



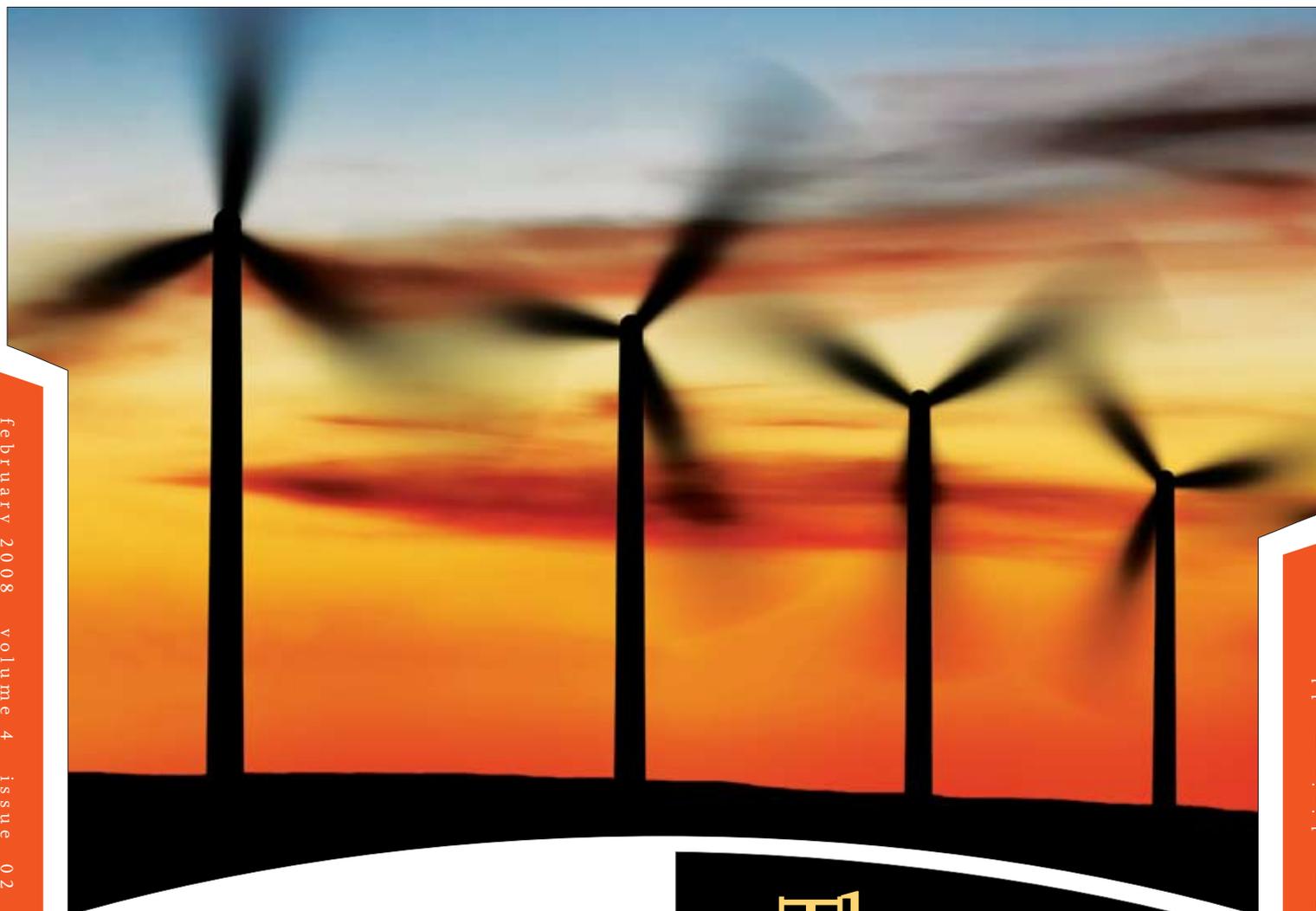
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february 2008 volume 4 issue 02

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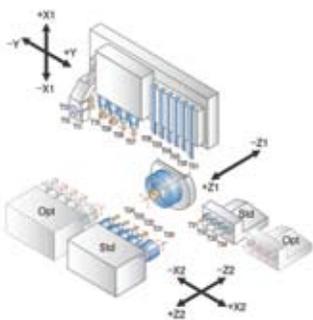
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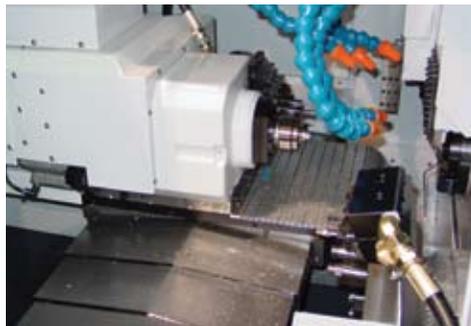
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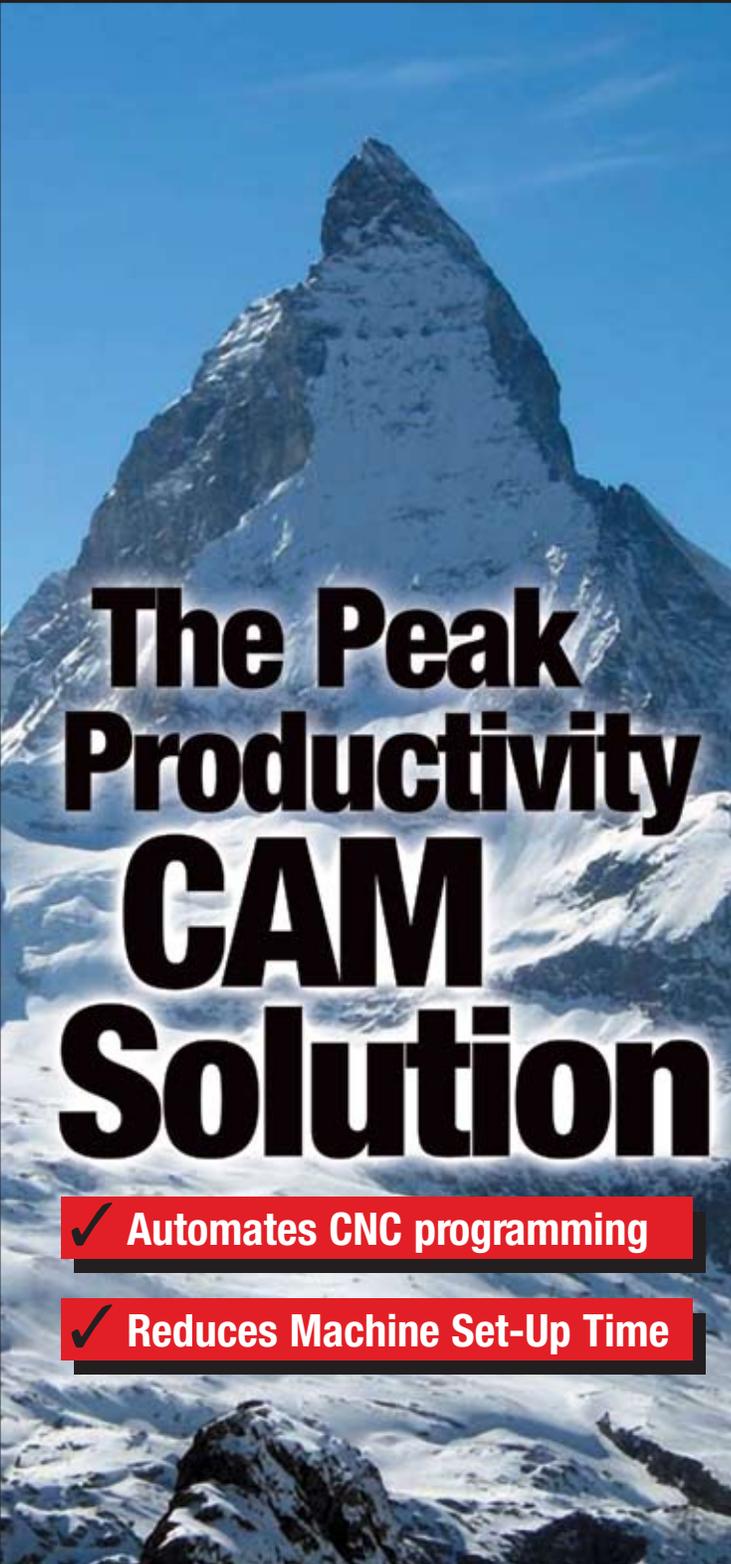
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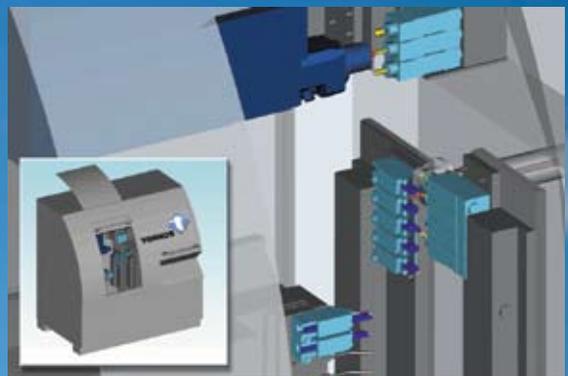
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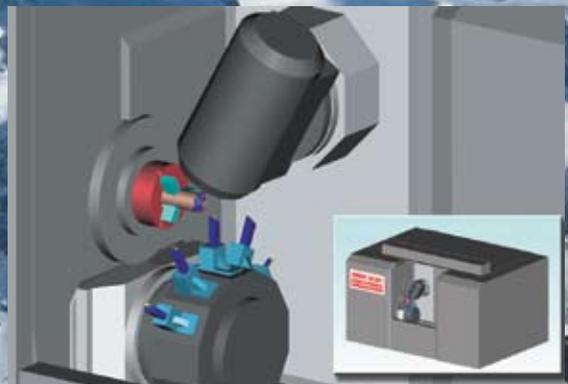
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# Today's Machining World

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A Screw Machine World Inc. Publication  
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is published monthly by Today's Machining World, Inc.,  
4235 W. 166th St., Oak Forest, IL 60452.

