



# decomagazine

THINK PARTS **THINK TORNOS**

01 US/07 ENGLISH



**Stabilize — Stat!**  
Mendell's key to a healthy turning business in the U.S.



### Introducing...

The ESCO New Mach 64X



### Three New Reasons ...

Why Tornos provides excellent customer service



### Goal!

Aerospace Contacts and Tornos — a winning team!



### Winning Energy

Tornos sponsors two cars in American Le Mans series

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*On the cover: Anodized titanium spinal screws colored for size recognition.*

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# Tornos Turnaround

By Scott Kowalski  
President, Tornos US



Over the last year, I have had a chance to talk to many Tornos customers directly about their experience with us. I have also written in various publication venues about what Tornos is doing to change the way it operates in the U.S. I have discussed the new drive towards original thinking – a strategy aimed at doing things differently, with an emphasis on developing the necessary systems, networks, and tools to provide better service and support to you, our customers, and also to enhance our market position and attract new customers. Well, now it is time for me to report to you how this new way of thinking has helped, and how it is going to continue in the future.



At Tornos, we realize that customer relationships do not end after a sale has been completed. And this is why we are committed to helping all of our customers be successful and stay successful for years to come. It was clear to me coming on board in 2006 that it was time for Tornos to shake things up. So that is what we have done. Working with a world-class team, Tornos US has created and implemented many new service and support programs to help you stay one step ahead of your competition. This year, we introduced two new products, the Sigma 20 BioPak and Pursuit machines, in the U.S. These exciting new turning centers are designed to meet the needs of the North American medical and general engineering markets, respectively.

In addition to expanding the traditional line of Tornos products with the BioPak and Pursuit, in 2006 Tornos and ESCO S.A. partnered up to promote the sales, service, and support of ESCOMATIC machines in the U.S. The ESCO product line expands and supports our own line, making Tornos a global solution that offers turning centers for every part size and application. Unlike conventional lathes, ESCO lathes accept coil stock, which has several unique

benefits over traditional bar stock fed lathes for parts in the ESCO range of up to 12 millimeters in diameter. Coil stock requires less floor space and eliminates the downtime caused by bar stock changeover. It also produces less scrap than bar stock for parts in the ESCO range. Additionally, the coil stock does not rotate; instead, a rotating toolhead moves around the material in order to machine the desired part. The extreme high performance and cost savings achieved with this concept contribute to ESCO's excellent reputation and the success of its products after 57 years of operation. With this being said, our dedication to this product line needs to be taken one step further. Looking forward, we will guarantee that every owner is 100% completely satisfied with ESCO machines, just as we are doing with Tornos machines. And we will make sure that every operator who wants to learn how to run an ESCO machine has all of the support and training needed to be successful.

For both Tornos and ESCO product lines, we have developed a better and faster way to serve customers with a program called Direct Connect. This unique service program is straightforward, easy,

fast, and – most important – available 24/7. A new preventive maintenance program has also been implemented to help increase customer uptime, productivity, machine life, and part quality. A thorough inspection of key systems and components at pre-determined intervals will help customers keep their machines in optimum operating condition and allow for budgeted intervention. We have also launched a new “Turn-in, Trade-up” program that allows customers to trade in older equipment for value towards a new Swiss-turning machine that can reduce cycle times by up to 40% and idle times by up to 50%, while offering as much as a 60% increase in speed of setup.

Going against the trend towards downsizing U.S. operations, we are continuing to expand our American facilities. With the grand opening of our new Midwest Center of Excellence in October 2007, we have met our goal of providing service and support to the four corners of North America. The Midwest location houses a state-of-the-art demo and training facility, and gives easier access to sales, parts, training, and application specialists. All three of

the U.S. Centers of Excellence now make it possible to receive the best service and support with extended hours of operation.

I know that in order to be successful and stay successful, you need equipment that is backed by talented, knowledgeable, and helpful individuals. With Tornos, you have that team. In this issue of **decomagazine**, you will get to meet some of the dedicated and driven individuals working for Tornos. But I also encourage you to check out the next issue as well as our U.S. website – [www.tornos.us](http://www.tornos.us) – where we will introduce more of our great staff.

In my 20 years in the industry, I have learned how important it is to form partnerships with key machine tool sales organizations across the country. I have spent a great deal of time seeking out potential distributors that met several key criteria – the most important being a proven commitment to being a customer advocate. At the end of the search, we invited twenty-nine sales organizations to represent Tornos. These distributors were handpicked for their commitment and high-level perform-

ance in the machine tool industry. With these new organizations representing Tornos, sales have doubled from last year. You would have to go back to 1996 to get numbers that good. We believe it's due to the fact that potential buyers are now realizing that Tornos US is totally focused on customer service.

We've got both eyes open. We're looking ahead and staying alert. We're aware of the big picture and have made many strategic decisions to align ourselves with the best people and the best organizations, from our machine tool savvy staff, to our carefully selected group of distributors, to our top-notch vendor partners, to the well-respected trade publications with which we do business. This issue of **decomagazine** – our first in North America – outlines in great detail what we have done. We hope it will give you a better understanding of who we are, why we do what we do, and what we are doing in the future. We welcome your feedback, so please visit <http://www.tornos.us/company/contacts/contact.cfm> or email [Info@Tornos.us](mailto:Info@Tornos.us) to let us know how we are doing. ■



# Stabilize — Stat!

## What's the key to a healthy turning business in the US?

**Surgical precision of Tornos equipment just what the doctor ordered as Mendell Machine and Manufacturing, Inc., transitioned into the medical industry**

Mendell is committed to perfection. With residual evidence of the machining process nonexistent, a shop tour at Mendell is memorable for its *clean room conditions*.

"Anyone who has been in the industry for a while knows that it has its ups and downs," notes Bryan Bartz, President of Mendell Machine and Manufacturing, Inc., in Lakeville, Minnesota. "We found stability in the medical industry. In today's marketplace, if you are not building really huge parts that can't go abroad or if you're not into the really sophisticated components such as what we make, you are probably feeling the pinch from China."

Lika a lot of shops, Mendell was founded in a garage, back in 1964. It was a successful milling shop specializing in military defense work for many years. But in the 90's, business slowed a bit and that is when Mendell brought on Bartz as general manager. "The company wasn't doing really well then; it needed some help," Bartz recalls. "I took on the project.

"The former owner and I had a lot of values in common, most of which centered around quality and customer service. I think that's kind of why he took a liking to me. I went to work rebuilding the company."



*Impeller to remove arterial thrombosis, driven by air with a saline flush.*

At that time, Mendell was located in Bloomington, Minnesota in a building that was fairly typical of old-time job shops: somewhat cramped, badly lit, and poorly laid out. Bartz enlisted the expertise of other Mendell employees while transforming the shop into a modern manufacturing facility by organizing quality areas, updating office space, and reconfiguring the machines to improve work flow. By maximizing the potential of the building, Mendell found its employees refreshed and re-dedicated. They were now in a shop that they could be proud of.

"Then in 1999, I purchased the company. At that time we were doing mostly commercial work. I noticed that a lot of our customers wanted us to give them the lowest

price and then it was, 'We'll see you next time, maybe.' I didn't like that; it went against all my planned business strategies."

Mendell's operations manager, Gary Lindholm, a seasoned veteran from the medical industry, had previously worked at a Minneapolis-based orthopedic company. He was the one who originated the idea of moving the company's emphasis to medical components. Bartz remembers Lindholm saying, "With the talent we have here and the focus and drive for excellence, we should really consider medical work."

### ***Plan the work. Work the plan.***

Mendell carved out a business plan focused on the medical industry, determining what the customer profile



*Pictured left to right: Mendell president Bryan Bartz with employees Kyle Warp, Jason Johnston, Lawrence Genzler, Chris Loney.*

would be and what type of equipment would be needed to satisfy the requirements of those customers. "I firmly believe that success is planned," Bartz says. "It just doesn't happen. You need a plan. Plan it and make it happen. So we started putting key people in place and began involving ourselves in the medical industry."

### ***Teamwork nourishes success***

At Mendell, every employee is given the freedom to use their creativity and is encouraged to innovate. Mendell is not the kind of shop where the owners are cracking the whip and the workers are punching the time clock. "I may be the president of the company," Bartz explains, "but this whole company works as a team. The people are what makes Mendell, Mendell. We take good people and then we give them the best technology available and the result is a dynamic machining powerhouse." Mendell's employees are also dedicated. When Bartz moved the company some 20 miles to its present ultra-clean, ultramodern, 20,000-square-foot facility, he did not lose a single employee.

Mendell largely built its reputation in milling and the company still

maintains a large milling department. However, Mendell realized that if the company was going to make an impact in the medical industry, it would have to become proficient at Swiss turning.

### ***Tornos' fit and finish aligns flawlessly with Mendell's culture of perfection.***

Mendell discovered Tornos at the 2002 IMTS show in Chicago. "We cut our guys loose and said, 'Find the best Swiss turning technology, the machine that will put us on the leading edge of technology and innovation,'" Bartz remembers. "Everybody came back with Tornos.

"I looked at the Tornos and said, 'Wow, what a well packaged machine!' What I immediately noticed was the fit and finish of all the components. Where other machines have hoses and cables springing out all over, the Tornos is all self-contained. The electrical cabinet was well designed and all the wiring harnesses were buttoned up beautifully. I had the opportunity to go to Switzerland and see what goes into the construction of a Tornos machine. The care and precision that they are assembled with, it's remarkable. It is obvious that the professionals at the

Tornos factory take pride in their work and put a great deal of thought into their equipment. When you take delivery of a Tornos machine, you're getting a finished product, not the science project that some of the other manufacturers bring to market.

"Due to all of the stainless steel on the inside, the Tornos machines look like they are brand new no matter how many parts they've processed and completed. In the medical industry, appearances count; when we bring customers in – including medical researchers and doctors – they see quality equipment."

In 2003, Mendell bought their first Tornos machine, a 9-Axis DECO 10a. "We built our reputation as a milling company and we're applying those same milling principles to our Swiss area," Bartz says. "This helps set us apart from our competition."

### ***What's the typical Mendell part profile today?***

"Many of our parts have multiple processes," Bartz points out. "This is one of the reasons we got into the higher-end Tornos equipment – so the part comes out complete. In the past, we used to do some turning,



some milling, some EDM. Now we run a part in the Tornos machine and it comes out done-in-one."

You have parts that are manufactured to print and then you have Mendell parts. The company uses materials such as titanium, cobalt chrome, various stainless steels, PEEK and other medical grade plastics, and all Mendell parts exceed the print requirements, yet they are remarkably cost competitive. "Our customers aren't going to feel any pain when choosing a Mendell part," Bartz notes. "We are always cognizant of that. But what would you want to buy? The part that is per print or the one that is per print but looks like a million bucks?"

Mendell parts are so much more aesthetically pleasing. "A Mendell part looks so much better, it doesn't look real," states Kevin Manion of Nanotech Machinery Solutions Incorporated, "Mendell parts have the appearance of the solid model

that they are made from *and* they are geometrically correct."

***With Tornos, Mendell found a kindred spirit.***

"Guys like Leonard Lanute from Tornos and our distributor salesman Kevin Manion, offer us assistance – they tell us how we can make the parts better without sacrificing any time," Bartz says. "Often times we set up a new part under the pressure of time. Later, our partners at Tornos will help us to streamline the process and make that part even more efficiently for a final solution. Many times it may be as simple as incorporating a new tool that Tornos has specific expertise with. Tornos really is a good fit for our business culture. Our goal is always to make a part better and when we do make it better, we make it faster."

Tornos has helped Mendell cement its place in the micro-machining marketplace where chips are often bigger than the parts themselves.

The knowledge gained in micro-machining is applied to other sophisticated parts within the shop. "We've got some cycle times that are seconds, and others that are minutes. It varies on the part complexity," Bartz explains. "Since medical parts can't have any burrs, attention to detail is critical – the machine can continue to process parts, but our yield is dependent upon inspections that confirm they are perfect parts."

***Tornos machines – every day and night, even with the lights out!***

"We are seriously considering selling our other Swiss-style machines and replacing them with Tornos machines," Bartz reveals. "That's not just talk. We can show you a cardiovascular screw we manufacture in a minute and 20 seconds on a non-Tornos machine and on the Tornos, 32 seconds. But here's the best part about it: the Tornos will run lights out for us. The others can't do it. We've tried it. They just seem to come up short every time. I don't know why, they just can't seem to get there. The Tornos line is just so different. We get the bar loaded up, go home that night, come in the following morning, and it will still be making good parts. The other Swiss-style machines will break tooling; the result is a bunch of scrap parts in the morning.

"When we're running lights out, we're still very attentive to our parts. We've got inspection metrics in place that insure part quality from the beginning of the run until the very last part is completed. So if the operator or machinist doesn't have time to do the thorough inspection in line, we can tell which hour a failure happened. Then we can go back and say we know in hour four and five



we need to change this tool out. We kind of break it down by hour.”

