However, it began its transformation into the Badgett Corporation when its namesake device, the Badgett Steam Lubricator, the innovative brainchild of founder Fred Badgett that for many years was a highly successful accessory, was made obsolete by advances in technology.

"Instead of continuing to make those, which unfortunately didn't sell anymore, they began to job shop their equipment," Gary Badgett, president of the company and grandson of Fred Badgett, says of his predecessors. "Some of it was oil-field related, but then as the war years came along, they did war production. When World War II was over, they went back to the oil fields. But long about 1948, they stumbled onto a company in Fort Worth, a very small operation in the hose fitting business, and they acquired a couple of production run jobs from them. And it turned out that company succeeded and grew, and our company partnered with them and grew as well, to the point that we were pretty much a captive shop, with them being 90 to 95 percent of our business.

*Gary Badgett, president of Badgett Corporation and Oklahoma State University Cowboy for life*

"You always live on the edge when you've got all your eggs in one basket like that, but it worked for a long time. But around 1990 that customer was bought out by a larger corporation. We continued to work with them, and still do today, but during that time, we decided that we needed to find additional business. And so we found other customers, some of which we still have today that have grown into very large accounts."

Many of those new customers are in aerospace, an area that continues to grow even in light of the recent economic downturn. In fact, Badgett's has served this industry so well that they have an entire wall of "Strategic Supplier of the Year" and "Premier Supplier" awards from some of the biggest names in aerospace. Despite

this success, Badgett's continued to seek out clients in other industries.

"We make rather high-profile parts for the aerospace industry, but we also make a lot of parts on our industrial side that wind up in natural gas distribution or heavy equipment," Badgett says. "We also make parts for race cars. We were told that about 70 percent of the NASCAR racers use our fittings."

Early on, Badgett's realized that the company could not succeed solely on the strength of local businesses. Instead, they decided – in what has also become a familiar mantra these days – to think globally.

"There's a lot of oilfield work in Oklahoma, it's just not our niche," reveals Badgett, an Oklahoma State University alumnus who has maintained a local connection by attending all but one of his alma mater's home football games since 1964. "It can be difficult, because an awful lot of our competition is much closer to our customers. I can't visit as frequently on a personal basis as other people might. As long as we've been doing this we have fought that issue, of being a lot farther away from our customers than our competition is. So we have to do a lot of smiling over the telephone if we're going to keep them happy."

***If it flies, Badgett's is on it***

The Badgett Corporation has managed to keep its widely dispersed client base happy by focusing on the quick manufacture of high-quality parts at a competitive cost. With much of its business in aerospace production, Badgett's has continued to thrive through what have been lean times for many machine shops in the U.S.

"The aerospace industry is strong," Badgett says. "So our existing base of business is growing. And then each year, we have what's like automatic growth from keeping up with our customers, increasing the volume of their orders, and taking care of their expansion needs.

"Through our customers, we're just about on every new aircraft platform being built today," Badgett says. "And through the process of required inspections and part changes and so forth, our parts go into the existing-aircraft market as well.

"One of our customers tells us, 'If it flies, Badgett's is on it.'"

As the company began transitioning towards the aerospace industry in the early '90s, Badgett's made an important investment – a quartet of Tornos EC 164 machines. Amazingly, those four machines are still on the machining floor, in full-time use.

"We use our Tornos machines to run a lot of stainless steel fittings for the aerospace industry," Badgett says. "Four of those machines are 18 years old, and they run parts just as well today as they did when we got them."

After seeing Tornos' reliability first-hand over such a prolonged period of time, Badgett has continued to purchase more of the company's machines as the Badgett Corporation has grown and expanded.

"We just got in our second new Sigma machine, last week," Badgett reveals. "The older machines have a 5/8-inch capacity. The new Sigma machines hit sort of a sweet spot, because they go up to an inch. We've got a lot of parts that are in the sweet spot for that Sigma machine, obviously – I bought two of them, and we're extremely pleased."