**SUBSCRIPTION/CHANGE OF ADDRESS:**  
Basic subscription rate: US\$40 for domestic/US\$55 for international.

**Send address changes and/or subscription inquiries to:**  
Today's Machining World,  
P.O. Box 847, Lowell, MA 01853 or email  
cs-smw@computerfulfillment.com

CPC Publication Agreement Number 40048288

**Canadian Return Address:**  
World Distribution Services  
Station A, P.O. Box 54  
Windsor, ON N9A 6J5  
email: cpreturns@wdsmail.com



# editor's note

## Feeding Us Back

I recently put my car in for some long neglected body work at a local firm named Central Collision. I was surprised by the immaculate facility and the professionalism of the estimator. The work took a week, during which time I received two updates about the progress. After I picked up the car I had a call from the office manager to see if I was totally satisfied. One week after pick up I had a call from a California company asking for an assessment of Central Collision by using very specific questions.

My assessment was that this outfit actually took pride in their work and really did care about my opinion. And I would go out of my way to use them again and recommend them.

Pertaining to *Today's Machining World*, one of the segments closest to my heart is Forum, the feedback page. The letters I love the most are the, "I love the magazine, but..." variety. When our readers feel so connected to write or call to critique us or recommend how we can get better, I am genuinely touched.

I recently received a note about the Graff-Pinkert advertising, pointing out that the reader found the pictures of the stiff white-shirted bosses and the blue uniformed plant workers irritating. And he was a boss who had worked his way up from the plant floor. His feedback hit me as perceptive and pushed me to change the off-key ad.

Sometimes we get feedback that shows up in a different way. When we covered Gene Haas' tax indictment, the Haas marketing people told us they would pull out of *TMW* unless we stopped – and they did. That was very useful feedback, too.

Lloyd Graff  
Editor/Owner

editor's note



**Noah Graff** has been working at *Today's Machining World* since 2005. He graduated from the University of Wisconsin Madison, majoring in film and history. He is the features editor for *Today's Machining World*, as well as the videographer for *TMW* and Graff-Pinkert & Co., producing training videos on screw machine maintenance and video stories for the *TMW* website. Noah enjoys investing, filmmaking and improvisational comedy. He is also a master of the sacred art of live band karaoke.



**Lloyd Graff** has had a love of writing since getting his first letter to the editor published by the *Chicago Daily News* at age 12. In high school he wrote short pieces for *Reader's Digest*. In college he became Sports Editor of *The Michigan Daily*, and weighed a career in Journalism before joining the family used machine tool business in 1969. His passion for writing never died as he wrote a "magalog" called the *Graff-Pinkert Times* in the 1990s. In 1999 he decided to build on his knowledge of the machining world and his writing experience by starting *Screw Machine World*, which became *Today's Machining World* in 2005.



**Barbara Donohue** received her mechanical engineering degree from MIT. She worked in design, heat transfer and manufacturing for several years before changing careers to become a journalist. Now she writes about technology and business from her home office in Acton, Massachusetts. When not writing, she sings in a choir, volunteers as a literacy tutor, and is weekend "foster mom" to a yellow Lab puppy named Tikva that is training to become a wheelchair assistance dog.



**Robert Strauss** was formerly a reporter for *Sports Illustrated* and the *Philadelphia Daily News*, and a news producer at KYW-TV in Philadelphia. Now a freelance writer based in Haddonfield, N.J., where he revels in his two daughters' basketball prowess and their eye-rolling at his bad puns, his work appears most often in the *New York Times*, the *Washington Post*, the *Los Angeles Times* and *Today's Machining World*.



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### He Loves Us

First of all, Lloyd, let me congratulate you on the magazine. I have always looked forward to it arriving at the shop – which brings me to the reason I'm emailing. I'm moving to Ft. Wayne, Ind., and you guys did a piece on a shop that looked like a Château, and I believe it was in the area. I have been running screw machines my entire life and was impressed by that company's views on cross training and the general overall layout of it, but I cannot remember what issue it was in. Any help would be greatly appreciated. I wish you continued success and look forward to your reply.

Darrell Cease  
Ft. Wayne, IN

*Darrell: That was C & A Tool in Churubusco, IN.*

### He loves Us Not

Please cancel my subscription to your magazine. I subscribed to your magazine to help me learn more about the screw machine world. But I keep getting more information about your personal agenda than I want to know about. I have been a subscriber for several years and

become very tired of learning your personal feelings about many topics totally unrelated to machining. But the latest issue was just too much! I don't want to know what a retired army officer's agenda is or was. (Nov, 2007)

By his remarks in your magazine he didn't have his heart and soul in his job. Maybe he was doing the people he was supposed to be leading an injustice by staying anyways, so it is good riddance. I served in the U.S. Navy during the Vietnam war and spent 36 months in the combat zone. I feel ashamed to know of a military officer who would turn into such a back stabber, especially since we are still involved in the same war his job was to fight.

Gary Sperry  
Pinnacle CNC  
Fallston, MD

### He Loves Us

Lloyd, now you have done it again. My wife passed, so I'm no more late getting dressed but I have a new problem.

Now you tell me "Soon to Expire" in big letters on the cover of *Today's Machining World*. Did I ever tell you, now that I live alone, at least one night a week when I receive your magazine, it takes the better part of a night to digest?

While I almost never will own a New Britain automatic or a Wickman, I am intrigued with the magazine writers, stories and the advertisements.

Please don't take another enjoyable evening away from me. Son Noah has become an interesting writer like his father. Congratulations! When I go to that place I'll tell Mom and Pop about you!

Austin Lucas  
Boynton Beach, FL

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# Power Generation

Does anybody really know if we are in a sustained period of climate change caused by burning fossil fuels? Not really. But they are growing potatoes in Greenland, polar bears are doing Coke commercials because Arctic ice is scarce, and Al Gore just won the Nobel Prize for *Inconvenience*.

General Electric and Honda and even George W. Bush have turned bright green, which means that there is big money to be made in climate change if we look in the right places.

I have a client who has spent 60 years in the machining business. Every few months he calls me to ask where to find new customers. He's very good at making bullets, so I usually tell him to look for some countries who eat up a lot of ammo, but now I'm offering a few new ideas about entering the climate change supply chain. (see cover story)

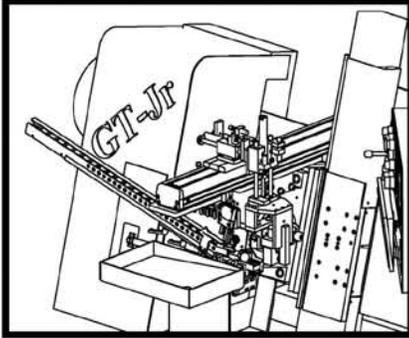
Power generation is going to continue to be in a huge growth spurt for at least the next 25 years. Alternative fuels like solar, wind and geothermal are all promising, but are unlikely to make a huge dent in the power ramp up. Nuclear is likely to expand, but it takes so long to build a nuclear facility with the crazy approval process its development will be slow. So ultimately the answer is coal because we have so much of it.

The logical answer to America's and China's power demand is cheap abundant coal – which does not pollute and cause global warming.

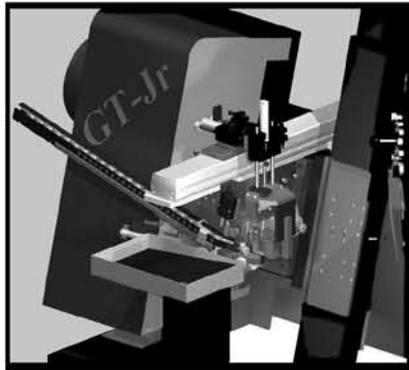
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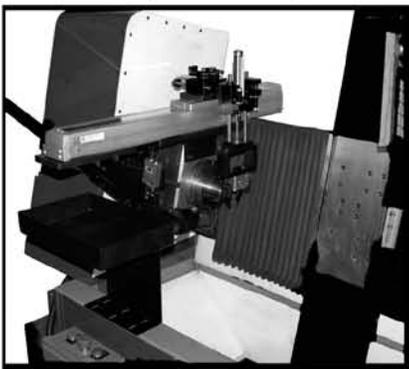


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(Continued from previous page)

Coal gasification and pollution scrubbers are viable processes today, though they raise the price of power by about 50 percent. The big challenge for power generators and their equipment suppliers is to get rid of the carbon dioxide from the burning coal. This is where the machining world is going to get a lot of business.

The pipeline and valves and fittings suppliers are going to have a big payday. A gigantic new industry, bigger perhaps than today's natural gas pipeline business, is likely to build from nothing today, as we gather the waste carbon dioxide and then transport it to underground or underwater storage sites. Most of these sites will be oil fields, mines, saline aquifers and other underground openings. The market for pipes and valves and monitoring devices is going to be staggering. I think this is the market to start tapping today because it's doable and necessary.

Another logical place to look for business is in the switch from mechanical to electrical systems. Standard industrial motors will continue to be replaced by variable speed motors all over the landscape. This will be mandated by government or dictated by cost savings. So check out the motor producers, who are going to be looking for a lot of shafts and couplings.

Clean water and irrigation are another huge potential market for machined products in a hot world. Desalinization is going to be a mammoth market as we run short of conventional water supplies in the rush to produce grains for a hungry world and fuel for vehicles. Ethanol is probably a stupid, politically-inspired boondoggle, but it has a lot of momentum for now in Washington.

Global warming may be a fiction, but at this point it is an actionable fiction because seemingly every major decision maker believes it. Now is the time to hop on the train. It is going to carry a mind-boggling amount of coal.

## The shift in the machining world from the

tonnage model to the lower volume, higher price per piece model continued a pace last year.