Mendell measures the results of every process – they track internal quality, external quality, delivery, and more. “You will see metrics throughout our shop plotting quality,” explains Bartz. “You name it, we’ve got it. We have charts that demonstrate to our customers what we are all about and, subsequently, the orders continue to keep coming in. Granted, there is always the chance that a product line gets discontinued due to a new technological advancement. Our Tornos machines give us the flexibility to adapt quickly so we are always the first in line to capture any new R&D that is happening; we get the production on that, too.”

**“Put it in the Tornos, it will come out right.”**

“Well, I just sum it up like this,” Bartz says. “Our Tornos have been on the floor since 2003, and we have not had a single service call on them. I can’t say that about our other Swiss-style machines. With our Tornos machines we schedule

preventative maintenance; we’ve never had a service call. Our Tornos machines are running three shifts Monday through Thursday, and then they run another shift on Saturday. So they basically run continuously. I don’t think the oil has ever cooled.”

### **The TB-DECO Advantage**

The people at Mendell are also fans of the Tornos software. They like the way the TB-DECO lets them optimize the programs in real time. They have come to rely on the cycle times generated by the Tornos program. “Once we are all programmed, we know that the cycle time the program gives us is what our actual cycle time will be,” Bartz says. “So we can program a part in a quoting application and know exactly how long it is going to take us to make it.”

Lawrence Genzler, Mendell’s lead Tornos programmer, expands on the praise for the Tornos line. “The Tornos machines are multi-tasking –

such as doing a polygon and turning at the same time. The software makes it easy to tell what you are doing and how long each part is going to take. Our non-productive time on this machine is so small. Where other machines have 30 to 40 percent unproductive time with indexing and everything, the Tornos has none because of its optimized



*Aluminum precision flow valve for medical applications.*

processing capability. When this one’s being cut, this one is indexing; as soon as this one’s backing up, this one’s going in. You don’t have to back this one out and then index it and reposition.

“What’s nice about the TB-DECO is that you can put your tooling list right on it. The program will show exactly what tools are on the machine with the tooling numbers and details. It builds a really nice tool list for you. Then, when you open up your program, you see an information box where you can add your customer information, your stock size, the type of material, and description.”

On the TB-DECO, each gang of tooling has its own line on the screen. Users can add special icons or pictures to represent the tooling and organize it the way they want to. This offers a quick reference to know what kind of operation is going on – at a glance users can tell if the Tornos is milling, knurling, or drilling, for example.



*Lawrence Genzler with the maintenance logbook for one of their Tornos.*

"On the generate screen," Genzler explains, "we do our interference test and generate our feeds and speeds. All the boxes change to different lengths to correlate to how long each process takes. You can also see where you are in the cycle. If you click the box it tells you it will take 5.7 seconds to do that operation. You get your total cycle time down here, parts per minute, and parts per hour."

The simulation mode shows users all their tooling gangs and is updated in real time as the machine is running. Users can also step through the program, in case they want to make sure all of their indexes are moving in the right direction. "In simulation mode, I don't have to be sitting watching the machine," Genzler says. "In simulation, I can see that if I move this tool up now I can save half a second."



#### ***Mendell looks forward to visiting Midwest Center of Excellence***

Tornos has expanded its North and South American base of operations from Brookfield, Connecticut, to the newly dedicated Midwest Center of Excellence outside of Chicago in Lombard, Illinois. This allows Tornos to respond more expeditiously to its customer base throughout multiple time zones. The facility is home to

service and applications engineers, a large inventory of spare parts, a showroom for machine demonstrations, and dedicated training space.

One stumbling block that Mendell has occasionally had to overcome is when a prospective customer is not aware of the Tornos product line and insists that his or her parts be made on a specific machine. Bartz recalls, "We had a customer who said his part had to be run on a machine series competitive to the Tornos. We convinced them to examine some pre-production parts run on our Tornos DECO 13a. The customer called us and said, 'These are beautiful parts!' The customer then asked many questions about Tornos and arrived at the same conclusion we have: This is awesome equipment.

"The education part of our business is huge. I am convinced having a new

Midwest Center of Excellence will make our jobs easier. More people in our area will become more familiar with Tornos. Many shops in the Twin Cities metro area run competitive Swiss-style machines. As Tornos promotion increases, we are going to have an easier time finding employees that know how to run the equipment. The more awareness we can build for the Tornos product line,

the more success we will have in tackling additional new business." Mendell is expecting to send some of its employees to the Midwest Center of Excellence for training. "We are pleased as the trip to Chicago will be much more convenient for our Minnesota-based company than getting out to Connecticut," Bartz reveals.

#### ***What's next for Mendell?***

Mendell has developed into a premier supplier – a force to be reckoned with in medical manufacturing.

"We have gotten to the point where we wonder if we need our sales guys anymore," Bartz says. "The phone just keeps ringing. Don't take that the wrong way. Obviously, the sales manager, Steve Storlie, and his group of sales representatives have done their jobs, working in concert with our manufacturing experts to supply our customers with both a quality part and an extraordinary experience.

"Short term, we have space on our floor that has been dedicated for the future expansion of our Swiss turning area, an expansion that will include our friends at Tornos. Long term, we own the land around our building so we have the space to expand with our vision. No matter how large we grow this company, we will always consider our people to be the foundation, second only to the principles that got us here." ■

*Tornos US and decomagazine would like to thank Bryan Bartz, Gary Lindholm, Lawrence Genzler, Kyle Warp, Chris Loney, Steve Storlie, Jason Johnston, Suzanne Bartz, and the entire Mendell team for their participation in this article.*

# Stay One Step Ahead with Tornos' Preventive Maintenance Program

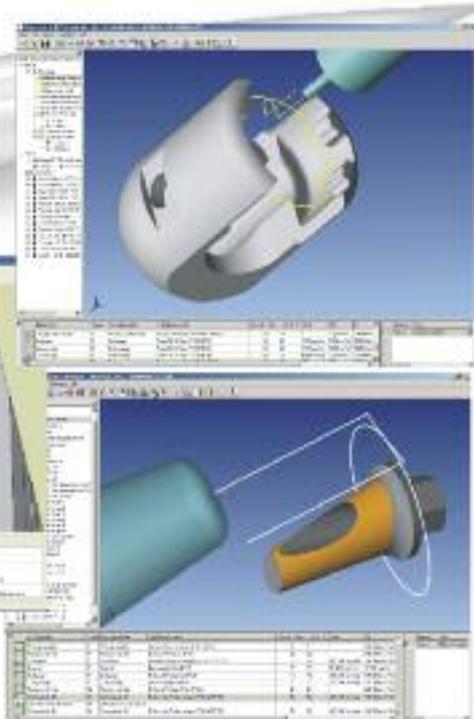
Have you ever wondered what you can do to stay one step ahead of the competition? Well, Tornos has – and is doing something to help. Tornos has implemented a new preventive maintenance program to increase your uptime, productivity, machine life, and part quality.

This new program helps you keep your machines in optimum condition and allows for budgeted intervention. With a preventive maintenance contract, a factory-trained representative will come at predetermined intervals to complete a thorough checklist of preventive maintenance tasks. The Tornos representative will:

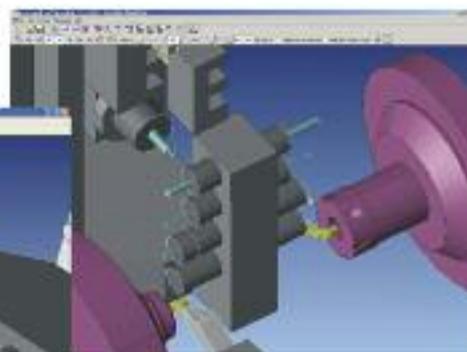
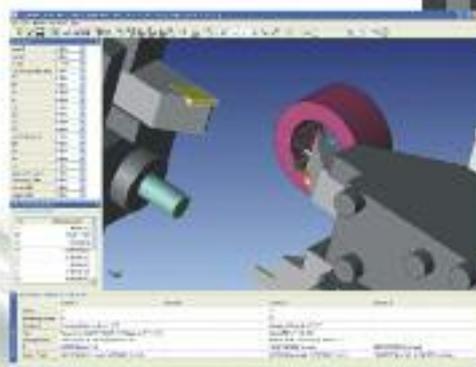
- Replace main and counter operation drive belts
- Check and adjust or replace spindle belts
- Lubricate elements according to service manual
- Check and replace relays as necessary
- Replace batteries for amplifier and numerical control
- Replace air and pressure reducer filters.
- Check and replenish oil level in spindle and counter spindle
- Check status/version of software and update if necessary
- Check fans and safety switches; adjust alignment of all axes.

Tornos is continuing to implement new programs to serve you better. For more details on the Preventive Maintenance program, visit [www.tornos.us/pm](http://www.tornos.us/pm) today! ■





- mastery of turning, swiss turning and milling
- realistic simulation of the whole machine
- significant reduction of part setup time
- ideal for simple or complex parts
- realization of similar shaped parts in record time
- supports of all types of tools



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# Turn-in, Trade-up, Reach the Top



## All those years of technological advancements add up!

Up to 40% reduction in cycle times  
Up to 50% reduction in idle times  
Up to 60% faster setup, with no pre-setter needed



Turn in  
&  
Trade up

Technology is ever-changing. Advancements are made continuously to enhance both production and productivity. So whether you have a Tornos or another brand of technology, it might be time to invest in new, state-of-the-art equipment that will increase your uptime, productivity, and part quality.

New technology can mean the difference between being successful and staying successful. Tornos understands that making an investment in a new machine is not an easy decision. But to make it easier, Tornos has created the Turn-in, Trade-up program that allows you to trade in your older equipment for value towards a new Swiss-turning machine.

Investing in a new Tornos turning center can help you see up to a 40 percent reduction in cycle times, up to a 50 percent reduction in idle times, and up to a 60 percent faster setup time with no pre-setter required. These numbers mean increased productivity, allowing you to produce more profitable parts. New machines offer flexible standardized ISO programming that lets you edit machines on the fly. New Tornos models also come with direct drive spindles for unparalleled strength and stability. If that's not enough to convince you to trade up, consider this: If you purchase a preventive maintenance contract when you trade-in your old technology, Tornos will add a one year subscription to Direct Connect, free! Visit [www.tornos.us/tradeup](http://www.tornos.us/tradeup) for more information. ■



[www.tafelracing.com](http://www.tafelracing.com)

# Winning Energy: What Drives Tornos in Racing and Beyond

## Tornos sponsors two Tafel Racing Porsches in the American Le Mans Racing Series



Winning Energy. The slogan used in Tornos' foray into racing sponsorship reflects a company-wide commitment to winning. Tornos wants its customers to triumph over their competitors and win their markets. And just as a victorious driver has a solid team supporting him every second of the way, Tornos stands firmly behind its customers to ensure their success.

With that in mind, Tornos is pleased to announce the sponsorship of two cars in the American Le Mans Racing Series. Building upon their success in the Grand American Rolex Sports Car Series, Tornos and Tafel Racing have once again teamed up and are ready to win.



Tornos and Tafel Racing's partnership began during the 2007 Grand-Am season. Tornos and its distributor North-South Machinery, Inc., cosponsored car number 72, driven by Nathan Swartzbaugh and Andrew Davis, and recorded five top-10 finishes in the first 10 races of the year.

In the midst of a successful debut season, Tornos and Tafel Racing decided to take it one step further by switching to the American Le Mans circuit for the remainder of 2007 and into the 2008 racing season. Sponsoring two Porsche cars in the higher-profile Le Mans series will be beneficial to both organizations. More cars means more races and

increased publicity – including expanded national television coverage – for all involved, while Tafel Racing's commitment to winning dovetails perfectly with the culture of Tornos.

To celebrate Tornos and Tafel Racing's inaugural Le Mans running, Napelton Porsche of Westmont, Illinois, held a pre-race party on August 7, with the entire team – owners, drivers, and pit crew – there to celebrate and sign autographs.

Tornos cars Nos. 71 and 73 first raced in the GT2 class at the Generac 500 at Road America in Elkart Lake, Wisconsin, on August 11. The team had a strong showing with Wolf Henzler finishing second in the No. 71 car, and Dominik Farnbacher placing eighth while driving No. 73.

With Tornos' "Winning Energy" and its continued support, the success of its racers – like that of its customers – is sure to be lasting. ■

For more information, visit [www.tafelracing.com](http://www.tafelracing.com)

# A Better than Reality Perspective...

Tornos introduces an innovative approach to machine tradeshow



*Scenes from the Tornos booth at the Westec Advanced Productivity Exposition*

LOS ANGELES – On March 26, 2007, at the Westec Advanced Productivity Exposition, Tornos US unveiled the next major innovation to revolutionize the industry: a virtual machine starring the DECO Sigma 20. A large projector, theatre seats, and headphones added to the experience as Tornos debuted a computer-generated presentation on the Swiss turning process.