With the quality and reliability already established, Badgett's has been impressed by another benefit of the Sigma line over similar machines by other companies – its speed.

"Just in the time we've had the first Sigma, we've seen very, very significant improvements in cycle time on exactly the same parts that we'd been running on another brand," Badgett says. "Although we previously bought equipment other than Tornos, we never would have done so had the Sigma been available at that time. The machine is perfect; just perfect.

"We've run three different part numbers on the new Sigma. And on those three, we are close to 100 percent improvement. And that's due mostly to the machine configuration." Because the Tornos is designed with a powerful main and sub-spindle, it is better able to balance the first and second operations on its produced parts.

"In reality, the Sigma machine isn't going to double production," Badgett admits. "But because of

*Badgett's Tornos supervisor JoAnn Jackson in front of a Tornos bar feeder*

several circumstances, we have seen that kind of improvement. The real difference is probably going to be somewhere around 30 – 35 percent, which is what Tornos estimated."

***Tornos machines help some; Tornos' people do the rest***

While the people at the Badgett Corporation admire and appreciate the efficiency of the Tornos line, when they are choosing their machines, they need more. And Tornos, they've found, has provided it.

"Reliability and simplicity are the most important to us. The parts that we run are not watch parts," Badgett relates. "Swiss automatics typically are thought of really high precision parts. The parts that we make don't have Swiss-type tolerances, so to speak. So I would say that tolerances are not an issue.

"But simplicity is important. It would be important to anybody. The simpler it is to do, the easier it's going to be. And of course, obviously reliability's a no-brainer. You don't want to be down. And we have found with Tornos that reliability is really great. We have just not had the kind of downtime that we've seen in other pieces of equipment that we've had."

But Tornos service has also proved invaluable, and Badgett seems to relish the working relationship that the two companies have established.

"One of the reasons that we've enjoyed Tornos is the people," he says. "We've had people that we've worked with for many years. They're still there, and they know us. We've never had an issue. They've provided extra training when we've needed it, extra support when we've needed it, and telephone support when we've needed it.

"We've been good Tornos customers for a long time. It's a good fit for us."

Gary Boehringer, an applications engineer for Tornos US, has been especially helpful.

"The first job we put on the Sigma had been running 212 seconds. With Gary's help, we got that down to about 97 seconds," Badgett recalls. "A lot of that was just things we were doing wrong. We were applying the same speeds and feeds we had used on our other equipment, were laying the job out the same way. And Gary came in and programmed the job differently, just split the front side and the back side differently, and pushed speeds and feeds much harder, used some different tooling than we had put in it. Gary also provided some additional training, and helped us set up the job we're running now."

With 92 employees and 31 multi-spindle screw machines ranging from 1 to 2-5/8 inches, four conventional CNC lathes, and a complement of secondary operations machines in addition to the aforementioned offerings from Tornos, Badgett's has the capacity and resources to execute many jobs at a time. But efficiency is still of utmost importance. Badgett's machine shop employees, therefore, have a great appreciation for the Tornos machines, both new and old.

JoAnn Jackson has been with Badgett's for 29 years. She started on their automatic screw machines using a hammer and indicator before she moved to the CNC-controlled Tornos machines 11 years ago. Now the company's Tornos supervisor, she is in charge of two shifts with a total of 12 people that run the six Tornos machines.

"The Sigmas have more tooling positions, so you have better capabilities," Jackson says. "I have more access directly inside the machine, which I like. I also like that I can run a complete part. The Sigma machines eliminate a lot of the stuff that we were having to do on the older ones, like secondary operations and deburring. They make a beautiful part."

Coworker Bob Waldon, who came to Badgett's after retiring as a postal carrier, is struck by how quickly he

*Operator Bob Waldon on Badgett's machining room floor*

was able to learn to use a Tornos. "I've been operating one about four-and-a-half years, and they're really good machines," he says. "They're not all that complicated. I'm not an expert on machining or anything like that, but they're easy to operate.