Roger Bassett of Plymouth Steel, a cold-finished bar maker in Detroit, recently wrote a piece for the Precision Machined Products Association, which talked about the softness in shipments in 2007 versus 2006, yet the PMPA statistics and my anecdotal mining of information tells me that last year was generally a good year in the machining universe. I conclude that the shift to high value-added products is accelerating as the Chinese sop up the cruder jobs.

The shift of product to China seems to have slowed. Seldom do I hear of part families being sent to Asia, though many firms have devised a China strategy that includes manufacturing labor-intensive stuff in China.

The battle shaping up today is with sophisticated European firms with the best equipment who are now competing with the heavy sled of a \$1.50 euro strapped to their backs. If North American firms can beat the euro prices by 15 percent, they can get the business – anything less and the status quo generally prevails.

Going back to the issue of Chinese competition and steel, I read an interesting report by Dr. Usha Haley on the steel industry in China. Her research was supported by the Alliance for American Manufacturing, but she argues

# swarf

persuasively that the fragmented Chinese producers receive a variety of subsidies, particularly from local governments that want their own steel plants. The big boost they get is in subsidies on electric power. The Chinese produce one third of all of the world's steel. Half of that production had gone to the construction industry, but that percentage has dropped significantly as the central government has attempted to slow the boom in that segment.

Chinese steel exports to the U.S. have doubled recently, and Dr. Haley estimates they have a 20 percent cost advantage with the undervalued Chinese currency. We may see a big bump in steel imports here if internal demand flattens out after the Olympics.

Nucor has a new bar mill coming on stream in Memphis, and Mittal is developing its brand here, so the tonnage business stands to get even more competitive this year.

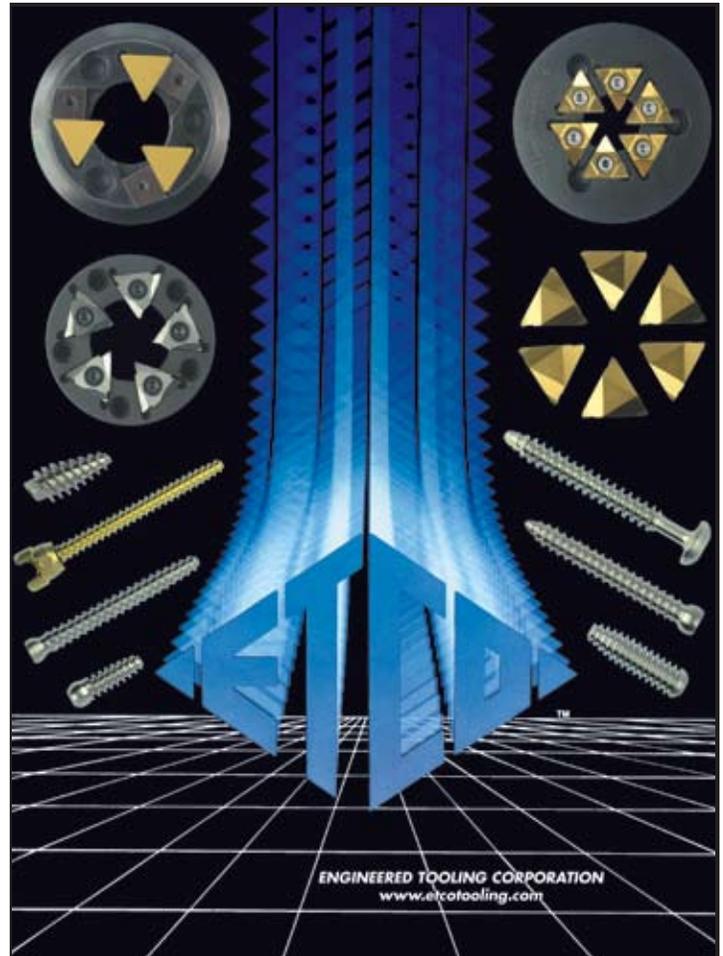
## New Orleans and Detroit are

the sickest major cities in the United States. Federal money is pouring into both derelict towns, and both are banking their futures on casino gambling. New Orleans is no longer the biggest town in Louisiana by population. Baton Rouge, home of Louisiana State University, is now bigger and richer.

The parallel with the growth of Ann Arbor, home of the University of Michigan, is strong. New industry gravitates to the energy and brains of a college town. Why would a Toyota or a Google invest in Detroit or New Orleans when the type of people they want to hire do not want to live there?

There is a lot of sentimentality about New Orleans and Detroit, but the reality is that they may both be virtually dead hulks with new growth popping up 50 miles away, like live branches on a dead tree.

(Swarf continued on next page)



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## Kenny Lofton has played outfield

for 12 different Major League teams. At 42 he is a free agent waiting for another contract in the Big Leagues. Lofton will get it because he still can play, but especially because he brings an energy and feistiness that makes him perfect for a contender in the last 8-10 weeks of the season.

Lofton's downside is that he is a demanding guy who believes he's always good enough to start and be on the field. He has no tolerance for slackers and is a vocal critic in the clubhouse. He is a hard guy to have around for a whole season. Kenny Lofton is a closer. He may be obnoxious and hyper and egotistical, but the guy can put a team over the top in a closing rush.

So some contending teams with mediocre outfields would like to get a Lofton in midseason, but they would rather another team endure him for the first half of the season. This is probably why he remains unsigned.

There are parallels in business. Companies bring in consultants or specialists to handle projects, but they may not want them as long term employees. This is the advantage of the independent contractor model. Overpay somebody for the short term to get you over the hump, then say goodbye before the hired gun upsets the chemistry too much.

I'll be watching to see who signs Kenny Lofton. It will probably be a lousy team that figures to trade him for a top prospect in July. There's always a spot for a Kenny Lofton on a winner.



## I am a real baseball aficionado.

I know the stats. I know virtually every player in the Majors. I can tell when a pitcher's stuff is "obscene," "nasty," or "lost." I play Fantasy Baseball, and I'm good at it. And I don't give a "hoot" about the ghastly, terrible, "God save us all" steroid controversy that the press prattles about endlessly.

According to Michael Lewis, who wrote the definitive baseball book *Moneyball*, almost everybody juiced or is still juicing and, in almost every case, he knows it either had no positive effect or actually harmed the player. Barry Bonds was the exception that proved the rule because he was the rare great hitter who had good power but not monster power. The steroids enabled him to up his workouts and

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build his bat speed, which enabled him to hit 73 home runs in a season.

So for a few years fans saw more home runs. Frankly, I enjoyed Sammy Sosa crush 66 one year, even if he had a few acne breakouts.

I know it was cheating to use those supposedly performance-enhancing drugs, but I ask the "holier than thou" sports inquisitors where they might draw the line on "performance enhancement."

Several major league players take Ritalin because they are ADHD and need more focus to be successful. The Cubs' relief pitcher, Scott Eyre, turned around his career when he began to manage his ADHD with Ritalin. Good for him.

How many players are taking anti-depressants? Plenty, I'm sure.

Players are always getting shot up with cortisone and similar anti-inflammatory steroids. Do we care? They certainly enhance performance by enabling a player to conquer plantar fasciitis, or patellar tendonitis.

Then there is "Tommy John" surgery, the elbow ligament transplant procedure that has enabled hundreds of pitchers to get a virtually bionic arm after their careers would have been finished before its advent in 1974. Sandy Koufax might well have had 10 extra years added on to his career with today's arm surgery techniques. Definitely "performance-enhancing."

There is better nutrition, bigger gloves, livelier wood bats, juicier balls, LASIK surgery and sports psychologists. It's a wonder they don't hit 100 homers a year and throw 120 miles per hour.

The reality is that, for me, steroids did not really change the game I love. The biggest changes in the game I've seen are the rise of Latin players, the mastery of the split finger fastball, and the demise of sound fundamental techniques at bat and in the field.

Steroids? Spring training starts February 15 and I'm psyched.

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## 68 years ago my father sat all

6' 6" of himself into a seat in a rented airplane headed for Indianola, Kansas. He had been invited into a deal by Harold and Eli Blumberg of Adams Machinery, because my Dad knew scrap metal values and the

Blumbergs liked him and thought he was a comer.

After inspecting the used machinery and scrap they flew back to Chicago. The Blumberg brothers regaled my father with stories about their success buying and selling machine tools. My father took mental notes and decided that it sounded like a better racket than selling chips by the pound. War was already savaging Europe, the Depression was finally over, and my father was hungry for success.

My Dad's father died a few months later, at which time he liquidated their scrap business and started sniffing for used machinery around the Midwest. The Blumbergs bought most of the machines he found.

He spent a short time doing machine tools, then started a screw machine business, which he ran for eight years before returning to the used machinery business. He occasionally saw Harold and Eli at machinery dealers' functions and auctions, but mostly they ran parallel, but not intersecting, businesses.

Eleven years ago my daughter Sarah applied to the Jewish Theological Seminary in New York on her path to becoming a Rabbi. She applied for a scholarship based on academic achievement and was awarded the Blumberg Scholarship for her first two years at the Seminary, funded by the Foundation of Harold and Ruby Blumberg of Chicago. She had no idea about the connection between her grandfather and the Blumbergs.

On December 30, 2007, Harold's widow, Ruby Blumberg, died at the age of 97. At the funeral the officiating Rabbi, Vernon Kurtz, whose wife had been a teacher of Sarah's when she was a child, read the thank you letter Sarah had sent 10 years earlier for the Blumberg Scholarship. Kurtz sent Sarah a copy of the note and told her he had read it at the funeral. She had long forgotten it, and was living 2,000 miles away.

I called Gerry Blumberg, Harold and Ruby's son, who is a used machinery dealer in business with his son Ryan, to express my condolences. We talked about family, and business, and Indianola, Kansas. As the world turns.