**“Truly innovative.”**  
**“On target.”**  
**“Far ahead of the curve.”**  
**“Impressive.”**

The Virtual DECO, which includes a 3D tour of the machine as well as a virtual demonstration of a machined medical screw was a great success, offering guests a better-than-reality perspective of Swiss turning. The Tornos Virtual DECO offers viewers greater visibility inside a machine in order to give them a better understanding of the process

without the unwanted distraction caused by chips, oil, and other machining byproducts.

Why did Tornos make the move to virtual? “To be different, to be ahead of others, and to offer our customers a brand new experience that is informative and efficient,” explains Scott Kowalski, President of Tornos US.

“With a virtual show I don’t have to take my people out of the field for two weeks to set up the show. Everybody in my organization is allowed to do their respective jobs. This year we’re exhibiting at 16 shows,” Kowalski says. “By eliminating the machines in the booth, we get back 2200 man hours which can be spent on what our customers need instead of on moving equipment from show to show.

“The Virtual DECO is a tool to help customers understand our product. But it also helps dealers to be more present on the market. The most important thing it does for dealers, is the message it sends: that Tornos is



A frame capture of the turning process from Virtual DECO

back in the U.S. Back with a strong drive to move and to help customers. That means the Virtual DECO is very motivating for our network," Kowalski says.

The new virtual concept brings many new elements to Tornos customers. It shows the many possible ways to machine a part, while allowing the viewers a behind-the-scenes perspective and ensuring that they won't miss any key product benefits.

The concept has also opened the door to many other ideas for future versions. Tornos believes that it is only a matter of time before the virtual concept becomes the standard in the industry. Other companies will begin to realize that with a Virtual DECO-style presentation, they can show more than a machine – they can explain in greater detail, use less space, and spend less money on shipping. They can then concentrate on adding value and improving customer service, rather than moving machines around from one show to the next.

UPDATE: The Virtual DECO has gone global, making its European debut in September at the EMO Hannover 2007 exhibition in Germany.

During EMO, more than 200 people completed the Virtual DECO survey. Of that group, 30% said they had not planned to visit the Tornos booth but did so because of the lure of the virtual show. More than 50% reported that they believed the virtual show was a breakthrough innovation.

In October, Virtual DECO traveled to the Tornos Techno-center in France, and in 2008, the show will be used worldwide at more than 15 exhibitions in Europe, Asia, and the U.S. ■

Overall, the Virtual DECO was a huge success; it was well received by visitors, dealers, other manufacturers, and representatives from all trade publications. "Truly innovative," "Far ahead of the curve," "Impressive," and "On target" were just a few ways that the presentation was described.

- 59% said, "I haven't seen anything like it for this industry."
- 30% said, "I think the Virtual DECO concept could eliminate the need to have an actual machine on the showroom floor in the future."
- 20 visitors said they came to the show to see other brands and noticed the Tornos booth from the aisle.
- 30 visitors said they liked seeing the machining process.

Were you one of the reviewers? If you didn't get a chance to submit your feedback, please do so by visiting [www.tornos.us/virtual](http://www.tornos.us/virtual).



# Saving Time and Improving the Quality of Life

Tornos Sigma 20 BioPak



When it comes to the medical industry, quality and precision are paramount. Medical parts require special biocompatible materials, such as titanium and stainless steel, strict validation, and a high level of complexity. This means they are not well-suited for outsourcing or overseas production.

Because of this, Tornos is proud to introduce the Sigma 20 BioPak, a sliding headstock turning center with high-speed thread-whirling capabilities specifically designed to meet the demands of the North American medical industry.

A vital aspect of the Tornos Sigma 20 BioPak is its unique thread-whirling capability that makes it possible to excise secondary finishing operations and the expense of dedicated threading equipment. Tornos thread whirling increases productivity by eliminating the need for thread cutting and tapping, and produces clean contours without burrs. An added benefit of this process is that the tools in use have a longer life span, generating faster machining times and making tool breakage a thing of the past. The BioPak comes

pre-loaded with all the attachments and accessories needed for medical applications, like surgical screws, dental implants with internal threads, screw-to-bone implants, and maxillo-facial screws with external threads.

The Sigma 20 BioPak has the ability to thread more than 2,500 titanium parts without breakage. It's possible to machine right down to the bottom of very small threads or blind holes. Thread whirling can be done on the main or counter spindle, allowing users to increase output.

Because the Sigma 20 BioPak is made especially for the medical industry, everything required to turn medical parts is included, and no tooling or accessory decisions need to be made. And since it is a Tornos, choosing the BioPak means getting a machine of the highest quality. ■





*Tornos Sigma 20 BioPak*

Another benefit of the Sigma 20 BioPak is its *done-in-one* concept, which enhances production with:

- One setup
- One machine
- One source
- No deburring secondary finishing operations
- All tools loaded into the turning center at one time

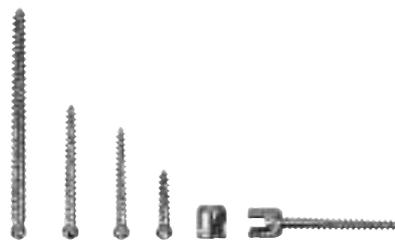
Plus, our partnerships with vendors and suppliers make everything just a phone call away!

The Tornos Sigma 20 BioPak comes with many exclusive features including:

- Substantial one-piece core motor direct drive spindles
- 5/8" tool shanks
- Powerful seven horsepower drive
- Fully synchronous rotary guide bushing for rigidity
- Rigid one-piece cast iron base with built-in pre-cast cooling channels
- Tool versatility
- Up to 14 front tools and eight backworking tools that can be used in any combination
- Simultaneous machining on front and back spindles
- Optimized ergonomics for operator comfort
- Speeds that are up to 50 percent faster than other brands without any compromise in quality
- One-inch stock capability to greatly enhance productivity

For more information, please visit [www.tornos.us/biopak](http://www.tornos.us/biopak) or contact your local distributor today.

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Claim your copy of the Tornos BioPak brochure today by calling 630.812.2040.

# Three New Reasons Why Tornos Provides Excellent Customer Service

Tornos is proud to announce a better way to serve its customers with the opening of the Midwest Center of Excellence in Lombard, Illinois, one of three new facilities Tornos US is opening across the United States. The Midwest location is conveniently situated near Chicago, just 15 miles from O'Hare International Airport and 25 miles from Midway International Airport.

## *Tornos Tech Days*

On October 18, 2007, Tornos US celebrated the grand opening of the Midwest Center of Excellence in conjunction with Tornos Tech Days. Customers and key members of the trade press participated in the two-day event that included seminars, demonstrations, tours, training, and a sneak peak of the Tornos 2008 line. Partner vendors provided information on tooling, collets, spindles, bar loaders, and more. The event concluded with an Oktoberfest dinner for all guests at Chef Paul's Bavarian Lodge.

## *Expansion in North America*

Tornos is also adding two other Centers of Excellence in California and Connecticut. The East center will be replacing the current Tornos location in Brookfield, Connecticut. The three new facilities have been created so that Tornos can provide customers across North and South America with excellent service and support. By adding new Centers of Excellence, Tornos now has the ability to provide even faster delivery times due to more centralized locations. Showrooms are closer to customers, making it more convenient to demo machines or participate in training sessions. Customers will also have easier access to local Tornos service, sales, applications, parts, and distribution.

Scott Kowalski, President of Tornos US, says, "These facilities represent the values of the Tornos brand worldwide. They are Centers of Excellence in terms of performance, productivity, and teamwork."



*Tornos West*



*Tornos Midwest*



*Tornos East*



**Beyond North America**

In addition to the three new Centers of Excellence in North America, Tornos is also building Techno-centers all over the world. The grand opening of the Tornos Techno-centers in France and Germany took place in June 2007. These grand openings celebrated the first step of a more visible and accessible customer-based organization world-wide.

The European Techno-centers bring machines and skilled engineers to the service of customers, offering test cuts, demonstrations, training, time study tests, and more. As Urs Hirsiger pointed out in *deco* magazine 42, "The Techno-center in France has been active for several months now and we can say that some customers have told us the difference is visible." Encouraged by this fact, Tornos is proceeding with facilities plans for Asia and Russia.

**New Building in Moutier**

Tornos is also building a new 53,820 square foot facility on the campus in Moutier, Switzerland, home to the company's corporate headquarters. This building will have a state-of-the-

art training and technology center, as well as space to house machines for turn-key customers.

To ensure knowledge transfer with the Techno-centers in the region – and faster answers to all Tornos customers – all application engineers will have access to the database where machine parameters and tooling experience are catalogued. Just one more of the many advantages conferred by the opening of new Tornos facilities worldwide. ■

*Tornos invites you to visit one of its new facilities around the world. To schedule a tour, please contact [Honaker.J@tornos.com](mailto:Honaker.J@tornos.com) in North America, or [Kohler.P@tornos.com](mailto:Kohler.P@tornos.com) for Europe and Asia.*



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REGO-FIX cylindrical holders are manufactured under tight tolerances, 0.0002" or better with REGO-FIX collets, offering superior run-out of 0.005 millimeters and resulting in better cutting and repeatability. Each holder also has a distinct product marking to help reduce tool selection errors, and a lot number for product traceability.

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### About REGO-FIX

With U.S. headquarters in Indianapolis, Indiana, REGO-FIX is a world leader in the manufacture of Swiss precision tooling. For more information on REGO-FIX, its products and services, or to request a catalog, please call 1-800-REGO-FIX or visit [www.rego-fix.com](http://www.rego-fix.com). ■

## Scott Kowalski

President  
Tornos US  
630.812.2040  
Kowalski.S@Tornos.com



### Get to know Scott Kowalski, President of Tornos US

Ambition. Drive. Creativity. Dedication. Scott Kowalski, president of Tornos US, brings 20 years of experience to the industry. Little known fact: After growing up in Addison, Illinois, Scott originally began his career as a Wood Dale police officer, but he soon realized that his passion lay in the machine tool industry. In 1988, Scott went to work for Dice Mold of Itasca, Illinois, as a mold maker, and he eventually began training new hires.

In 1995, Scott went to work for Charmilles Technologies (now Agie Charmilles) as an application engineer. In 1997 he transferred to Mecatool USA and became a regional sales manager. And then in 1999, Scott rejoined the Charmilles team as its national sales manager. It was not long before Scott built his multimillion dollar/multi-national sales record.

In January of 2006, Scott was approached by Tornos Technologies to be the President of Tornos US. Since accepting his new role, Scott has been rapidly implementing new programs and services, making Tornos stand out in the industry. He has been invited to join the Big Ten AMTDA Leadership Conference and sat on a debate panel at the Chicago Summit organized by the Swiss Business Hub in October.

Scott lives in Naperville, Illinois, with his wife, Lisa; his daughter Katie, 6; and his twin sons Ryan and Kyle, 2. He recently received his MBA with an emphasis in economics and finance. ■



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## A "Dream Team" for the Precision Parts Industry

### Tornos Multispindle by Hydromat offers 100% customer satisfaction – from start to finish



Since 1979, Hydromat has been a one-stop shop for multispindle machines. In 2006, a strategic alliance was formed and Hydromat began offering the Tornos multispindle line.

"Hydromat has fully committed to the Tornos multispindle product line," says Kevin Shults, marketing manager for Hydromat, Inc. "Our operation includes sales, engineering, set-up, service, and we stock parts here at our St. Louis campus also. We're centrally located, which we believe benefits our customers."

The alliance between Hydromat and Tornos US is a leap forward for the high volume and precision machined parts industries. Hydromat's years of success in the rotary transfer marketplace combined with Tornos' multispindle history, one dating back to 1958, creates a rich synergy that benefits the customer. Hydromat serves a broad clientele in the precision parts industry, and both companies believe this alliance will result in the expansion of the Tornos multispindle lines into new market segments. The Hydromat organization, with a staff of over 150 employees, brings its dedication to total customer satisfaction and a commitment to excellence to the future success of these products to be known as 'Tornos MULTI by Hydromat.' And Tornos' continued emphasis towards after-sale support guarantees that the manufacturing systems developed for its customers

continue to meet the challenges needed to fight back against global competition. Furthermore, Tornos offers superior knowledge in regards to engineering, parts inventory, comprehensive customer service, and training. And of course, Hydromat machines are also born in Switzerland, where precision and quality are a tradition.

"Hydromat has served a broad range of market segments over our 28 years in business. Both Hydromat and Tornos management believe that this arrangement will result in an ever expanding presence for the Tornos multispindle line in our market segments," Shults explains.