"I'm a retired mailman, but I've always liked machinery. My dad worked for Hughes Tool in Houston for 30 years; and my wife has been working here for 14 years now. I kind of wish I'd started here a lot earlier than I did."

One employee who did start at Badgett's very early is Vernon McElhaney, who has been with the company for an amazing 52 years. After graduating high school in 1956, McElhaney was hired by Badgett's. The loyalty between McElhaney and Badgett's is virtually unparalleled, as he still works for the company, keeping all the old cam machines and gear hobbers on the floor running.

As Swiss shop supervisor, McElhaney does such a good job with machine upkeep that sometimes Gary Badgett can only marvel. "Look at them," he says, pointing in the direction of his long-lasting Tornos ENC 164's. "I think it's phenomenal that those machines are 18 years old, and they've run basically day and night. They really are nice machines."

### *Using Tornos not the only way Badgett's saves time*

Many of the parts that Badgett's manufactures have a similar profile that allows them to bundle them together in a manner that reduces time for bar stock and tool change over.

"One of the nice things about some of our parts is that they 'family' very nicely together," Badgett says. "In fact, the first two jobs we put on the new Sigma, the parts were the same bar stock size. They had all the same tools including the drill sizes, and the pickup collet was the same. And so what we were able to do is tool up one job, and then write the program for the other part using exactly the same tools.

"It's like a 30-second changeover. So, in the case of those two jobs, and others, where we can create that same kind of family, we're literally able to run the parts for two, three hours, make a few parts for the customer, and switch over and make a few other parts for a customer.

"The Sigma machine has enough tooling positions that we can have specialty tools that we don't have to take out. That lets us make changeovers very quickly."

### *The more things change…*

Badgett's has been in its current facility for over 40 years old, and the part-making industry has undergone a complete overhaul since the company moved into its new digs in 1966. While Badgett's parts used to be a staple on the Oklahoma oil fields, now they are ubiquitous in the aerospace industry. Ironically, many of the aerospace parts the company manufactures are fuel line fittings for jet engines; the company can get away from oil, but apparently Badgett's still runs on fuel.

Still, like those who trumpet the benefits of reducing the reliance on oil, the Badgett Corporation is always thinking about the future.

"My long-term plan does involve replacing the older ENC machines with new machines," Gary Badgett says. "Right now, it's going to be a combination of the two new ones and the four old ones, but before long it'll be three new ones and a couple of old ones, and then more and more new ones as we continue to grow the business. And as we move forward, it'll be with Tornos." ■

*Tornos US and **deco**magazine would like to thank Gary Badgett, JoAnn Jackson, Bob Waldon, Vernon McElhaney, and the entire Badgett Corporation for their participation in this article.*

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# Good things come in twos: Deco Sigma 32

## This Tornos turning center is a perfect blend of flexibility and performance


The number 32 is simply 2 raised to the fifth power. Coincidentally, most of what is so remarkable about the Tornos Deco Sigma 32 can be broken down by 2's. For instance, there are 2 tool systems. Though fully independent, all tool holders and accessories can be interchanged between them.

Of course, there are more than 2 tool positions; in fact, there are 22. The dedicated tooling for the main and counter-spindles means 2 tools can cut simultaneously, greatly improving cycle times by allowing for an even split between front- and back-working operations. The 2 spindles have identical power and capacity, and all operations that can be performed on the main spindle can also be executed on the counter-spindle.

The Sigma 32 is available with 2 types of programming, ISO and TB-DECO. This flexibility makes it perfect for all kinds of machine shops, regardless of past machine-tool history. Virtually anyone who has operated a CNC lathe can run the Sigma 32.

Obviously, there are a few characteristics that do not fit neatly into the theme of 2's. In fact, there are 2 of them that immediately come to mind. The Sigma 32 has 1 ¼ inch (32 mm) diameter bar stock capacity, while boasting six axes for maximum flexibility.

A great deal of the Sigma 32's strength comes from its cast iron base. It also has an advanced shock absorbing system to dampen its high acceleration rates, and both the spindle and counter-spindle are mounted on the same axis to ensure stability.