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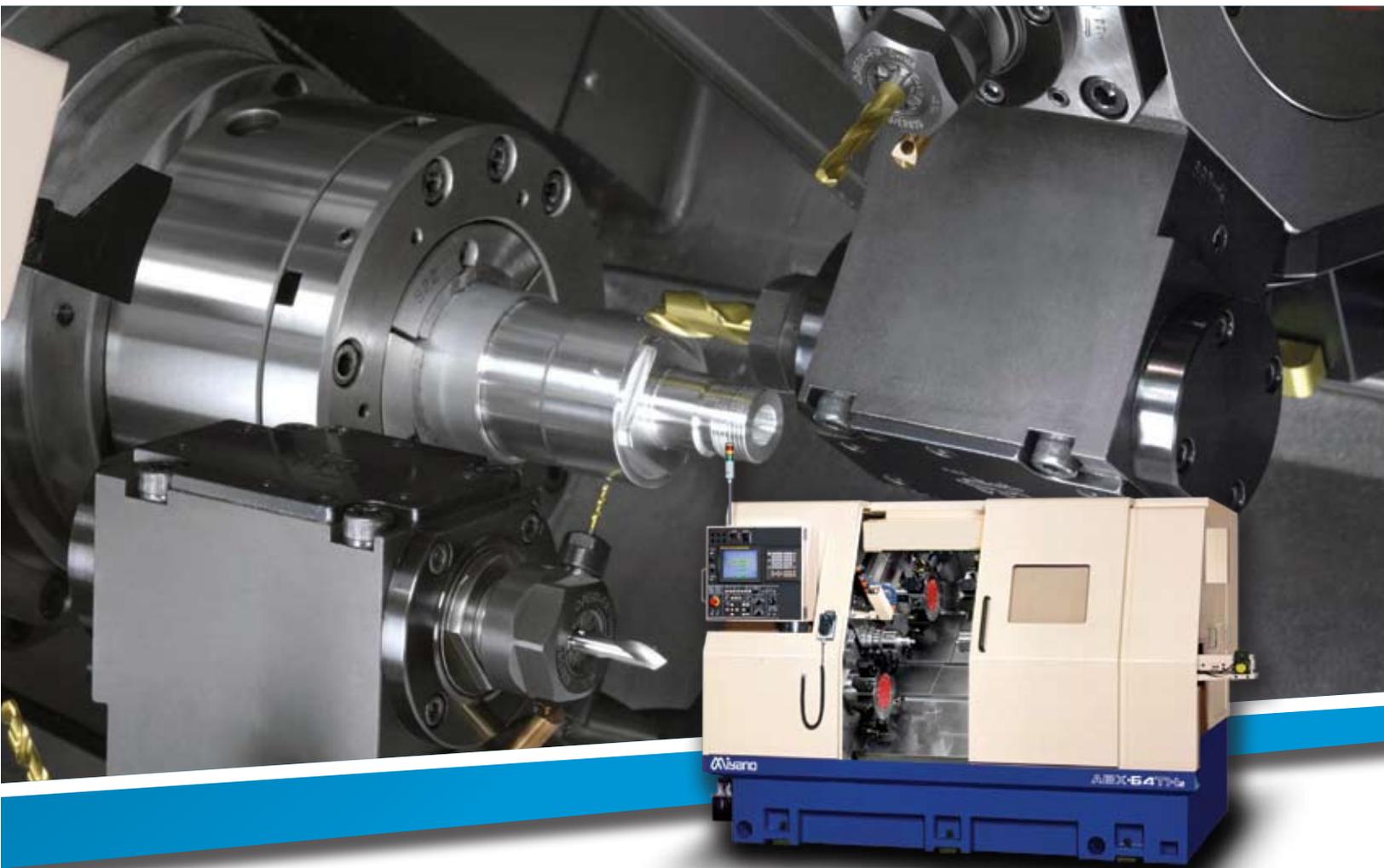
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BY JERRY LEVINE

## Project Mulberry

This book review is a labor of love, with a bit of surrogate parental pride thrown in. The book's author, Linda Sue Park, used to baby-sit for my children, and her dad Ed worked with me at Amoco. Linda has grown from being a bright teenager into one of the country's top children's books authors.

In 2002, her book *A Single Shard* won the prestigious Newberry Award, a figurative children's books' Nobel Prize, and a few years later the *Chicago Tribune* selected her *Project Mulberry* as its top children's book, which carried a \$1,500 prize. Every library in the country – public, private, school, etc. – orders at least one copy of each year's Newberry Award winning book. This, combined with private sales, made Linda Sue an instant best selling author.

Her books tend toward historical fiction, specifically Korean history and culture. But in a greater sense they address coming to terms with the immigrant experience and the meaning of growing up American.

When Linda Sue's parents Ed and Susie came to this country from Korea as students in the late 50s, they had little but the clothes on their backs, a love of learning and a determination that their children would succeed. Ed, ever frugal, introduced Linda Sue at a young age to the Park Forest, Ill., public library where he marveled, "you could get any book in the world with the sole stipulation that you had to bring it back." What a country! Linda Sue was amazed that she found many of the same books on our kids' bookshelves. People in America actually owned books too!

We spent some time with Ms. Park when she came to speak at the Chicago Humanities Festival and collect the Tribune Award. We talked to her about the process of writing fiction. For her, as well as many fiction writers, the process involves her characters coming alive, inhabiting her living space and carrying on conversation. A unique aspect of *Project Mulberry* is that at the end of each chapter there is a short discussion – even heated debate – between the main character and the author. This spirited conversation between character and author is much like a typical American family's

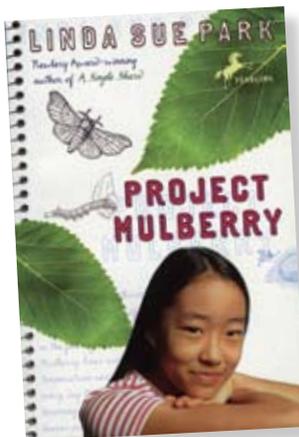
mother-daughter relationship.

As a children's book, the language is simpler than an adult book, but the substance – the ideas, values and emotions – are identical and are expressed beautifully. *Project Mulberry* examines several themes, primarily friendship among children but also intergenerational and interracial (among Whites, Blacks and Asians) friendships. The book teaches the value of each individual and a respect for one another.

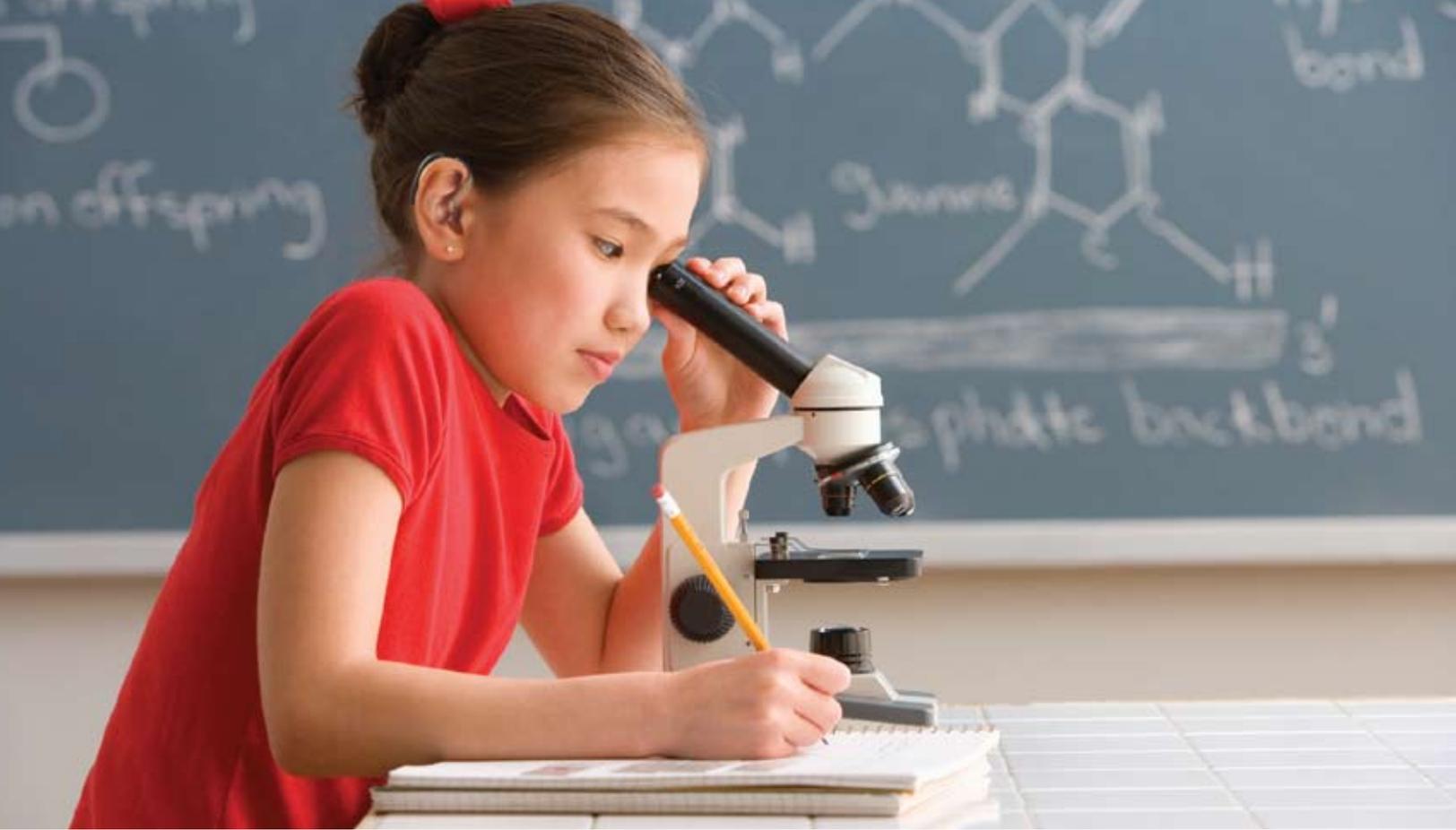
The main characters are two ten-year-old friends and next door neighbors Julia and Patrick, a Korean-American girl and a Caucasian boy. They have always done school projects together and work well as a team. They want to win a blue ribbon at the state fair, but can't come up with the right project.