Tornos MULTI by Hydromat includes six- and eight-spindle, 20 and 32 mm bar-fed and 50 mm chucker machines as well as the SAS 16.6 cam-operated lathes – machines that offer exceptional quality and supreme accuracy. The new MultiAlpha 6x32 and 8x20 introduced at EMO 2007 feature the latest generation of spindles utilizing synchronous motors. All of the MultiAlpha and Multi-DECO machines are manufactured for stability and accuracy with Hirth couplings and have high precision spindles with pre-stressed bearings. Each base is made from cast iron, establishing a standard for high precision and finish quality. These machines incorporate the DECO 2000 concept, a powerful Fanuc control with a user-friendly combination

of the TB-DECO software – for advanced machining flexibility and programming versatility – and parallel numerical control.

"A 'Hydromat part' is one that is best suited to being chucked and cut-off. With a multispindle machine, the tooling turns, allowing for a number cutting operations that may not work well on a turning bar application. A 'Tornos part' is one that is better if the bar stock is turned. Now we can give our customers a true solution for each of their specific applications," Shults says.

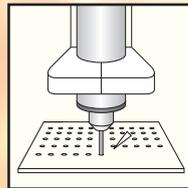
So if a Tornos single-spindle machine doesn't fit your company's needs, check out the multispindle line by Hydromat!

"We call this alliance between Hydromat and the Tornos multi-spindle line the 'Dream Team' for the precision parts industry," Shults adds. "Two of the finest machine tool manufacturers have teamed up to bring the best metal cutting solutions to the marketplace. We couldn't be happier with the arrangement." ■

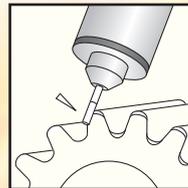




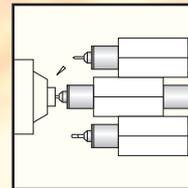
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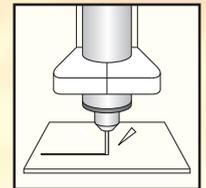
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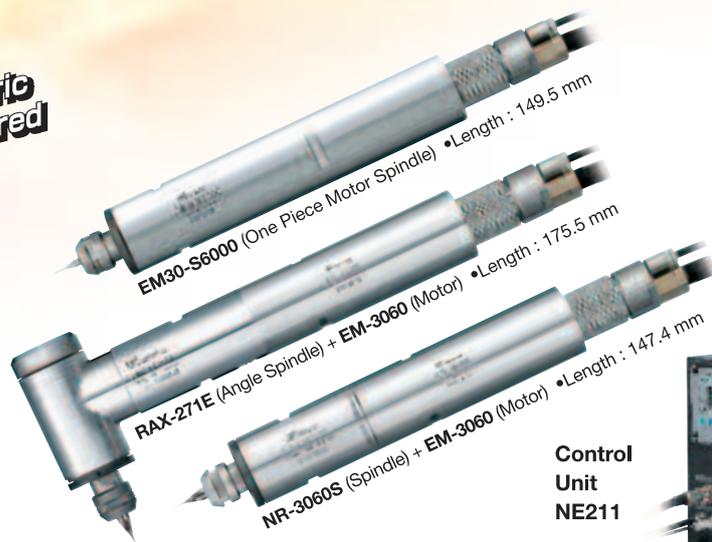
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**Bob O'Hara**

Operations Manager  
Tornos US  
847.271.3826  
Ohara.R@Tornos.com

**Get to know Bob O'Hara,  
Operations Manager for Tornos US**

With over 15 years of experience in the machine tool industry, Bob O'Hara knows what it takes to help run a successful company. Originally from Pennsylvania, Bob first became involved in the industry by assisting his brother, who was working for Charmilles Technologies, on a service call. After earning his bachelor's degree in physics from Pennsylvania State University a year later, Bob went to work for Charmilles as a field supervisor. It was at that time that he met Scott Kowalski.

Fourteen years later, Bob was approached by Scott about becoming the operations manager for Tornos US. Offered an opportunity that he couldn't refuse, Bob joined the Tornos team to help improve customer service. He feels that this is a way for him to affect change and help Tornos become an even stronger player in the market, with a goal of having the best customer service department in the Swiss-turning industry.

Bob currently resides in Libertyville, Illinois with his wife Maggie and sons Danny, 7, and Jonathon, 4. He enjoys spending time with his family and participating in any activities that are associated with his children and says that he wouldn't have it any other way. ■



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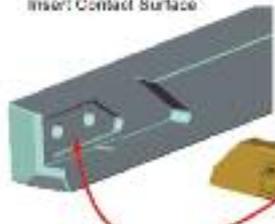
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## Paul Cassella

Applied Technology Manager  
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*As applied technology manager, Paul runs cycle time studies for customers to help them achieve the best profitability by optimizing their processes.*

### Get to know Paul Cassella, Tornos US Applied Technology Manager

With over 30 years dedicated to Tornos, Paul Cassella brings a wealth of knowledge and expertise to his work. Born in Naples, Italy, and raised in Switzerland, Paul was exposed to the industry at a young age. He began his career with a four-year apprentice program, where he was immediately interested in making parts faster and better. At the conclusion of his apprenticeship, Paul received his certificate after finishing at the top of his class. He then accepted a position with Bechler Services, which became Tornos US.

In 1974, Paul came to the U.S. and began working as a service technician. Shortly thereafter he moved to the parts program department where he became more involved with tooling and processing. "Over the years the job has evolved but the core of the work has not really changed: we are always continuously looking for a better machining process to make a perfect part faster," says Paul. "I like the continued stride towards perfection and excellence. For the type of work I do, I always have to look for new ways to improve. I very much believe that if you do not progress then you will regress."

Paul, who is fluent in French, Italian, and English, resides in Sandy Hook, Connecticut, with his wife and two sons. He enjoys spending as much time as he can with his family. ■



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# MOTOREX: Close to the Customer for 90 Years

*This year MOTOREX celebrates its 90th birthday. Innovativeness coupled with long-term entrepreneurial vision have been a constant source of change, renewal, and adaptation throughout the company's history. Only such constant reinvention has kept MOTOREX up-to-the-minute at age 90, making the brand one of the strongest in the lubricant market today.*

## **Synergies lead straight to the goal**

Innovation at MOTOREX is anchored in the following traditional values that have remained through 90 years and three generations:

### *1. Stay close to the customer.*

MOTOREX believes that being close to the customer at every level is the only way to meet real-world needs. The many successful MOTOREX Synergy projects in the manufacturing sector are just one example of this.

### *2. Produce quality products and offer the finest services.*

Top-quality products and solutions are of the utmost importance to MOTOREX. Intensive product development enables the company to offer more than just a standard product range; instead MOTOREX develops its line tailored specifically to customers' needs.

### *3. Be a reliable partner.*

MOTOREX is committed to being a dependable, courteous, and honest partner to its customers, employees, and suppliers.



*Exhibition by MOTOREX at the jubilee with Tornos-Deco.*

## **Langenthal: think tank and production site**

Innovation is always in the air at MOTOREX headquarters in Langenthal, Switzerland. This is where complex formulas are researched and developed, and new products are brought to life, produced, and marketed with a wealth of ideas.

The core competency of MOTOREX AG Langenthal is undoubtedly in the tribological development and improvement of high-quality machining fluids for the metalworking industry. Motivated employees, highly specialized technicians, chemists, engineers, and marketing specialists apply their knowledge and skills every day in pursuit of this goal.

## **A distinguished international clientele**

MOTOREX AG has long specialized exclusively in the unique challenges of industrial application of cutting oils, cooling lubricants, cleaning solvents, etc. The result is the pioneering MOTOREX SWISSLINE – a complete product line that reflects MOTOREX's broad metalworking expertise. For example, leading companies around the world in every industry achieve significant productivity

gains by using MOTOREX ORTHO universal cutting oil.

## **Big enough, but not a multinational**

MOTOREX today is just big enough to focus precisely on each individual customer's needs. Where appropriate, the company develops specialized products in conjunction with watchmakers, turned parts producers, and other experts also in the U.S. Often these products mark the start of a new range and a lasting working relationship. ■





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630.818.0115  
Lanute.L@Tornos.com



### Get to know Leonard Lanute, Tornos US National Product Manager, Midwest Regional Sales Manager

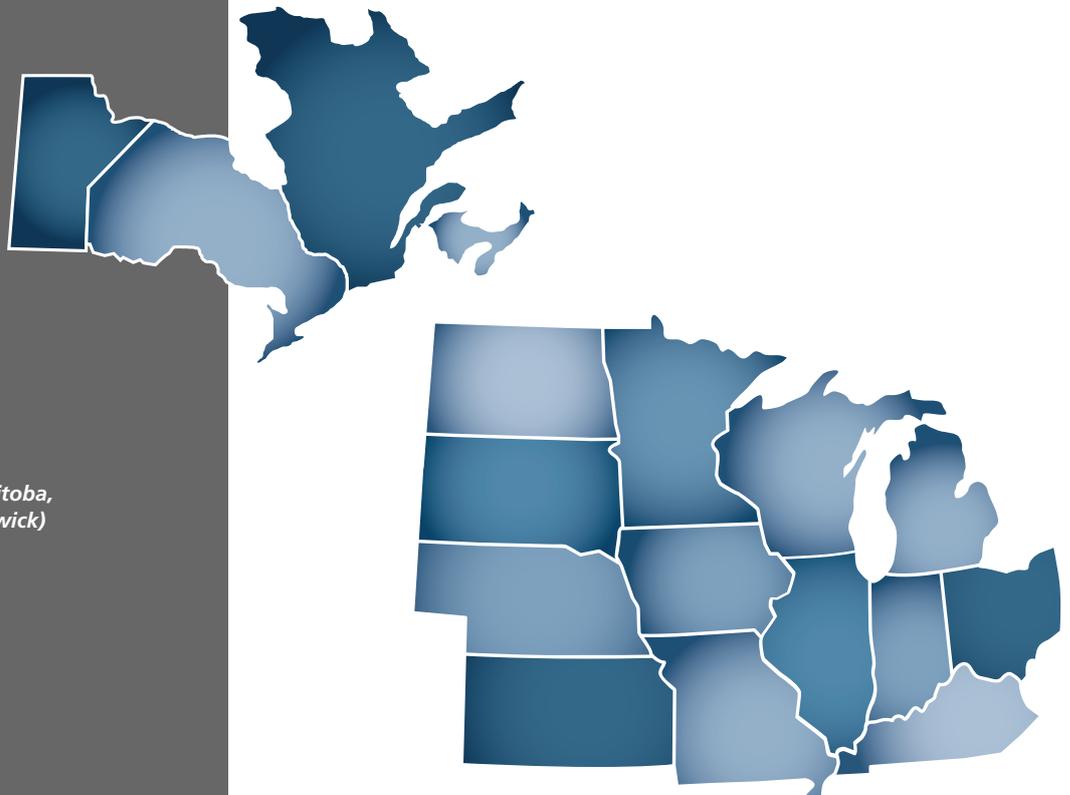
A native of the Midwest, Leonard Lanute has been in and around machine shops since he was 10 years old. In 1985, he received an education in manufacturing technology and machine design. He then worked in the job shop environment building custom machines and performing contract machining for 10 years, learning the business from the ground up. From sweeping floors to taking customer orders to managing 30 employees, Leonard applied his mechanical skills and enjoyed the constantly changing machining industry.

In 1998, Leonard joined Citizen as Midwest applications and service manager and worked there for nine years. His respect for the Tornos Original Swiss turning machine brought him to Tornos where he became the national product manager and Midwest regional sales manager in 2005.

Leonard lives in Sugar Grove, Illinois, with his wife and two daughters. In his free time, Leonard enjoys mountain biking and photography. ■

#### Midwest Region;

*Illinois  
Indiana  
Iowa  
Kansas  
Kentucky  
Michigan  
Minnesota  
Missouri  
Nebraska  
North Dakota  
Ohio  
South Dakota  
Wisconsin  
Canada (Ontario, Manitoba,  
Quebec, & New Brunswick)*



# Increasing the Productivity of the General Engineering Industry

## Tornos Sigma 20 Pursuit



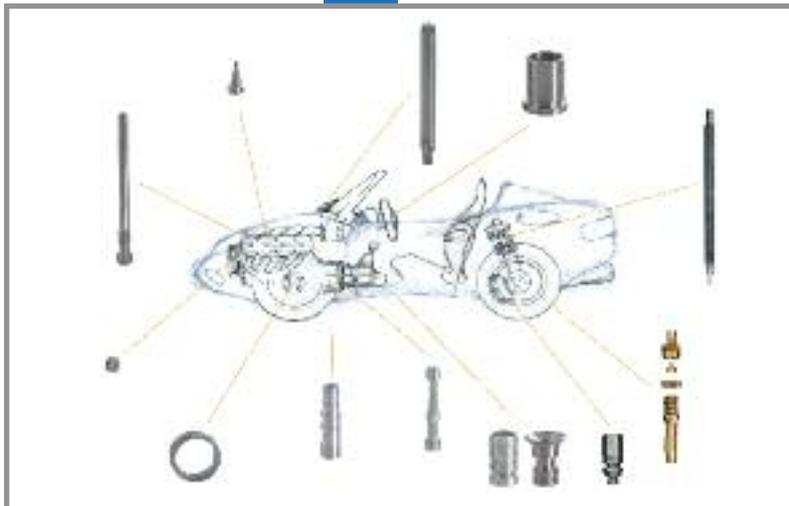
North American manufacturers can be described as inventive, resourceful, and revolutionary. And with the fierce competition provided by today's global economy, U.S. manufacturers need the best technology to survive. Luckily, Tornos has a solution that helps you do more than just survive; with the Tornos Sigma 20 Pursuit, your business will thrive!