The Sigma 32's optimized ergonomics allow for easy setup and tool changes, with an open machining area that also provides optimum chip removal. All in all, the Tornos Deco Sigma 32 just has 2 many outstanding qualities 2 be listed in this limited space. If you would like to learn more, please visit www.tornos.us/2sigma32.

### Tornos Deco Sigma 32

- For part diameters up to 1-¼" (32 mm)
- All tool holders and accessories can be interchanged between two tool systems
- Exceptional user friendliness and ease of use, with superb accessibility
- Choice of programming: TB-DECO or ISO
- Optimum ergonomics enable easy setup and tool changes
- Machine with two tools simultaneously
- Extremely strong construction as verified by quality of finished components
- Efficient chip flow and evacuation
- Dedicated tooling for main and counter-spindle allow two tools to cut simultaneously
- 6 axes with counter-spindle and 22 tool positions

# This enterprise has a different prime directive: Do whatever it takes to succeed

## Petron Automation, Inc., finds inspiration from Star Trek, streamlines its operations with help from Tornos

Space, the final frontier. Unfortunately, that's apropos of nothing, as this is not the story of the starship Enterprise, but rather of Petron Automation, Inc., a company whose very name was derived from the iconic television show Star Trek.

"As a little kid, I remember driving around and we were trying to figure out a company name," explains Michael Petro Jr., son of Petron's founder and the company's vice president of sales. "My father liked Star Trek, and other science fiction, so he added the 'n' to our last name to make it Petron and give it a kind of sci-fi sound. And it just stuck."

Petron Automated Machine Products, as it was called in 1980, began as a builder of machinery. "We started out of a one-car garage," Petro remembers. "And then we went to a rental space in 1981, never thinking we'd be any bigger than the couple thousand square feet we had there."

But the company did become bigger, moving into its current facility in Watertown, Connecticut, in 1992. By that time, Petron was primarily doing secondary operations.

"We built this place and it really started to take off," Petro recalls. "And then the economy changed of course, with China and India, and we're all fighting for the same piece of the pie now."


*Petron Automation's headquarters in Watertown, Connecticut*

As Petron strove to maintain and increase its share of the market in the new economy by focusing on parts production and moving away from secondary operations, it discovered a willing and effective partner in Tornos.

"In order to survive, we had to buy CNC machinery, because people weren't sending out jobs for secondaries anymore since they could get it dropped off complete," Petro says. "We started with another brand, but then we went to the Decos because they could service all our needs. And then we were able to compete."
While Petron once only quoted lots of 100,000 pieces or more, they began taking orders for as few as 50 pieces. Though they still fill orders of up to a million pieces, seeking out smaller lots and getting away from secondaries were just two of many adjustments the company made.

"We'd love to do more secondaries, because they're more profitable," Petro admits. "But if we hadn't reinvented ourselves, we wouldn't be where we are now. We were lucky we were able to change with the times."

Petron plant manager Robert Giannaccio credits more than just luck. "Mike Sr. is right on the ball when it comes to making moves," he says. "He really had the foresight. Times were bad, and that's

*Mike Petro Jr. (left) and Robert Giannaccio discuss business while Chris Macaluso works on the Deco Sigma 20 in the background*

when he bought the most machinery. The last few times, he hit it right at the right time. He just has an instinct."

***"They've been good to us, so we've shown loyalty to them"***

As the need for secondary operations lessened with the influx of CNC machines that most companies were turning to, Petron was quick to adapt. With overhead a major concern, their first investment was on an entry-level turning center, but soon after, they were looking to upgrade.

"We already had the other brand, but we bought our first Deco in 2000 because we needed the capacity," Petro says. "And the Deco more than paid for itself. It really did a good job.

"We eventually sold off that Deco, and all our CNC machines, and purchased new ones. So now we have a Deco 26a and a Sigma 20. And we're looking at a 13 now."