Julia's mother suggests they raise silk worms as she did when she was a girl growing up in Korea. The club where they belong in small town Illinois usually does more traditional American stuff. Julia, trapped in a second-generation identity search, thinks her mom's idea is too foreign and secretly tries to undermine the project. Eventually, she comes around and we learn a lot about silk manufacturing – and more about ourselves and our preconceived notions.

Every good novel grows out of an "inside story" which enhances the book. Normally, readers are unaware of the mechanics of the story. Julia, who is named for the author's younger sister, is every inch Linda Sue Park herself – with all her energy, enthusiasm and youthful brilliance I remember. She is also the same young woman being mentored by her dad and searching for assimilation and the American dream. As I read this story and see her achievements today, I know she's found it. I am pleased for her, and I am duly proud.



Comments? You can email Jerry Levine at [jerroldlevine@yahoo.com](mailto:jerroldlevine@yahoo.com).



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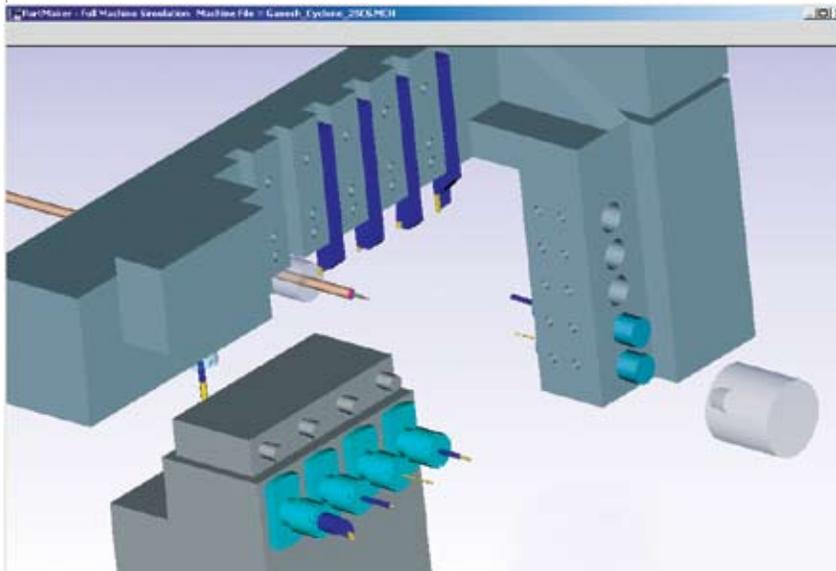
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## Feeler Groovy (right)

GBI Cincinnati has introduced the Feeler VM Series vertical machining center, built with an X-axis of 40" (31.5" on the VM 32s), Y-Axis of 20.5" and a Z-axis of 22. The VM Series combines milling and large machining capacity within a compact 9.2" (8.3" on the VM 32s) x 7.2" x 9.2" footprint.

Rapid traverse rates of 1417 ipm (X- & Y-axis) and 1102 ipm (Z axis) mean accelerated machine cycle times and reduced non-cut time. There is an automatic carousel-type turret offering a fast 7 sec tool-to-tool index time. The turret holds 22 tools (24 on the swing double arm, 1.9 sec tool change) with a maximum tool weight of 17.5 lbs. Tool maximum diameter is 5.9" (3.14" on the VM 32s), and length is 11.8".

For more information, please contact GBI Cincinnati, Inc. at 513-841-7391 or visit [www.gbicincinnati.com](http://www.gbicincinnati.com).



## Team Cyclone

PartMaker Inc., and Ganesh Industrial Supply, Inc., manufacturers of the Ganesh line of CNC machines, have teamed up to provide a programming solution for the Ganesh Cyclone series of sliding-headstock multi-axis CNC lathes. The Ganesh Cyclone series, which features the 7-axis Cyclone 25-CS, are Swiss-type lathes that can operate without a guide bushing. PartMaker SwissCAM allows users to choose whether or not they wish to program on a Swiss machine with or without a guide bushing.

PartMaker Inc. and Ganesh Industrial Supply Inc. have collaborated by sharing technical information with one another to assure users that the PartMaker SwissCAM is fully compatible with the Ganesh Cyclone series

of guide bushing-less Swiss machines. This integration includes the availability of a robust post processor and machine simulation facility for this machine.

For more information, please contact PartMaker Inc. at 215-643-5077 or Ganesh Industrial Supply Inc. 818-349-9166.

# fresh stuff

## Rotary Club (right)

Hardinge has streamlined their new 5C2 Rotary indexer body to a curved front casting over the spindle and has made the handle removable. Their dual-bearing spindle accommodates heavier radial and axial loads increasing overall indexing capabilities. It features a hardened and ground steel worm gear with cross-axis helical gears and a hardened and ground steel worm drive shaft. The Hardinge 5C2 unit has a  $\pm 4$  arc-sec repeatability,  $\pm 25$  arc-sec accuracy and a maximum runout of .0002" (.005mm) TIR. Each unit shipped contains a printout of accuracy – final inspection is performed using a Heidenhain encoder mounted directly on the spindle nose.



Hardinge offers three collet closer options to best suit the shop requirement. The pneumatic fail-safe closer provides 1760-lbs (798kg) of drawbar force and features a 27mm thru-hole. The pneumatic high-force closer allows reduction of gripping force for delicate parts. The manual closer is lever-operated with 950-lbs (431kg) of drawbar force. The Hardinge system is compatible with Fanuc, Siemens, Heidenhain, Hurco, Milltronics, Fadal, Haas Yaskawa and other CNC systems. The 5C2 is industry compatible for drop-in replacement with fast 360°/sec indexing speed.

For more information contact Hardinge Inc. at 800-510-3161 or visit [www.hardingetooling.com](http://www.hardingetooling.com).

## Check Their iD

Fanuc's new iD Series wire EDM machines feature a beefier, CAD-designed cast Meehanite base that is thermally insulated and 40 percent more rigid than previous models. Table travels were increased with no load overhang during table movement. Heavy-duty 1.26" (32 mm) ball screws for the X and Y-axes are double-anchored and encapsulated in "bellows" style covers to prevent contamination. iD Series machines are equipped with FANUC's 310iS-WA EDM CNC control.

Features include a Windows® operating system, a 15.1" LCD touch screen, split-screen graphics with increased drawing speed, on-board interactive parts/maintenance assistance, and the ability to transfer program files through a USB memory stick/card or Ethernet network.

Patented FANUC R Series adaptive-control technology counts real-time effective discharge pulses in the cutting gap and continuously adjusts discharge energy density and gap. Digital nano interpolation and corner control ensure smooth cutting and accurate part geometry. New servo-driven tank valves ensure that the water level automatically follows the Z-axis position, preventing lines on the work surface caused by the opening and closing of solenoid valves. The iD Series machines accommodate guides for 0.004–0.012" (0.1–0.3 mm) wire.

For more information, contact Methods EDM at 978-443-5388 or visit [www.methodsmachine.com](http://www.methodsmachine.com).



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ITW ROCOL has introduced SafeTap® Plus, a water-based tapping fluid with a custom blend of synthetic additives that provides the cooling properties of a waterbased coolant with the viscosity of a straight oil. Since SafeTap® Plus is water-based and contains no mineral oils or solvents there is no oily residue left on the work pieces. SafeTap® Plus is great for use on all metals and offers an environmentally-friendly alternative to oil-based tapping fluids. SafeTap® Plus is available in 4 and 16 ounce bottles as well as 1, 5, and 55 gallon containers.

For more information, please contact ITW ROCOL at 800-452-5823 or visit [www.itwfp.com](http://www.itwfp.com).

# fresh stuff

## Prep School (below)

Conicity Technologies has introduced the DXM-50EZ Prep Machine. The DXM-50EZ Prep machine has a 110 volt powered, three-axis CNC unit, operated from a touch screen. The EZ-Prep machine requires no set up and addresses drill sizes ranging from .020" diameter up to and including 1" diameter. Edge prep is applied in selectable .0005" increments, starting at .0005" through .0035". The machine is designed to operate in production, prepping 100 tools per hour, for 12 months without requiring adjustment for wear.

The DXM-50EZ Prep machine addresses all the critical parameters required to get the maximum performance from a drill/reamer/gun drill point. The edge prep is applied equally on all cutting edges, dividing the chip load, allowing the tool to cut on its own centerline, minimizing "walking." The EZ-Prep removes grind marks and other surface flaws that would perpetuate chips or failure during use. The EZ-Prep applies the proper edge shape geometry to make the cutting edge strong, yet conducive for effective metalcutting.

For more information, contact Conicity Technologies at 877-652-7132 or visit [www.ez-prep.net](http://www.ez-prep.net).