The Sigma 20 Pursuit is a sliding headstock turning center specifically designed to meet the demands of

the North American general engineering industry. This high-speed, robust, and efficient turning center provides all the necessary tools to get the job done.

The Tornos Sigma 20 Pursuit offers several features that make it ideal for the versatility required in a job shop environment. It has the ability to turn parts that vary widely in complexity. And the Pursuit comes pre-loaded with all the attachments and accessories needed to turn parts such as electrical components, precise lock parts, hydraulic spools and cages, and parts for the automotive, aerospace, and defense industries, as well as household goods. Offering three double-live spindles for a total of six axes for cross milling front or back, the Sigma 20 Pursuit can be tooled aggressively and has the capability to accommodate even more tools like angle drills, polygon milling tools, and saw mills to meet your changing demands in the future.

With the ability to machine complete parts and eliminate multiple



processes, the flexible Sigma 20 Pursuit can turn different parts while maintaining the utmost quality and productivity. These machines are tooled to sustain a high level of efficiency and help you maximize your uptime.

Another benefit of the Sigma 20 Pursuit is its done-in-one concept. With one setup, one machine, and one source, parts cut on a Tornos require no deburring or secondary finishing operations. All tools can be loaded into the turning center in one setup, saving time and money. And since Tornos partners with the best suppliers and vendors, everything you need is always just a phone call away.

The Tornos Sigma 20 Pursuit has many other exclusive features not found on other turning centers. One key differentiator is Tornos' Swiss stability, evident in its substantial one-piece core motor direct drive spindles, 5/8" tool shanks, powerful seven horsepower drive, fully synchronous rotary guide bushing for rigidity, and one-piece cast iron base with built-in pre-cast cooling channels. Simultaneous machining on front and back spindles, optimized ergonomics, and tool versatility – eight to 14 front tools and eight back-working tools can be used in combination – make operating a Tornos easy and comfortable. The increased speed – up to 50 percent faster than other brands, while still yielding flawless parts – and one-inch stock capability of the Tornos Sigma 20 Pursuit can greatly enhance any company's productivity.

For more information on the Tornos Sigma 20 Pursuit, please visit [www.tornos.us/pursuit](http://www.tornos.us/pursuit) or contact your local distributor. ■



Tornos Sigma 20 Pursuit

Claim your copy of the Tornos Pursuit brochure today by calling 630.812.2040.



# Direct Connect

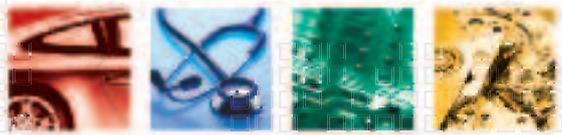


At any time day or night, connect with Tornos and we'll direct you right. This new concept is the foundation of an innovative service program launched by Tornos in July 2007.

Called 24/7 Direct Connect Service, the program is straightforward, fast, and easy. Customers simply fill out a short online service request form and all of the details are immediately sent electronically to a Tornos team member on call. The customers then receive a call back from a certified technician within an hour.

Staying productive and turning quality parts are essential to the success of any company. Having Direct Connect helps eliminate downtime due to off-hour service issues. No other company in the industry offers a program this, and it is just one of the many service-oriented initiatives that Tornos US is launching to help provide the best customer service in the industry. Tornos realizes that its relationship with a customer does not end after a sale is complete, and Tornos employees are committed to helping all of their customers be successful and stay successful for years to come.

*This program is available in the U.S. by subscription. To find out more about this unique service, please visit [www.tornos.us/dc](http://www.tornos.us/dc).*



## Introducing Three New Reasons to Choose Tornos: California, Illinois, Connecticut.

Serving you quickly and completely is our top priority. That's why we're opening three new Centers of Excellence across North America. With these facilities, we guarantee a higher level of service:

- Faster delivery times
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- Easy access to training facilities
- More centralized access to:

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- Service
- Applications
- Parts
- Distribution

So now, no matter where you are coast to coast, we've got you covered. Visit [www.tornos.us/3reasons4](http://www.tornos.us/3reasons4) for a free gift and more information today!



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1400 Pioneer St.  
Brea, Ca 92821  
951.695.0342

Tornos (Midwest)  
840 Parkview Blvd.  
Lombard, IL 60148  
630.812.2040

Tornos (East)  
70 Pocono Rd.  
Brookfield, CT 06804  
203.775.4319

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## Rob Serrano

West Coast Regional Sales Manager  
 Tornos US  
 951.240.0818  
 Serrano.R@Tornos.com



### Get to know Rob Serrano, Tornos US West Coast Regional Sales Manager

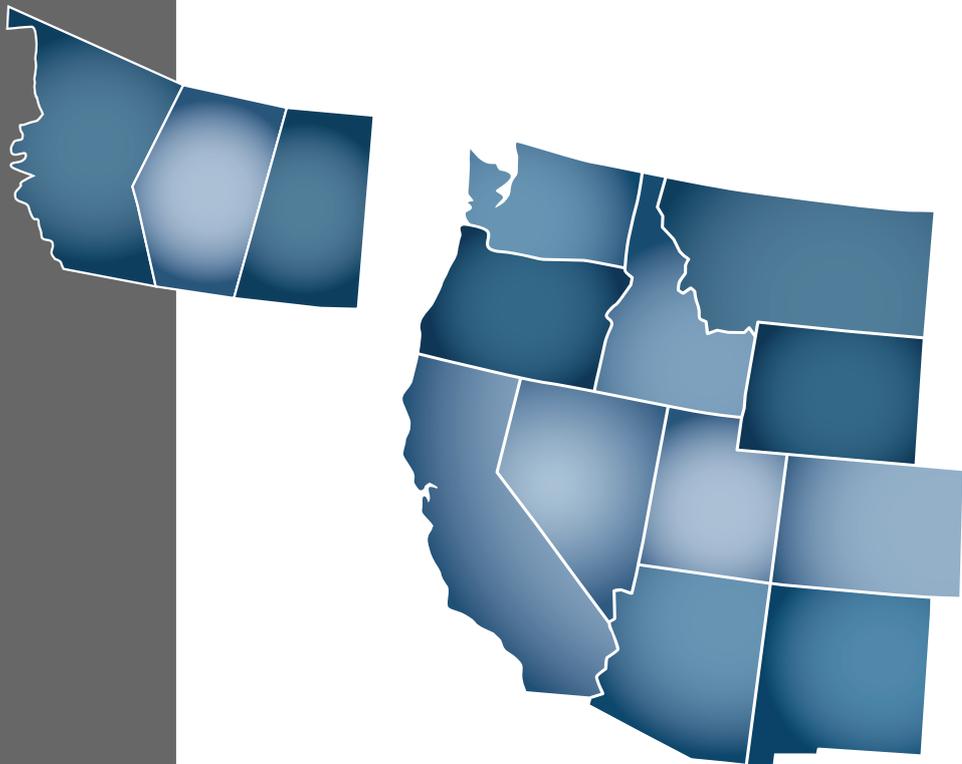
Born in Ecuador and raised in Chicago, Illinois, Rob Serrano brings over 17 years of experience to Tornos US. After earning his bachelor's degree in electronics from DeVry University in 1990, Rob began his career as a service engineer with Agie in Illinois. He was soon relocated to California, where he was responsible for installing, servicing, and testing Agie machines.

In 2006, Rob was approached by Scott Kowalski to join the Tornos team. He immediately accepted and became the West Coast regional sales manager. "I enjoy working with the product and its high-end capabilities that are above and beyond the competitors. The staff is very enthusiastic and helpful in every way," Rob says.

Rob currently resides in Temecula, California, with his wife, Tammy and four children: Matthew, 24; Michael, 20; Tyler, 19; and Tori, 12. He enjoys playing roller hockey and golf, going to the beach, and spending lots of time with his family. ■

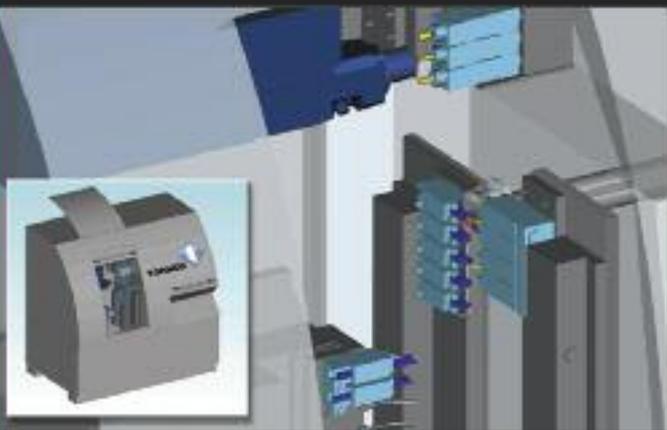
#### West Region:

- Arizona
- California
- Colorado
- Idaho
- Montana
- Nevada
- New Mexico
- Oregon
- Utah
- Washington
- Wyoming
- Mexico
- Canada (British Columbia, Saskatchewan, & Alberta)



PartMaker®

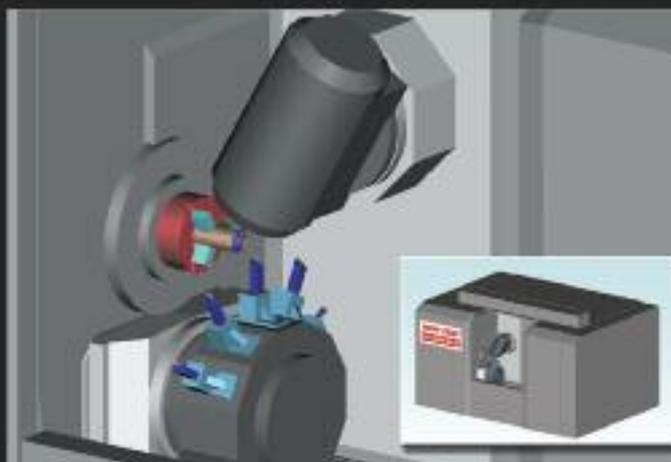
# Swiss CAM



## The Peak Productivity CAM Solution

✓ Automates CNC programming

✓ Reduces Machine Set-Up Time



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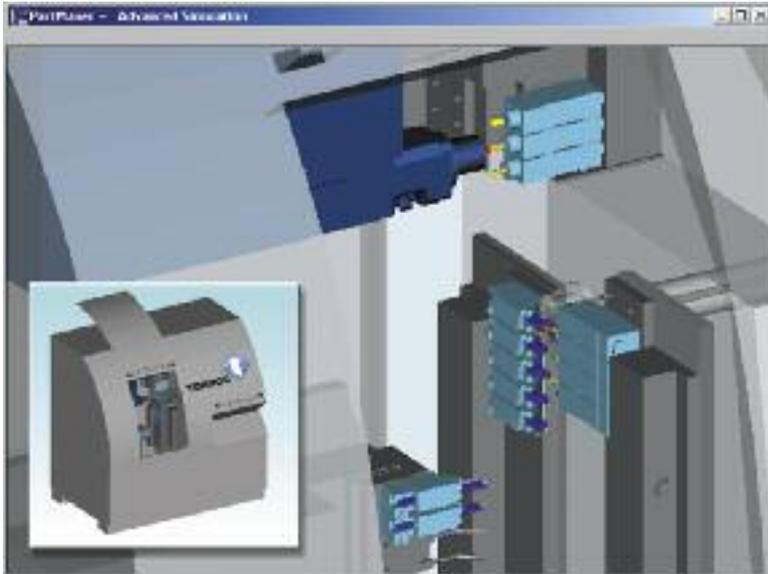
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# New PartMaker Developments Can Increase Productivity

## PartMaker-TB-DECO diagnostic tool improves efficiency without additional cost



*The newest version of PartMaker features the ability to perform a Full Machine Simulation on the Tornos DECO machine. This version was on display at Tornos Tech Days in Lombard, Illinois in October.*

The most recent edition of PartMaker features a number of enhancements specifically aimed at improving the productivity of Tornos users. Version 8 features a Full Machine Simulation module for the Tornos DECO, which allows the user to view a photo-realistic, three-dimensional model of the DECO machine. The machine and components being simulated in PartMaker's Full Machine Simulation were provided to PartMaker directly by Tornos SA, thus ensuring the finest realism.