Adds Giannaccio: "Our Tornos machines have all the bells and whistles. They're fully loaded." Which certainly makes things easier for his staff, allowing them to focus exclusively on producing high-quality parts. With roots in machine fabrication – Petron started as a ground-up builder of custom-made designs, which varied greatly depending on the specific client's needs – the company continues to tinker with custom add-ons to many of its CNC machines. But they have found little to do on either of their Tornos offerings.

Since the company makes parts from stainless steel, aluminum, brass, copper, beryllium, and plastic, the Deco's ability to produce any number of intricate designs in a multitude of materials is vital to Petron's operations and success. And while Tornos' machines have helped improve efficiency, so has its support staff. Paul Cassella, Tornos' applied technology manager, has worked closely with Petro and Giannaccio, helping them refine their processes and reduce cycle times.

"Paul Cassella is excellent, so we see something and we'll really go by his time cycles," Petro says. "And he's made the difference on what machine to purchase.

"He gets a lot of credit for selling these machines. He doesn't sell them per se, but he gives us a dead on, almost exact cycle time. Everybody at Tornos has a part in it – the service guys are great, everybody." Here Giannaccio chimes in: "Tornos service department is stable, where a lot of service departments have been beat up pretty bad and lost a lot of people. With Tornos, they all live up in this area. For us, it's easier. Someone will stop in on the way in, or on the way home."

Still, Tornos' ability to live up to its product claims is what makes Petron a repeat customer.


*A view of Petron's Tornos Deco 26a*

"It really comes down to having what Paul says be true, because when you buy the machine, you want exactly what they say it can do," Petro says. "They've been good to us, so we've shown the loyalty to them. I mean, us buying two machines is probably like a big company buying 10 or 12."

### *The King of All Machines*

The done-in-one nature of both the Deco 26a and Sigma 20 has allowed Petron to function with fewer operators than they previously employed.

"We don't have to have a night shift anymore because the machines run by themselves at night," Petro says. "We have sensors on the machines that can be connected to any telephone number in case anything goes wrong. So often times we can load the bar for a certain number of parts, and let them run all night. We'll usually do a job for a few days to see how it goes, then gradually start machining through the night."

The repeatability that allows the Deco 26a to run lights out joins its capacity and rigidity among characteristics that Petro singled out as being exceptional, causing him to give it a unique designation.

"The 26a is definitely the King of All Machines," he says. "Nothing I can see can touch that machine." Giannaccio nods and adds, "You're not going to get anything better."

After operating for some time with the Deco 26a as its lone Tornos, Petron decided it needed to broaden its production capacity and purchase another machine. Given the effusive praise they lavish on the 26a, choosing another Tornos, the Sigma 20, was a no-brainer.

*Some parts produced by Petron's Decos*

"When we went to the 20, we wanted to be able to focus on smaller, simpler parts," Petro says. "Doing the higher volume, smaller parts on the Sigma frees up the bigger machine to do the shorter runs with the more-complex parts."

The investment allowed Petron to become a more well-rounded machine shop. The company's slogan is "From prototype to production," as they will do any operation to machine a part in its entirety. To borrow one of Tornos' favorite phrases, Petron Automation is a done-in-one outfit.

"That's one thing our customers like, that we supply a completed part," Petro reveals. "They don't want to get the part back and then have to send it out to be heat treated, plated, or whatever may need to be done to it. So when it comes to us, pretty much from prototype to production, when they get the part all they have to do is package it up and ship it out. It's one stop shopping, which people like.

"We're doing more difficult work because we have the machines to do it, and not everybody wants to do the difficult stuff. Everybody's fighting for simpler work, so we've taken on more complex work."

Most of Petron's more intricate, longer-cycle parts are for customers in aerospace, though an effort is being made to attract more clients from the medical sector. They also hope to recapture some of the business they lost with other smaller, higher-precision parts. "That's one of the first markets that went off-shore, the contact market," Giannaccio says.