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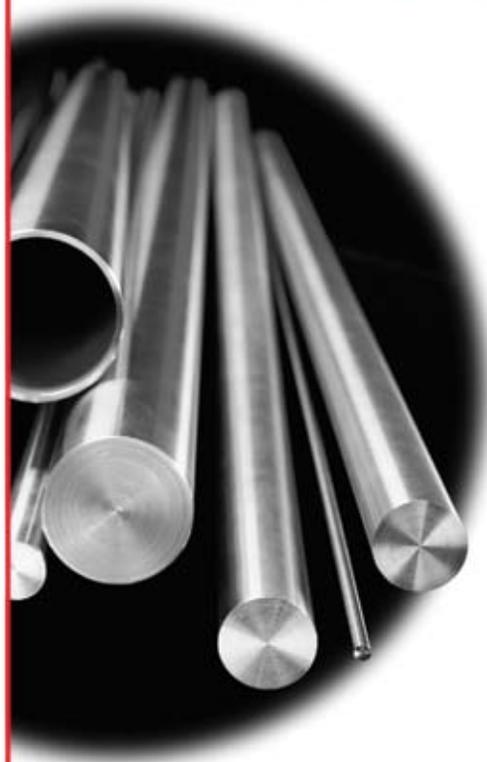
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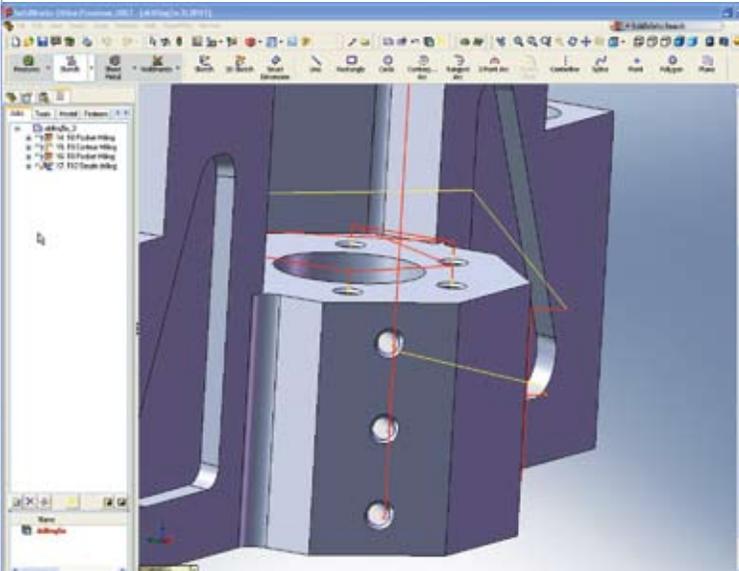
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## MIND Over Matter

With the product release of hyperMILL® V9.7, OPEN MIND Technologies AG is now offering SolidWorks® users a complete, integrated solution. hyperMILL's integrations with Pro/ENGINEER® Wildfire™, Autodesk® Inventor™, thinkdesign® and hyperCAD® 2007.1 have also been updated in this release. Users of these versions can access all of hyperMILL's functional benefits in an integrated manner, including the new millTURN module.

hyperMILL® offers users an array of strategies for 2D, 3D, HSC and 5-axis machining in one user interface. Programming efforts are reduced with feature technology, including feature recognition, automatic mapping of hole and pocket features, feature list, feature browser, macro technology and macro database. The postprocessors, tailored to specific machines, controllers and manufacturing processes, ensure CAM programs are processed seamlessly on the machine. The 'best fit' function automatically optimizes machining with a view to the available workspace and also allows optimal space usage when small or limited machines are used.

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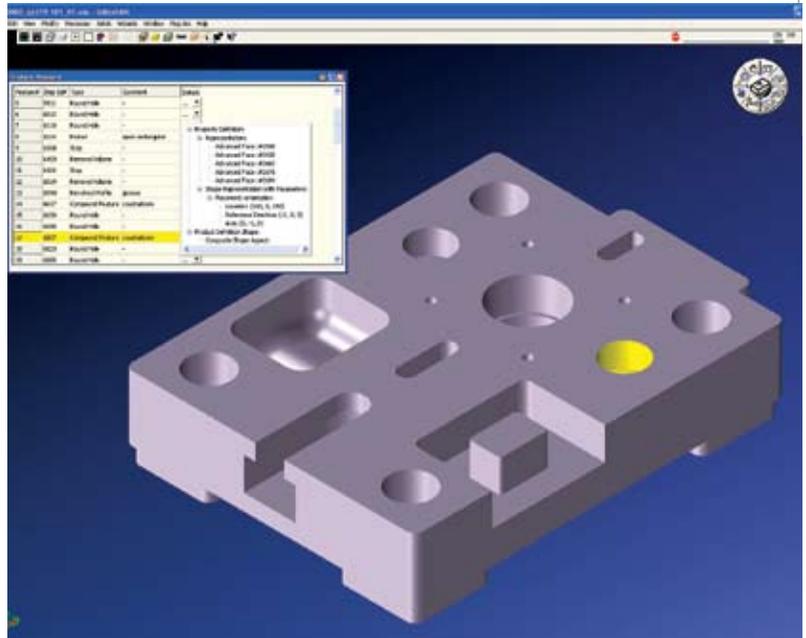
## STEP On It

Gibbs and Associates announced the completion of a collaborative effort in conjunction with South Carolina Research Authority (SCRA) which allows GibbsCAM to read STEP Application Protocol 224 (AP224) files. STEP (Standard for the Exchange of Product model data) AP224 is the foundation format within the STEP Manufacturing Suite of the International Organization for Standardization (ISO). This suite of STEP Application Protocols addresses the data requirements extending from product design through manufacturing engineering to machining using numerically controlled machine tools to final inspection. STEP AP224 specifically supports the transfer of manufacturable product information between design engineering and manufacturing engineering groups and includes both geometric and product manufacturing information.

The STEP AP224 interface was implemented under funding from the Army's Tank Automotive Research, Development, and Engineering Center (TARDEC).

GibbsCAM's STEP AP224 interface reads the solid model contained in the AP224 file and then creates features which correspond to the features in the AP224 file. The Feature Manager can then be used to organize and manipulate the features within GibbsCAM. A feature selected in the Feature Manager listing is highlighted and the geometric faces within that feature can be passed as a group to various operations which are used for machining within GibbsCAM.

For more information about GibbsCAM, please call 800-654-9399 or visit [www.GibbsCAM.com](http://www.GibbsCAM.com).



## Cool Trim

Master Chemical Corporation has introduced TRIM® C350 coolant for the machining and grinding of aircraft air frame and power plant (A&P) parts and components market. TRIM C350 has been designed to assist in achieving the low residual stress and "o" corrosion, stain, and residue that is necessary on aircraft parts.

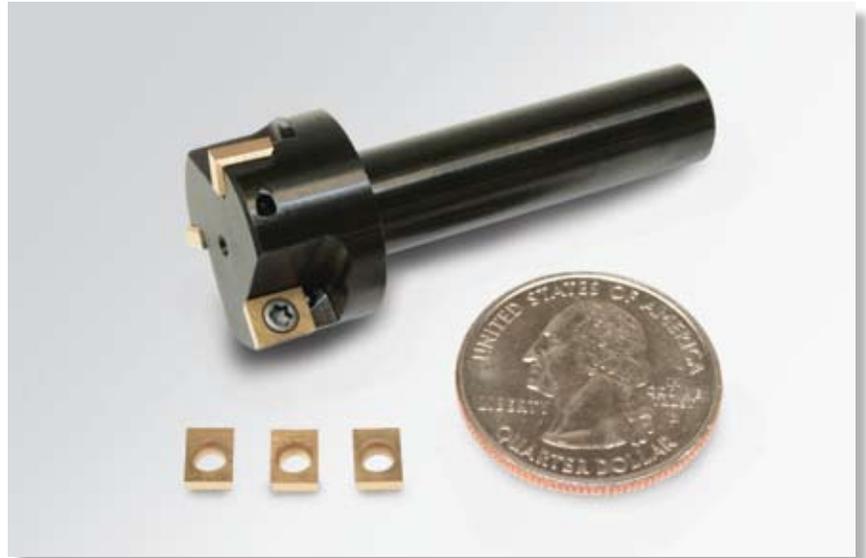
C350 achieves machining performance without the use of conventional sulfur or chlorine based EP additives. C350's pH neutral and less than 100ppm total chloride working solution provides corrosion and stain resistance on even the most sensitive alloys. As formulated it contains no chlorine or sulfur based EP additives, petroleum oil, NPEs, silicone, nitrides, phenols, copper, triazine, or formaldehyde releasing chemistry, and is PRTR compliant. Field testing shows that it foams very little and has great sump life with very low carryoff.

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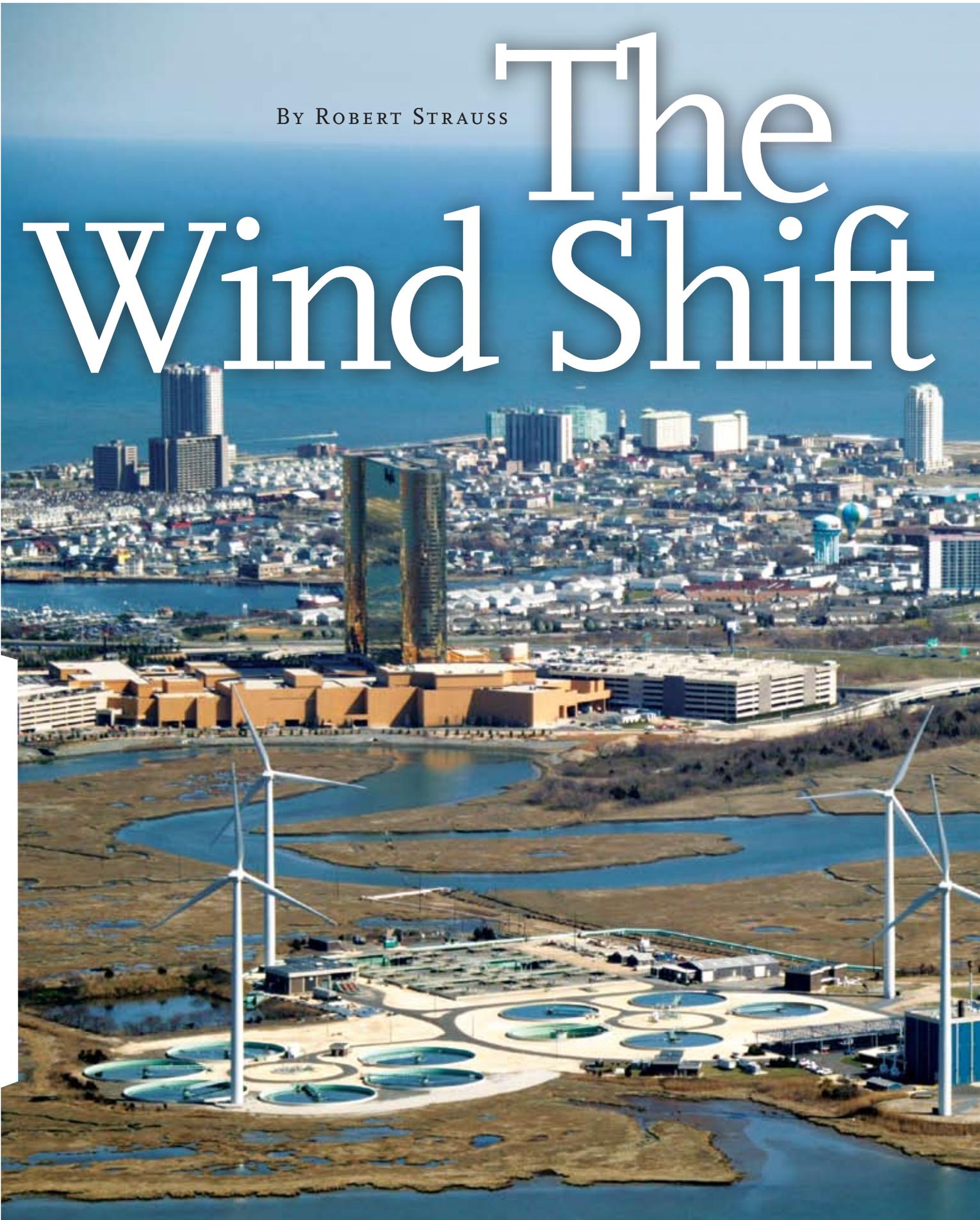
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BY ROBERT STRAUSS