"Tornos and PartMaker have teamed up to offer a very unique solution in the way of machine simulation," according to Hanan Fishman, president of PartMaker Inc. "With

Tornos providing true solid models of their machines and components, the simulation being executed in PartMaker is of utmost realism. Tornos has shown tremendous foresight in providing this information to PartMaker."

Additionally, the latest version of PartMaker for TB-DECO users features a new diagnostic tool. The PartMaker-TB-DECO diagnostic tool is made available free of charge to all PartMaker-Tornos users, and allows them to quickly see if any programming errors have been made in Part-Maker which might cause alarms to occur in the TB-DECO software. The diagnostic tool saves Tornos users time by allowing them

to detect common errors that could arise on a DECO machine before entering the TB-DECO environment.

### *More on PartMaker*

PartMaker is a knowledge-based system, allowing it to provide a substantial gain in programming efficiency by remembering the tools, material, and process information necessary to machine individual part features. It thus eliminates the need for the user to re-enter the same feature information for subsequent parts, while improving productivity by placing the emphasis on tool management functions.

PartMaker pioneered the field of CAM software for turn mills and Swiss-type turning machines with its patented Visual Programming approach for programming multi-axis lathes with live tooling. It assures quicker learning and easier use. It makes an extensive use of pictures to help the user describe tools, part features, and machining data. Synchronization of tools working on multiple spindles is achieved by just a few mouse clicks. ■

*PartMaker is a subsidiary of Delcam plc, the world's leading developer and supplier of complete CAD/CAM software solutions. Delcam plc is publicly traded on the AIM exchange in London. PartMaker is sold direct in North America by PartMaker Inc., while PartMaker is sold overseas through a network of partner offices operating in over 120 countries.*

# A Photographic Tour of Tornos World Headquarters in Moutier, Switzerland!



*Situated at the base of the Jura Mountains in Switzerland, Tornos Moutier is picturesque.*



*Tornos Moutier uses the highest quality standards.*



*Rows and rows of assembly parts are electronically inventoried.*



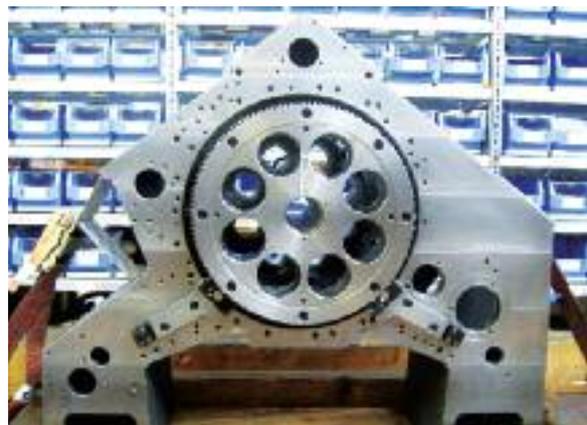
*A fully automated robotic system transfers assemblies in the plant.*



*The same team builds each machine from the ground up.*



*Tornos is the largest employer in Moutier with over 500 people working in the six buildings on the campus.*



*A multi-spindle barrel awaits installation. Each Tornos spindle is quality checked and numbered for traceability.*

## Daniel Dantuono

Northeast Regional Sales Manager  
Tornos US  
732-570-7332  
Dantuono.D@Tornos.com



### Northeast Region:

*Connecticut*  
*Delaware*  
*Maine*  
*Maryland*  
*Massachusetts*  
*New Hampshire*  
*New Jersey*  
*New York*  
*Pennsylvania*  
*West Virginia*  
*Rhode Island*  
*Vermont*

### Get to know Daniel Dantuono, Tornos US Northeast Regional Sales Manager.

A native of the Northeast, Daniel Dantuono started in his family's tool and die business at the age of 10. For 15 years he ran, set-up, and programmed vertical CNC mills, lathes, and wire and ram EDMs. He then joined Agie as an applications engineer and was quickly promoted to Northeast regional sales manager.

Daniel and current Tornos US President Scott Kowalski worked closely together in the Northeast territory for Agie, which became the market leader in Canada two years in a row. "Scott is a very flexible and open minded when it comes to sales. He is always willing to work for a solution," Daniel says. "With my real world experience in the manufacturing industry, I believe that I offer out-of-the-box thinking to Tornos."

Daniel resides in Piscataway, New Jersey, with his fiancé, Veruska, and newborn son, Devin. He enjoys martial arts, weightlifting, running, reading, and computer gaming.



# We Have Your Machining Needs Surrounded...

The Industry Leading Single  
Source For Swiss Style CNC  
Machine Solutions



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### 12' and 6' Foot Bar Feeds

Manual and automatic bar feeds. For over 25 years, LNS America has been the industry leader in reliable bar feeding. With more than a dozen models available, LNS America specialists can help you make an application faster, safer and more efficient including those requiring unattended operation.

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Chip conveyors for every application. Turbo brand hinge belt, magnetic, filtering, scraper and 3-D chip conveying systems for fine, coarse, stringy and mixed materials keep your process running smoothly.

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### Oil Mist Collectors

Oil Mist Collectors improve worker comfort and safety when used with machine tools, EDM processes and other industrial operations using water soluble or straight oil coolants.

### LNS is THE SOURCE For:

- Manufacturing Process Solutions That Boost Productivity
- Production Equipment You Can Depend On
- Reliable, Experienced Support & Service
- Technology That Leaves The Competition Behind

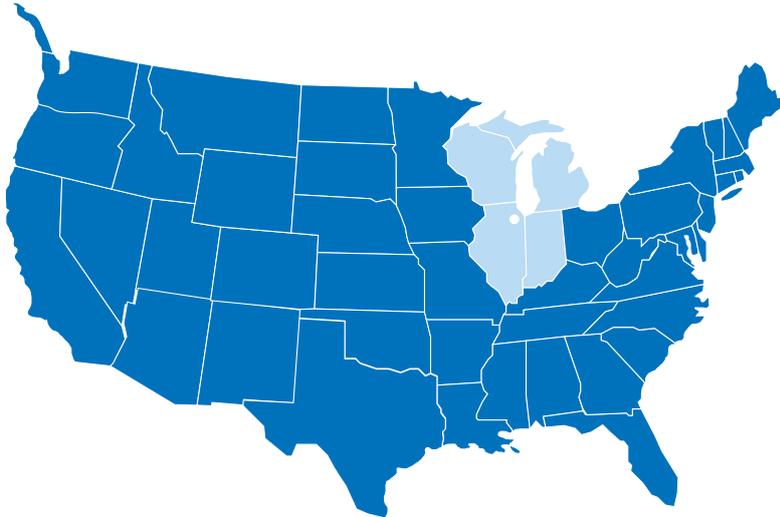
Visit [LNSAmerica.com](http://LNSAmerica.com) to learn more.

The logo for LNS America, Inc. features the letters "LNS" in a bold, italicized, sans-serif font. The letters are dark red with a white outline and a slight shadow effect. A registered trademark symbol (®) is located to the upper right of the "S".

LNS America, Inc.

P: 513-528-5674 > E: [sales@LNSAmerica.com](mailto:sales@LNSAmerica.com)

**Tornos US and Tristate Machinery, Inc., Announce Partnership**



Tristate Machinery, Inc., and Tornos US are proud to announce a partnership founded on a common dedication to serving customers using problem solving techniques. Tristate serves the Illinois, Wisconsin, Michigan, and Indiana region.

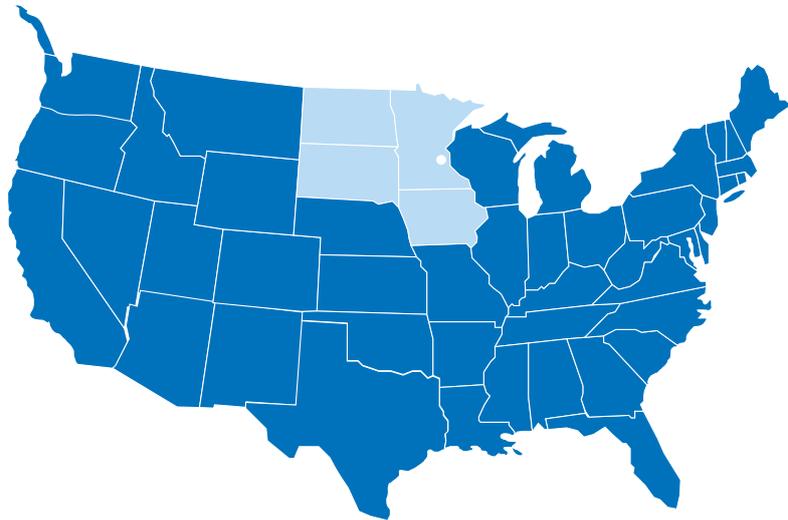
Operated under president Larry Dierking, Tristate was founded in 1986 with a purpose to demonstrate the most advanced precision machining process available, particularly in terms of automated, accurate, and efficient machining. Tristate sales consultants are specialists in the equipment they represent and continually undergo regular training to stay informed on the latest changes in technology. ■

*For more information, visit [www.tristatemachinery.com](http://www.tristatemachinery.com), or feel free to call 1-847-520-4420.*

**Tornos US and Nanotech Machinery Solutions, Inc., Have Paired Up**

Nanotech Machinery Solutions, Inc., and Tornos US are pleased to announce a partnership for the sale of manufacturing solutions to the metal manufacturing industry in Iowa, Minnesota, and North and South Dakota. As companies dedicated to service, support, and distribution of quality machine tools, Tornos and Nanotech make excellent partners.

Nanotech Machinery Solutions also partners with Focus Die Mold Solutions. With their partnership, these two companies offer the best EDM, high-performance machining centers, Swiss turning centers, and multi-sensor quality systems to manufacturers in the medical, computer, aerospace, power generation, tool and die, and mold-making sectors. Nanotech provides unsurpassed vendor relationships, resulting in creative, productive, and cost-effective solutions that enable its customers to be profitable. ■



*For more information, visit [www.nanomach.us](http://www.nanomach.us), or call 1-612-865-4307.*

# WE SPEAK THE SAME LANGUAGE

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Pibomulti is a global manufacturer of precision Swiss machine tool accessories making a variety of specialized accessories for Tornos Deco machines.

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- Gear-Cutting Heads
- Adjustable Angle Heads
- Whirling Heads
- Multispindle Heads
- Right Angle & Axial Spindle Speeders

PDF Catalog file available upon request.

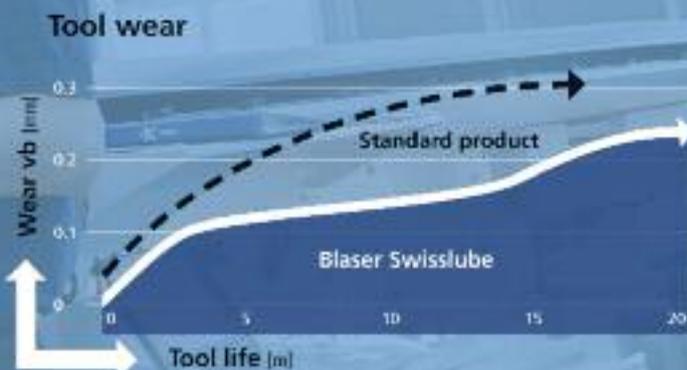
*Pure Swiss Movement*

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« Tests have shown that a performance increase of up to 40% is possible with Blaser cutting oils. »

Daniel Schär  
Product Manager, Mechanical Engineer Dipl. Ing. FH



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Phone: +41 (0) 34 460 01 01

## Fred Holzmacher

South Regional Sales Manager  
 Tornos US  
 727.786.2067  
 Holzmacher.F@Tornos.com



### Get to know Fred Holzmacher, Tornos US South Regional Sales Manager.

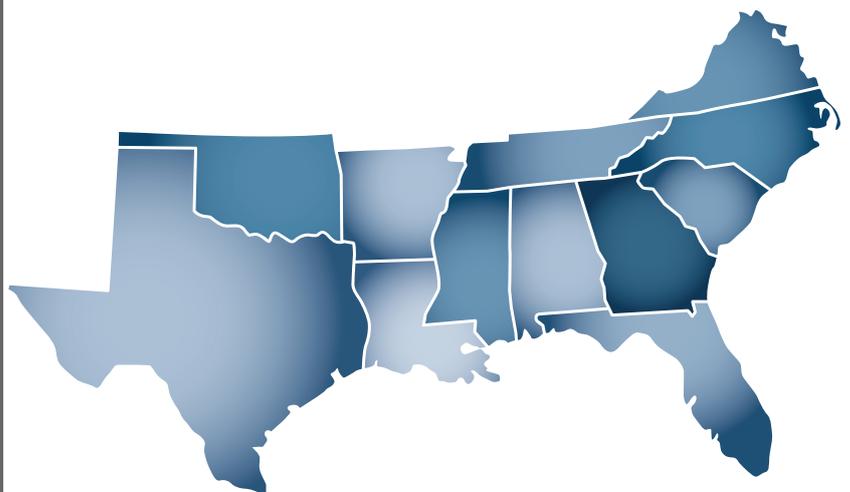
A New York native, Fred Holzmacher brings over 30 years of experience from the machine tool industry to Tornos US. After graduating with a bachelor's degree in electrical engineering from the University of Hartford, Fred began his career in service at Charmilles Technologies. After three years he became Northeast district manager. In 1982, Fred transferred to the Southeast district. He spent the next 25 years working for Charmilles in Tampa, Florida, where he became the number one district sales manager in sales from 2003 to 2006.