According to Petro, if they are successful in regaining some of the previously-outsourced business, they are likely to purchase an *Esco by Tornos*. Holding up a tiny contact, he says, "We used to run millions of these, and that's what we're trying to get back into again, all the small parts. This is where an Esco would be perfect. My father and I looked at the machine, and we were amazed at what it could do. You can run this much quicker on an Esco as opposed to some of the other bigger machines."

### *"He made a believer out of me"*

If Petron Automation ever gets the business to purchase an *Esco by Tornos*, it will likely be because the primary argument against outsourcing – that customer service is lacking – will have proven true on a grand scale. Interestingly, Petro uses the same argument as a way trumpeting the benefits of Tornos.

"Local companies seem like they're looking for the local work again, as opposed to going overseas, which is good for everybody," he says. "It's so much easier to work with somebody local. If you have a problem, you just drive there or call them and that helps out a lot. If we have a problem, we just call up to Tornos and talk to one of the gurus up there. And we get almost instant answers, so we're not waiting. And honestly, the machines are excellent, obviously, but service is just as important."

Giannaccio agrees. "That's the name of the game. Every machine can have a problem now and then, so you've got to back it up. A bad service department can ruin a company. If you let too many service guys go, there goes your service. But Tornos has had the same guys there for years."

However, it was one of Tornos' newer additions that really made an impression on Giannaccio – Scott Kowalski, who has been the president of Tornos US since 2006.

"I was having trouble getting a part. I don't know how I got Scott's cell phone number, but I had it, so I called him up. I said, 'I sent in for this part, and I need it right away.' He said, 'Hang on a minute.' So I hear him talking on the telephone – he must've called the parts guy in Chicago – and he said, 'OK, it'll be there tomorrow.'

"I said, 'Wai-wai-wait-wait a minute. Wait a minute. I'm going to have it tomorrow?' 'Yeah, it'll be there,' he said. I asked, 'What do you mean?' He said, 'You're getting the part tomorrow. I hope that's okay." And he was laughing. I said, 'Okay, thank you.' That's the first contact I had with him. I tell you, he made a believer out of me."

### *To boldly go where no man has gone before*

The relationship between Petron and Kowalski has only grown since, as Petro and Giannaccio have joined the Tornos US president for a few meals and several conversations. And while the company's familiarity with Kowalski has grown, so has its experience and efficacy with Tornos' TB-DECO programming. Most of Petron's staff had been more accustomed to older ISO programming, but Petro credited Tornos' Dave Olson and Steve Canty for helping make converts. The process was also aided when Petron hired a new operator from an unlikely source.

"We found a kid, Chris Macaluso, who was working in a bakery department," Petro says. "He didn't know a screwdriver from a hole-in-the-wall, but we had someone who would train him, and the kid is phenomenal. He picked it right up.

"People can complain that it's hard to learn, but six months ago, literally, he was baking bread, and now he's programming TB-DECOs, and helping us make a different kind of bread! And he actually likes TB-DECO better than the ISO programming."

Now five months into his tenure at Petron, Macaluso says that he loves his new job and credits his trainer, Greg Kaday, with helping him learn the ropes.

"It was a little bit intimidating when I first started," Macaluso says. "But Greg's kind of been my mentor, and he's the best. I couldn't ask for anyone better to teach me. It was scary at first, but after the first month, you feel like you've been here for years."

Kaday, a former Tornos technician who tired of the traveling lifestyle and wanted to spend more time with his family, still has a great appreciation for the accuracy of the pre-setter, and the way the programming yields the

*A parts bin at the end of the Deco 26a*

*Operators Greg Kaday (left) and Chris Macaluso flank Robert Giannaccio (center left) and Mike Petro Jr.*

tool path and cycle time with great precision while reducing the setup time. "You can go from laptop to machine and be 95% there," he says. "I bleed Tornos. There's nothing like it. It's all I really know and it's all I care to know."

Macaluso and Kaday – and all of Petron's employees – will likely have more room in which to operate in the near future, as the company has plans to add another 10,000 square feet to the building. Perhaps the additional space will be Petron's final frontier, but then again, with the company's penchant for upgrading its machines every five years, Macaluso and Kaday also might have some additional new worlds to explore.