# The Wind Shift

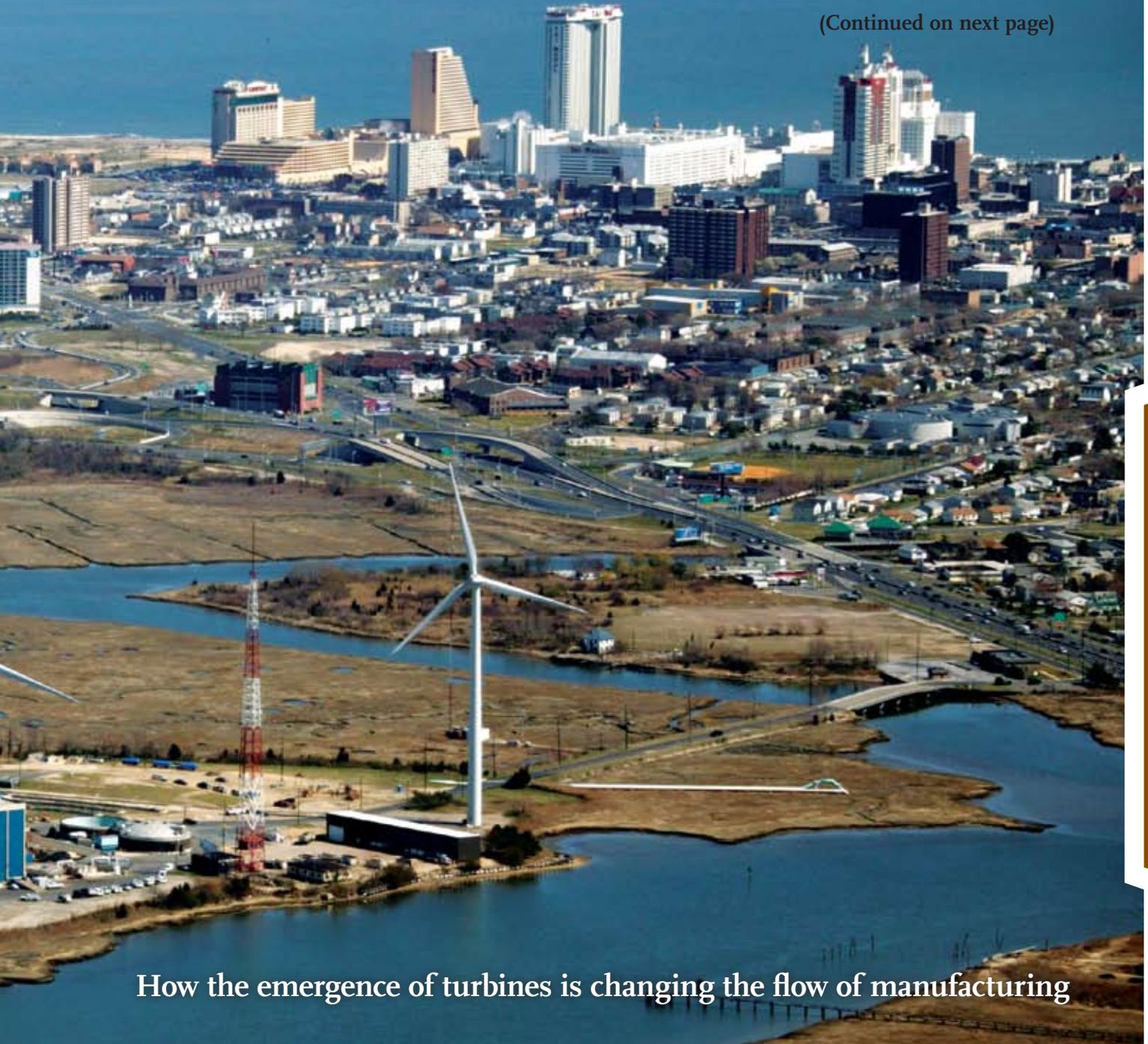
wind turbines



Atlantic City has been touting its resurgence of late and, sure enough, what used to be slums are now full of upscale shopping outlets, from Coach to Nike to Mikasa. A few years ago, the big splash casino was the Borgata Hotel Casino & Spa, built for \$1.2 billion. Now, there are at least three plans for casinos costing twice and three times that much.

The skyline in Atlantic City is burgeoning with those glistening buildings, but what gaming folks see as they come into town on the Atlantic City Expressway is a gamble of a different sort.

(Continued on next page)



wind turbines

How the emergence of turbines is changing the flow of manufacturing

The five pinwheels of the Atlantic County Utility Authority's wind energy project, Jersey-Atlantic Wind Farm, went up two years ago, their arms spinning over the Barnegat Bay like some version of an Alexander Calder-Rube Goldberg post-modern sculpture garden. At 40 stories tall, they spin toward the casinos as if blowing visitors toward their roulette wheels and blackjack and craps tables.

It is a \$15 million bet the Utility Authority made to build the nation's first coastal wind farm system, and New Jersey's first wind farm of any sort. The turbines provide 20 million kilowatts a year to power the Utility Authority's nearby wastewater treatment plant, about half of what it needs to run, thus saving it about a half-million dollars annually.

Jersey-Atlantic Wind Farm is one of several dozen large wind turbine projects at work around the United States, with promises of many more to come. State, federal and local governments and foundations are providing ever-increasing sums for green power projects, with wind seeming the chicest green thing around. The American Wind Energy Association claims there was the capacity to produce more than 31 billion kilowatt hours of energy in 2007, enough to supply three million households, slightly less than one percent of the country's electricity output. The future is, though, blowing in the most positive of winds. All of this is looking good for those who make the raw materials and finished parts for wind turbines.

"You may see the General Electric logo on the turbine itself, but it is the sub-contractors who are making nearly everything and stand to make a lot of money when wind power becomes even a greater source of energy, which we really believe is around the corner," said Christine Real de Azua, a spokeswoman for the American Wind Energy Association (AWEA). "The market is growing so fast that it is competitive. The opportunities are just tremendous."

While it is not unusual for trade groups like the AWEA to be optimistic, there is something to be said for being trendy, which is what the wind power business is these days. The AWEA trade show in Houston scheduled more than 100 booths for component suppliers, a good number of them being precision tool-makers, machine shops, and even basic gear and steel businesses.

"We make very large castings out of grey ductile



The Atlantic County Utilities Authority Wastewater Treatment facility above is the world's largest hybrid solar and wind powered facility, generating power for nearly 2,600 homes.

iron. There is nothing more basic than that," said Mike Forsha, vice president of operations at the Hodge Foundry in Greenville, Pennsylvania, not far from Pittsburgh. "But since it is a special kind of ductile material that works well with the low temperature requirements of the wind turbine industry, we are valuable to the manufacturers."

**"It's the sub-contractors who stand to make money when wind power becomes a greater source of energy."**

Hodge had been looking to recast itself after being taken over by an investment group from Pittsburgh about four years ago, Forsha said. It was not the only company in the steel industry that had been doing so, to be sure, but the new owners did heavy market research and decided the wind industry was a coming play, a future good bet.

"Everyone was positive about it. We thought it was the right way to think after such a long downturn in this part of the country in our business," he said.

Though the showy parts of wind turbines – those aesthetically and aerodynamically sound propeller blades – are generally lightweight, often balsa wood, with interiors surrounded by light aluminum or Fiberglass covers, the working parts and castings for them are both precision made and heavier duty.



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A work in progress. The Jersey-Atlantic Wind Farm was fully operational January 1, 2006. Each 1.5 megawatt turbine is 262 feet high and the blades are 120 feet long. The total height from the bottom of the tower to the tip of the blade is more than 380 feet, about the height of a 32-story building.

Forsha said Hodge gets designs from the turbine manufacturers and then makes the patterns and pours in the molten metal to come up with the primitive, pre-machined parts.

“Often they come with additional machining to be done on the outside surfaces, and there we send them to machining shops for more precision work,” he said. “But we do a lot of different kinds of parts – gear box components, hubs, support bases, gear box castings. We make the structural parts of these giant machines that really have to take the torque of the blades and the wind and the temperature changes to make this kind of energy work.

“We love the business,” he said, noting that about 40 percent of Hodge’s business in 2008 will be on wind turbines. “When you see documentaries on the *Discovery Channel* on wind energy, you know it is a neat market to be in, the coming thing in the green environment.”

There may well be a lot of green to go around for all kinds of machined parts businesses in wind, if only because there are so many different types of those parts – and the supposition that changes in wind turbine technology will offer the opportunity for innovation at all levels.

On the other hand, said John Dunlop, the technical services engineer for the American Wind Energy Association, domestic companies had better step up quickly or lose out to foreign competitors who have

been staying out of the North American market for the time being.