In 2006, Fred joined Tornos US as regional sales manager, South. "I like the positive attitude of Tornos set by President Scott Kowalski and the other managers. I plan to use my experience selling machine tools in the Southeast for the past 25 years to help Tornos grow in sales, just as I did with Agie Charmilles," says Fred.

Fred currently resides in Tampa with his wife Fadia and sons Derick and Jordan. He enjoys going anywhere that involves fishing, particularly Alaska. ■

#### South Region:

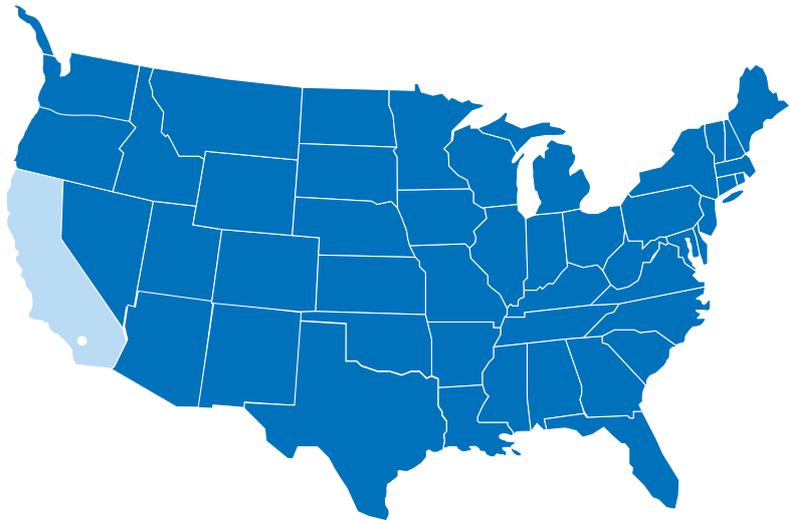
- Alabama
- Arkansas
- Florida
- Georgia
- Louisiana
- North Carolina
- Oklahoma
- South Carolina
- Tennessee
- Texas
- Virginia



### Tornos US Partners with North-South Machinery, Inc.

North-South Machinery, Inc., and Tornos US are pleased to announce their partnership for the sale of high-end, precision turning solutions in California. With a common goal of maintaining an unprecedented level of customer support and satisfaction, the decision for Tornos to partner with North-South was based on a similar business model of integrity and honesty with their clients and customers.

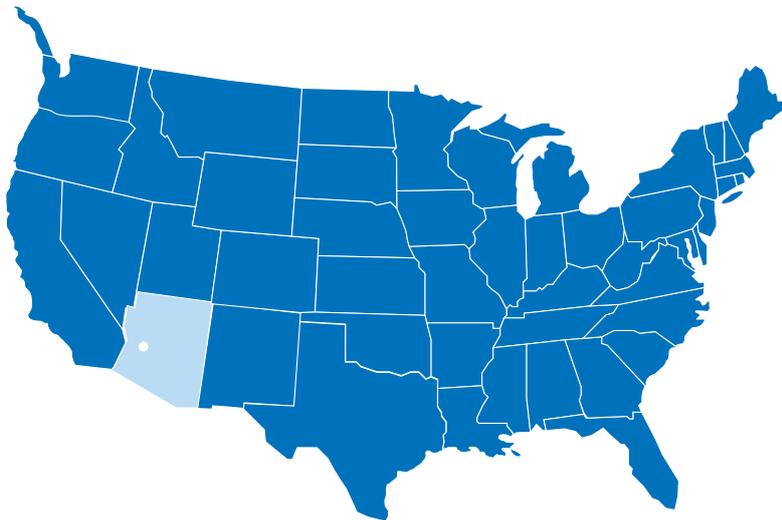
In business for over 20 years, North-South has established itself as the premier machine distributor in the Western U.S. Whether it's EDM equipment, waterjets, lathes, mills, or machining centers, North-South has a commitment to high-end machines that is only enhanced by its partnership with Tornos.



*For more information, visit [www.northsouthmachinery.com](http://www.northsouthmachinery.com), or call 1-800-460-9014.*

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### Tornos US and Adams Machinery, Inc., Announce Alliance



*For more information, visit [www.adamsmachineryaz.com](http://www.adamsmachineryaz.com), or feel free to call 1-480-968-3711.*

Adams Machinery, Inc., and Tornos US are proud to be partners for the sale of high-end, precision turning solutions in Arizona. Tornos and Adams strive to provide the best machine tool performance, service, and solutions for the 21st century. The decision for these companies to join forces was made because of a shared commitment to a high-level of customer satisfaction in the machine tool industry.

Founded in 1968, Adams Machinery specializes in turning and grinding machines, EDM equipment, and machining centers for all applications. With nine full-time employees with extensive backgrounds in the manufacturing industry, Adams offers service for turn-key projects and machine repairs. Adams is optimistic that its success will continue to grow with Tornos, as the aerospace industry remains exceptionally strong. ■

## Stephan Swanson

ESCO Product Manager  
Tornos US  
630.812.5575  
Swanson.S@Tornos.com



*Introduced at EMO '07: The new ESCO D2 CNC automatic turning machine – for precise manufacturing of simple parts up to 0.1575" (4 mm) diameter in large or small lots.*

### Get to know Stephan Swanson, Tornos US ESCO Product Manager.



esco

Born and raised in Illinois, Stephan Swanson brings 20 years of experience and knowledge to Tornos US. Stephan holds two associate's degrees from the University of Illinois at Chicago and a tool and die apprenticeship certificate from the TMA and the state of Illinois. Beginning his career in a family-owned tool and die shop, Stephan started out sweeping up chips on weekends. After gradually gaining more experience while in high school, he learned how to operate the machines in the shop, and Stephan continued to work part-time while attending college.

After graduation, Stephan took his first position as an applications engineer for Agie. In 2006, Stephan was approached about joining the Tornos team. "What I like most about working for Tornos is the quality of their products and the common drive to work as a team. This is important to me on a personal and professional level," Stephan says.

Stephan has been named the new product manager for Tornos' line of ESCO coil-fed turning centers. Stephan will use the new Midwest Center of Excellence to hold demonstrations of ESCO's benefits to the Swiss turning industry. He also plans to build a stronger service and spare parts network. In the future, he would like to see the new ESCO's have the same impact on the market as the old CAM machines had.

Stephan currently resides in Arlington Heights, Illinois, with his wife and four children. He enjoys spending time with his family, camping, hiking, and any other outdoor-related activities. In his spare time he also likes to restore vintage automobiles and motorcycles. ■

# Introducing the ESCO New Mach 64X

**A unique, high-quality automatic lathe made by ESCO and backed by Tornos**

Tornos is proud to announce that it has formed a partnership with ESCO S.A., specialists in the production of high quality, Swiss-made automatic lathes, and is now representing the sales, service, and support of ESCO machines in the U.S.

Unlike conventional lathes, ESCO automatic lathes accept coil stock which has several unique benefits over traditional bar stock fed lathes. Coil stock requires less floorspace and eliminates the downtime caused by bar stock changeover. It also produces less scrap than bar stock for parts in the ESCO range of up to 12 millimeters in diameter. Additionally, the coil stock does not rotate; instead, a rotating toolhead moves around the material in order to machine the desired part. The extreme high performance and cost savings achieved with the ESCO concept contribute to ESCO's excellent



reputation and the success of its products in its 57 years of operation.

## ***The ESCOMATIC NM 64X/Plus***

A key product for the US market is the ESCOMATIC New Mach (NM) 64X/Plus numerical controlled lathe

which turns parts up to 6.35 mm in diameter. The NM 64X has a 12,000 RPM toolhead with four cutting tools and attachments, allowing front, cross, and rear machining. Additionally, a C-axis option allows operators to use the counter collet as a counter spindle, making it possible to machine two parts at the same time – one with the tool head and one via the counter spindle – reducing the cycle time of each part. The more tools the better, and the NM 64X uses up to nine tools for secondary operations, giving you the ability to machine more complex parts.



The NM 64X has great application versatility, as it comes pre-loaded to turn parts for the following applications: automotive industries; hydraulic, electronic, and connector components; medical and dental



components; precision screws; audio, video, and office equipment; and cylinder manufacturing for locks as well as watch and jewelry making.

The NM 64X has a compact design and fast cycle times, and is completely safe for 24-hour-a-day production. Operators benefit from the highly ergonomic handling, and easy ISO programming allows tools to be set up in any combination. An important feature of the NM 64X is the easy-to-use Fanuc 18i CNC, which controls machine movements and functions and provides for a simple setup.

90-98 percent at greatly reduced labor costs (due to fewer machine stops). By using a smaller diameter coil stock for parts in the ESCO size range instead of bar stock, parts can be made faster with less clean up and less waste. With the ESCO NM 64X, though, you are not limited solely to coil since it also accepts traditional bar stock. ■

*For more information about the ESCO New Mach 64X/Plus or other ESCO products, contact Stephan Swanson at [swanson.s@tornos.com](mailto:swanson.s@tornos.com).*

**How does the ESCO coil system work?**

A unique aspect of all ESCO machines is their automatic coil-fed systems. The coil being fed into the machine can be any shape – cylindrical, triangular, or square. All stock goes through a cleaning box where it is thoroughly scrubbed with steel wool before going into the straightener, where it becomes a solid, straight bar. Since the large coils can last several days, downtime due to replacing bar stock is eliminated. And the machines can turn parts in extremely reliable 24-hour production with an uptime rate of



# Goal! Aerospace Contacts and Tornos – A Winning Team!

Sal Kielbus, President of Aerospace Contacts L.L.C. in Tempe, Arizona, saw great opportunity in the United States when he emigrated from Poland in the mid-1980's. A graduate of metal mechanic school in Poland, Kielbus was also a midfielder on a semi-professional soccer team in his homeland, and he still plays today for a team in his Arizona town.

When Kielbus first came to the U.S., he worked for the same company as his father, Arizona Electrical Products, a medium-sized machine shop that assembled connector components. Sal started to operate three-cam screw machines, the beginning of his adventure with Swiss automatics. After just five years, he was running the company.

"Because of my experience running that shop and the assembly area," says Kielbus, "I got to know the end product. This helps me still today because I know what my customers are looking for. I can often advise my customers what kind of problems they might run into because I have already done what they are doing now myself. I also got experience hiring people, quoting, negotiating, managing contracts, and learning everything involved in running a company. One of the most important things I learned was how to maintain a family-oriented atmosphere."

## ***Contacts and the personal touch***

In 1999, Kielbus founded Aerospace Contacts L.L.C. "At Aerospace Contacts, we are not just numbers. I



*Aerospace Contacts L.L.C., located in Phoenix, Arizona.*

like to keep the personal touch." Kielbus' dedication to his staff is evident right on the homepage of Aerospace Contacts' website, where the whole team is pictured.

Recently Kielbus sold his original building and more than doubled his company's floorspace to 21,000 square feet in a new facility a few blocks away. They outgrew their old building in just three years because they kept getting new business.

## ***The aerospace business soars***

Every plane has 6,000 to 7,000 connectors. And every connector can have up to 300 contacts. The sensor-wire-connector assemblies show the pilot the status of everything on the plane. Every contact has two ends: a mating side – usually a socket or pin – and a termination side where wires are attached. Contacts are

family parts – they are made in all different sizes and gauges. Cycle times can be anywhere from ten seconds to a few minutes depending on a part's level of complexity and how many operations are required.

Contacts are vital to the operation of modern aircraft – and Aerospace Contacts L.L.C. is vital to the aerospace industry. The company has made contacts for the International Space Station and the Space Shuttle. The business is especially demanding. "Every process and material for a contact has to be certified. That means we have to work with our vendors, like platers, material suppliers, and other components vendors. With all these certifications you end up with a book of certifications."

True to Kielbus' character, he meets customers personally. "I believe in

personal contact – making business eye-to-eye.”