According to Giannaccio, both operators exemplify the stellar work ethic that is the signature of Petron Automation's founder, Mike Petro Sr. However, Petro Sr. goes out of his way to burnish the credit onto his employees instead of himself.

"I read a book a long time ago about how the Rockefellers and the Vanderbilts all made their money," he says. "The one thing I got out of it is, they said, 'The expertise is out there. People who do well in business will hire the expertise, instead of trying to do it all themselves.' I don't really even know how to turn the machines on."

Given his background as an inventive machine fabricator, toolmaker, and engineer, Petro Sr. seems prone to a bit of hyperbole with that last part. However, he really does rely extensively on the know-how of his employees. And conceptually at least, his statement is not all that far-fetched; even Captain Kirk had to let Commanders Sulu and Chekov fly the Enterprise. ■

*Tornos US and **deco**magazine would like to thank Mike Petro Sr., Robert Giannaccio, Mike Petro Jr., Greg Kaday, Chris Macaluso, and the entire Petron Automation team for their participation in this article.*

# New Madaula thread whirlers available from Euro-Technics

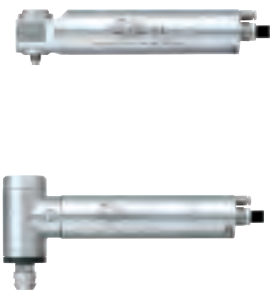
Euro-Technics is the North American sales and service representative for Madaula S.A, which has introduced a new line of thread-whirling attachments. The manufacturing of surgical screws is a booming business, and it's believed that over 60 percent of all bone screws manufactured in the U.S. use the thread-whirling process.

Euro-Technics carries a series of Madaula thread-whirling attachments compatible with the Tornos Deco line. Features of these products include increased angle adjustment of the whirling head, fine adjustment of the whirling head angle by use of an exclusive adjustment device, improved and complete sealing of the spindle and bearings for increased life of the tool, and relocation of the coolant feed to direct the coolant flow away from the cutting inserts, machine bushing, and spindle. For more information, please visit www.euro-technics.com. ■

# NSK America introduces shorter spindles at IMTS

NSK America's booth at IMTS 2008 features new compact spindles for use on your Tornos machines and other CNC turning and milling centers. All four new spindles are being highlighted at booth B7313.

The first new spindle, the EMS-3060A, is only 4-7/8 inches (124 mm) long and features an electric motor, with speeds up to 60,000 rpm. The PMS-3020A is 4-1/8" (105 mm) long, with an air motor good for 20,000 rpm. The EMA-3020 electric spindle comes in two variants, S and K. Both feature a compact 90-degree angle-head and attain speeds up to 21,300 rpm. The EMA-3020S is 5-3/4" (147mm) long, while the EMA-3020K is 6-1/8" (156 mm) long. The four compact spindles are all just 1.2" (30 mm) in diameter, and allow you to incorporate NSK spindles into your machines when space is limited. For more information, please visit www.nskamericacorp.com. ■



# *Esco by Tornos* unveils two new machines

## EC 08 and D2 CNC latest additions to Tornos lineup

As part of its partnership with ESCO S.A. that was formed in 2007, Tornos US is now offering two additional automatic lathes. The *Esco by Tornos* EC 08 and the D2 CNC both accept coil stock, eliminating the need for a space-consuming bar feeder and eliminating downtime caused by bar stock changeover.

Like all *Esco by Tornos* machines, there is a rotating toolhead that moves around the material in order to produce the desired part, instead of rotating the coil stock itself. With both the EC 08 and the D2 CNC, the user can also opt to use more-traditional bar stock. If coil stock is used, the machines require a straightening unit.

The *Esco by Tornos* EC 08 is the logical and innovative next-generation machine with CNC technology. It can turn parts with diameters up to 0.31 inches (8 millimeters), and is cost effective for lots large and small. The EC 08's 10,000 rpm rotating toolhead is equipped with four cutting tools – two of which can be used simultaneously – and it boasts up to 12 tooling positions for secondary operations. Two workpieces can be machined simultaneously, and the EC 08 is compatible with commercial inserts.