**13 Tornos machines – a 24/7 operation**

The thirteen Tornos machines on the floor contribute significantly to Aerospace Contacts’ success. So much so, that four more Tornos machines were on order at the time of this article’s publication. In fact, Kielbus considers the Tornos machines some of the most important members of the Aerospace Contacts team, as they run 24 hours a day, seven days a week, 365 days a year. (Truly – last year they were even producing parts on Christmas!) And four to five of those hours each day are unattended. A camera connected to the Internet allows Kielbus to check on his machines remotely. Kielbus has used the remote monitoring in sales situations as well. “In aerospace,” he notes, “some companies won’t give you the business until they see you – their work is too important to give to a company running out of a garage. So, when I’m meeting with them I say, ‘We can see it right here, right now, live.’ Then they see our quality manual, and we get the order.”

**Speed: Important in soccer and manufacturing**

Kielbus increasingly finds himself competing with companies in Switzerland on volume orders. “That’s why they call them Swiss automatics, right?” he jokes. “They do the contacts very efficiently. I had a contact with gold plating that cost me five cents. Switzerland provided a whole contact, manufactured



and plated, for four. I don’t know how they do that. But when we win against Switzerland, we win on the speed. And running seven days a week, 24 hours, helps too. So we try to be the emergency source. I have customers who come to me and say, ‘I’ve already talked to six shops, and if you’re not going to help me, I don’t know who will.’ And we do. We do the impossible. Our saying in the shop is, ‘The possible we do today. For the miracle, we need 24 hours.’

“For example, just recently we had a customer in California who gave us four small orders on Friday. So, Monday I called my customer and asked him, ‘How do you want to ship the parts?’ And he tells me to ship them when I have them. And I say, ‘I’m asking you how?’ And he goes, ‘That’s impossible! Red, UPS!’ And the next day I get the e-mail: ‘Wow!’

“In order to keep our edge, we have to have the capacity. If we are already running seven days a week, 24 hours, there is only one way we’re going to get capacity – get more machines.”

**Gaining the information edge, offering engineering support**

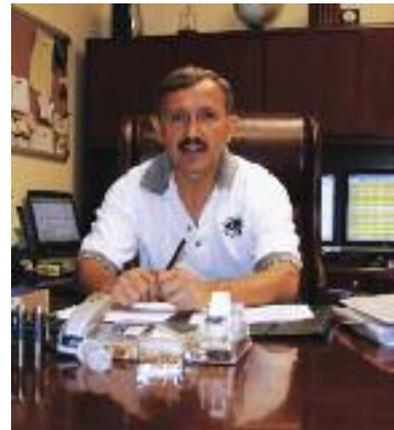
Back in 1999, the industry was growing so much that virtually anybody who wanted to could start a business. Kielbus estimates that about 75% of the work at that time was commercial and about 25% was military. Then September 11th came and the industry saw big changes as a lot of shops went down.

But at the same time a lot of new programs for the military were



released. “That’s when my engineering background – my ability to understand the part drawings and communicate with the engineers – set our company apart,” Kielbus recalls. “I offered my existing customers and prospective customers help with designs and sent samples at no charge. My only request was, ‘When the order comes through, please come to me.’ And I’ve got to say, they responded well. Because I helped them, they helped me. Even my competition called me to ask, ‘What do you know that we don’t know? What’s happening that you are getting the business? You are buying machines!’”

*Sal Kielbus, President of Aerospace Contacts L.L.C. in his Phoenix office.*





Aerospace Contacts offers its customers advice about materials, heat treatments, functionality, dimensioning, compliance to specifications, and any knowledge required to manufacture a contact. The company even organizes seminars for customers. "Everybody appreciates the seminars," Kielbus says. "We want all our customers to be their best. Because that's the only way we can keep the business here in the U.S. Otherwise it's all going to go to offshore."

Kielbus has seen many of his competitors lose business to overseas alternatives. "We see a lot of molding and stamping already going out there. So the next step is going to be

manufacturing. You've got to try new things. You can't just stand in the same place. If you are standing in the same place, you are going backwards. So we help our customers develop the new stuff. That's my approach to the industry and that's why we get along very well with the engineers – because that's what they want to do. We work together – that's what it's all about. Teamwork. Like soccer."

On the customer appreciation page of the Aerospace Contacts website, you can see just how far some of the company's clients have gone to express their gratitude for excellent work and helpful service. "The Southwest Microwave story is

interesting," Kielbus relates. "When they came to us, they didn't believe anyone could help them because their part was so challenging. But we worked together and solved their problems and became their vendor of the year. They gave us a plaque and bought pizza for everybody in the shop and assembly." He attributes that success to an ability to work on new ideas and methods with the engineers.

**Tornos' role on the Aerospace Contacts team**

"The Tornos machines are designed to make the contacts," explains Kielbus. "I like the attachments – and the spindles in the machines are independent so you can do so many things at the same time. One operation doesn't eliminate another one. I like the flexibility of the Tornos machines. And it's all-around a good machine and keeps tight tolerances. And that's what we need."

"We are running seven days and week, 24 hours a day with minimum downtime. And the Tornos machines hold that tight schedule. Even my DECOs from 1999 are still keeping the tight tolerances. The machines are also built very well. For all the DECOs I have ever owned or operated, I think I only had to replace one ballscrew."



## **Tornos improves its moves**

"The TB-DECO is a very good control," says Kielbus. "I think it's fast." He also thinks the change to the TB-DECO that allows ISO (Fanuc language) is a good one. "I think that's going to help Tornos. Because I started with TB-DECO control, I know the language. But if you have operators who know only the Fanuc language, then they are limited from using the full capacity of the machine. The addition of this language will be great. I think Tornos is doing lots of good stuff now. They have made quite a few improvements. For example, the new extended hours for shipping spare parts at Tornos compensates for the time difference between Connecticut and Tempe, Arizona."

Just as Kielbus is a great resource for his customers, Tornos is an important resource for Aerospace Contacts. Kielbus especially likes Tornos' new Direct Connect service. "You can send a question to the service department over the website and they will respond in an

hour. That's a good thing. I have worked with Roland Schutz in service quite a lot. He is a very good guy – very knowledgeable and helpful. Paul Cassella in applications is also very good. If I have a part and I'm looking for the best time, I will send him the drawing and he'll get the best cycle time and then he will explain to me why, and what he's doing. Then I can approach this with my new customers."

**"The world is shrinking. It's important to have people you know all over. It's important to have *contacts*."**

Kielbus is also impressed by Tornos' new President. "I met Scott Kowalski at IMTS. We discussed certain things and I am finding that they are very flexible and responsive to certain ideas. They look at the customer side also. They have very good people."

## **Unbeaten in Scottsdale, Arizona**

Like Kielbus' undefeated team in the Scottsdale soccer league, Aerospace Contacts and Tornos are winning operations. "Engineering. Speed. Good quality," notes Kielbus. "That's what makes us grow."

"I just feel like I have a lot to be thankful for in America and the people I have been associated with... Everybody says that – but I really do mean it. I think this is a great country and should be appreciated. I love what I do. I like to talk with engineers about their projects, and spending an hour talking about the way they work, and how they have a real passion for their work, too. So we talk about aerospace business, the satellites, what they can do, and what we can do for them, and then I feel like I serve my industry. That's my passion – next to the soccer." ■

*Tornos US and decomagazine would like to thank Sal Kielbus, Angela Blanco, Richard Waters, and Aerospace Contacts L.L.C. for their participation in this customer story.*



# Winning the Never-ending Battle of Quality vs. Cost

## FLP Tooling Inc. takes the challenge for Swiss-style turning machines

With escalating expenses and dwindling profit margins for manufacturers, FLP Tooling Inc. knows it is important to find tooling that produces accurate parts at a lower cost. It is especially critical for any company that requires Swiss-type turning machines to produce sophisticatedly small and increasingly complex parts for the rapidly growing medical, aerospace, and communications industries.

But is it possible to find low cost tooling that can withstand stringent specifications standards? Does cheaper tooling really lower overall costs? Many of FLP Tooling's customers don't think so. "Cheap tooling often has low production tolerances. This forces a higher turnover rate, increasing downtime and the amount of tools needed per job," says Sal Kielbus, president of Aerospace Contacts L.L.C. "In the long run, cheap tools can actually increase your overall manufacturing costs."

Since 1999, FLP Tooling Inc. has been the sole distributor of the celebrated Applitec insert and tool holder line, which was specifically designed for Swiss-type turning machines with very strict production standards. These tools are engineered to provide efficient change outs and very quick set-up times without modifications. "We believe in providing the highest

quality product made with the best coatings and carbide grades, tightest tolerances, and most advanced flexibility for multiple applications," says Frederic Lovis, the President of FLP Tooling. "For example, our Applitec line features the Top-Line brand which focuses on performance while the Eco-Line brand focuses on the price conscious consumer. However, the difference with our Eco-Line and other lower cost brands is we do not sacrifice quality."

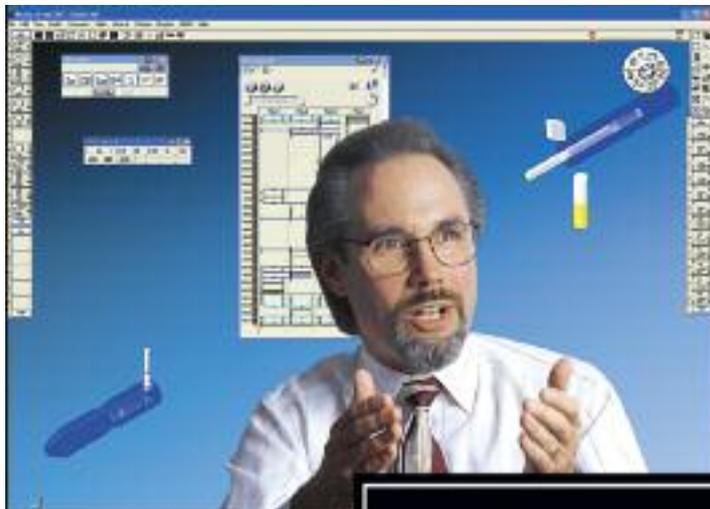
FLP Tooling encourages all potential customers to scrutinize each aspect of their cost structure, not just price, when analyzing which tools to buy. Find out if tools are produced for multiple applications, or they have quick set-up and change-out times. Can the tools maintain tight tolerances and precise cutting angles, and will they do the job right the first time around? "All these



factors contribute to downtime, overall manufacturing costs, and, ultimately, the company's bottom line," Lovis says. ■

*If you would like more information about FLP Tooling, please contact Stephanie Jones at 310-306-0987 or [stephanie.jones@flptooling.com](mailto:stephanie.jones@flptooling.com).*





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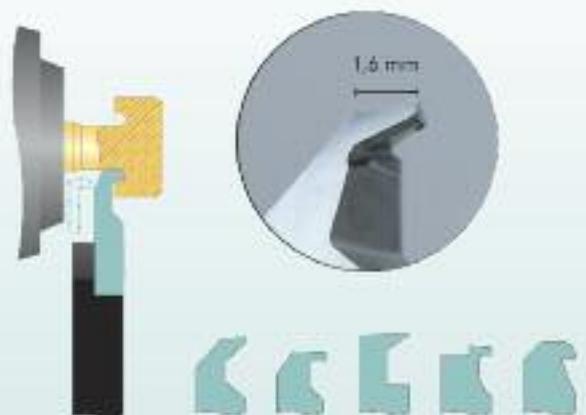
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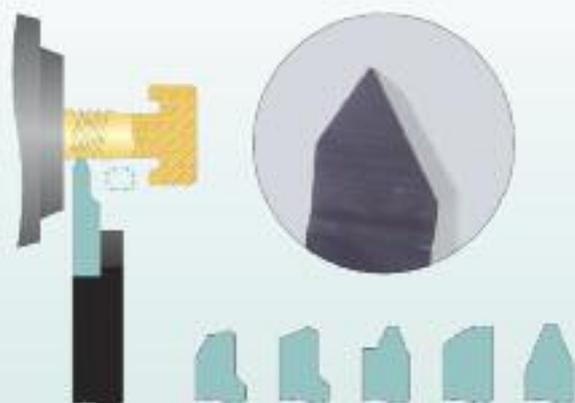
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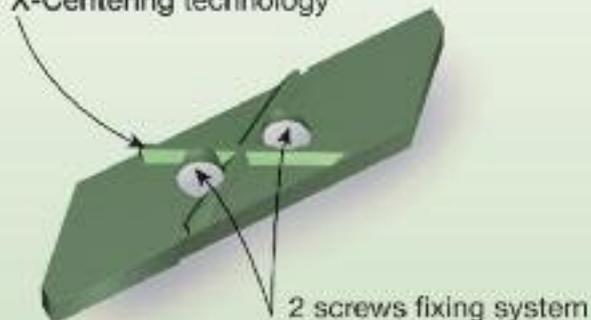


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