The *Esco by Tornos* D2 CNC is among the fastest automatic turning machines for precise and economic manufacturing of simple parts up to 0.16" (4.0 mm) in diameter. The D2's CNC control allows for flexible and optimized manufacturing without cycle time loss, yielding up to 65 parts per minute.

With the D2 CNC, all the advantages of cam driven machines are maintained, but set up and operation are much easier due to the absence of cams, while changeover from one part to the next is simple and very fast. Turning speeds, feed rates, and cutting speeds are freely programmable, and the D2 CNC's toolhead spins at up to 12,000 rpm and has two cutting tools.

Both the D2 CNC and the EC 08 serve as outstanding alternatives to Tornos extensive line of bar stock-fed machines. These exceptionally fast machines consume little floor space, meaning more parts can be produced in less time and in a limited area. And because they are compatible with coil stock, the ability to run "lights out" is greatly enhanced. For those looking for a boost in productivity, an *Esco by Tornos* could be the perfect solution.

*For more information about the Esco by Tornos EC 08, the D2 CNC, or any other Esco by Tornos products, please contact Stephan Swanson at Swanson.S@tornos.com.*

## *Esco by Tornos* D2 CNC

- For materials up to 0.16" (4 mm) in diameter
- Perfect for large and small batch sizes of small, precise parts
- Turning operations with two cutting tools
- Machining from coil means safe, 24-hour-a-day production
- Menu-guided CNC control system, programming
- Quick setup and process adaptation
- Works with bar or coil stock
- Tool head speed up to 12,000 rpm
- Fast cycles and short machining times at enhanced precision
- Optimized price / performance ratio for the production of small lot sizes
- Compact design of the machine and coil stand maximizes floor space

## *Esco by Tornos* EC 08

- For materials up to 0.31" (8 mm) in diameter
- Ideal for parts with medium and high complexity
- Simultaneous machining of two parts
- Fast cycle times
- Features ISO programming and is compatible with standard tools and inserts
- Works with bar or coil stock
- CNC control FANUC 18i (2 canals, 6 axes, 3 spindles)
- Good accessibility for tool changes
- Two simultaneously working turning tools in the tool head
- C-axis with 10,000 rpm and powered tools with up to 16,000 rpm
- Pre-adjustment of all tools possible

# Exceptional Engineering. Superior Accuracy.

IMTS Booth A-8435 2008

## At IMTS 2008 Tornos Multispindle by Hydromat Will Unveil The:

# MultiSigma 8X24


TORNOS MULTISPINDLE BY HYDROMAT

### The NEW Tornos Multi by Hydromat MultiAlpha 8x20

- Eight motorized spindles running at independent speeds
- Twin back working operations and double cycle
- PC Control with remote access
- Integral palletization

The new MultiSigma 8x24 offers a complete and unique solution to produce complex parts in one set up. Eight powerful and independent spindles offer the highest degree of flexibility while the integrated robot automatically unloads and organizes your parts into a pallet.

The MultiSigma 8x24 is equipped with the exceptional, proven motorspindle technology already applied throughout the MultiAlpha line. Each spindle functions independently of the others for cutting RPM, spindle stops and indexing. With every position potentially being used as a C axis, positioned transverse milling or drilling operation to be performed at any time and on all spindles.

These spindles can be synchronized in angular fashion so positioned operations such as eccentric drilling can be performed at several different stations. The advantages include; optimum speed on each position in accordance with the type of machining required, unrivalled capacity for stock removal, great flexibility, C axis "Transmit" function, spindle stop, and exceptional acceleration, a great combination of features for producing highly demanding medical parts.

The accuracy and flexibility of the MultiSigma 8x24 is unrivaled in its class, visit us at IMTS in Booth #A-8435 and see for yourself how the Tornos Multispindle by Hydromat can achieve such incredible results.

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