“So far, a good share of the manufactured materials for wind turbines has been imported in the past from Europe and Asia, where there are either more wind farms or cheaper manufacturing,” said Dunlop, who is based in Minneapolis. “The market has been too erratic for them in the United States because of intermittent changes in federal policy and the desire to build wind power. But as

**“There may well be a lot of green to go around for all kinds of machine parts businesses in wind.”**

the market grows and stabilizes, as states figure out their long-term policies, those companies will be able to see steady markets, even out to 2030.

“With the bigger turbines expected to cost \$3- to- 5 million even to build, those foreign competitors already making materials will come in quite quickly,” he said.

Most of the current wind farms are in the Midwest, Southwest and the rural parts of the Northeast, which would seem to favor machining businesses in those areas of the country. Logic suggests that it is best to build wind farms in places that get steady winds, but sometimes mitigating factors change that logic. Often, said Dunlop, the windier places are not near enough population centers, so the benefits of having a big wind

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turbine farm would be limited.

“We tend to live where the wind is not strong,” said Dunlop. “Thus, say, it might be more efficient in the long run to have wind farms in South Dakota or western Iowa transport their power to populous centers in Illinois. We’re not constructed that way yet, though.”

There is the usual NIMBYism (Not In My Back Yard) too. Neighbors may find wind farms unsightly or worry about their safety. A project off Long Island has long been stalled because beachgoers say their views of the Atlantic Ocean would be marred by wind turbines rising above the horizon, even miles off-shore.

Then there is governmental NIMBYism of sorts. Several commissions in Delaware all but approved a \$1 billion, 150-turbine wind farm off the coast near the resort of Rehoboth Beach in the fall of 2007. Early this year, though, the project stalled in the state legislature over initial funding, bonding and lobbying issues. The wind farm idea, which would be the largest off-shore wind project in the United States, providing power to tens of thousands of customers, was competing with coal and natural gas providers, each of whom has tried to lobby against it.

This confounds the subcontractors in the machine industry, though, who are ready to provide more support to what they believe is a bright green future in the energy business. R.P. Machine Enterprises in Statesville, N.C., for instance, has a new 40,000-square-foot building, having expanded primarily on its potential for wind turbine gear production.

“We make the machines that machine the parts, basically,” said Richard Piselli, the president of R.P. “What our machines are used to is to cut the teeth on the pinions and bearings to very high accuracies, so the manufacturers don’t have to go to a secondary operation.

“What we have found is that there is currently a bottleneck in the manufacturing of these turbines – they can’t put them out fast enough with the small number of suppliers right now,” said Piselli. “We feel we are in on the ground floor of something that is clearly increasing through 2010, and probably a lot further if people get behind it.

“It is always good to feel you are doing something profitable and environmentally right at the same time,” he said.

Technology on wind turbines is going every which

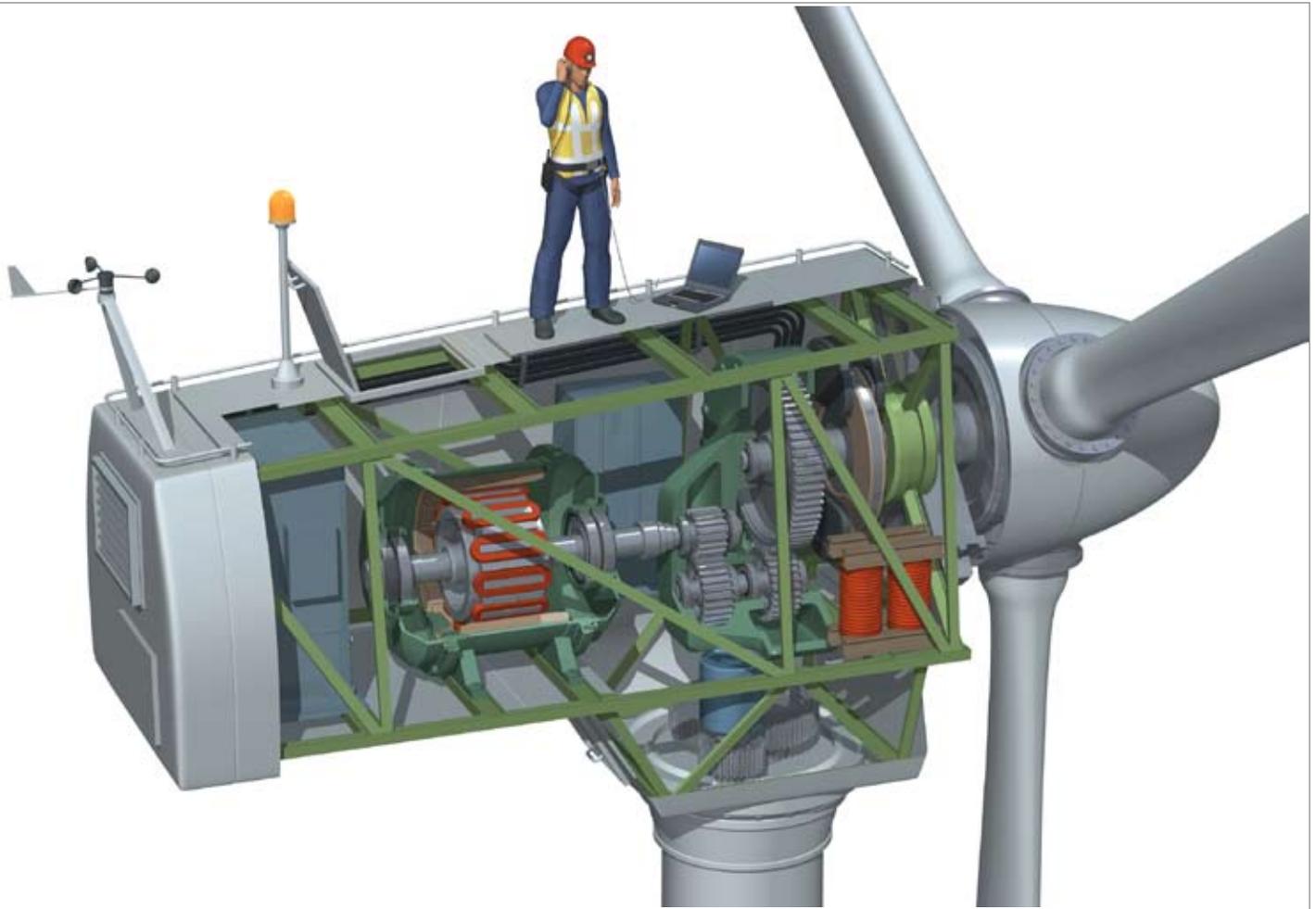


way, too. In 2000, the average wind turbine’s generation capacity was about .76 megawatts, according to the American Wind Energy Association’s figures. Last year, that had doubled, to 1.5 megawatts on average.

“That means new and larger machines are coming on line all the time,” said AWEA engineer Dunlop. “That not only means new technology, but different kinds of gears, more precision in machined equipment, improved housings, just about everything. Companies already inside the business, of course, are ahead of the game, but there will be plenty of business, I believe, in the future for those who are ready to pounce.”

Two years ago, that was Magna Machine Company of Cincinnati, Ohio. For 60 years, it had been comfortable in its business, which was about 50 percent making large industrial items as varied as amusement park rides and pharmaceutical mixers and the other 50 percent making large metal castings for various uses.

“We got lucky and one of the manufacturers came to us as sort of an R and D facility, testing out things,” said Dale W. Reckman, vice president of the



commercial products division of the 115-employee Magna Machine. “We had done a lot of power generation work and commercial contract machining, but this was exciting and new.”

Now, just two years later, about 40 percent of Magna Machine’s business is providing the 40,000-pound castings for hubs and bases of the huge wind turbines.

**“You have got to believe the wind business is going to be a good one.”**

“We love the big challenges of providing the huge castings. It is good to be on the ground floor, but, frankly, there are few companies around who can do what we do in this regard,” he said. “Still, you don’t want to be caught not knowing what is out there, and for those who are in the business of machining big items, you have got to believe the wind business is going to be a good one for a long time, given the awareness of the green power movement.”

On the back side, there is a business in repair and replacement coming in the wind turbine business, too.

“These are machines that are running all the time, big machines, so there will always be a need for repair,” said Bruce Campbell of Field Alignment Services in Aston, Pa. “We do bearings for machines and I am sure we will be able to do replacement and repair work well into the future. In the end, it all trickles down to the guys who fix the machines.”

But for now, it is the guys who are making the parts for the machines – the wind turbines – who have a chance for future work.

“These are huge machines – 80 meters high, a full football field – so even when the parts aren’t complex, that is a lot of machine work to be had,” said Dunlop, the AWEA engineer. “Ten years ago, we thought turbines would increase, but gas went down in price and the green revolution slowed down. Now, I don’t see a slowdown. It is definitely a niche the nimble will be able to exploit.”



# Building

milltronics

BY LLOYD & NOAH GRAFF

An interview with Milltronics founder Tim Rashleger

# a Business A Mill at a Time

**LG:** Tim, Milltronics is a machine tool company you built from nothing over 30 years. You recently sold it. How does it feel?

**TR:** Most of us spend our whole life building a business and then end up some day having to deal with it. I think people assume that it's a selfish decision. The reality is it's probably the most unselfish decision you make as an owner. You can't take care of the people right as you get older, to really insure their place. All of these people who never changed jobs, who gave me the peak of their career – I owe it to them that there's somebody with deep enough pockets so they don't have to go sit in a lobby and fill out a job application. It was much less about us and so much more about the future of the company. It's no fun selling your company. I don't even care much about what's in the bank. The reality is you just love this or you wouldn't have done it for 30 years.

**NG:** The company that bought you, LDI – tell us who they are.

**TR:** Liberty Diversified Industries. They're a huge cardboard box company owning other operations, including importing office furniture. They have one of the most high-tech paper mills in Northern Minnesota.

**LG:** I see. They understand capital equipment.

**TR:** Yes. They have a deck company, a sheet metal com-

pany – a portfolio of companies. It's a third generation company fortunate enough to have a lot of available cash and looking for a higher technology company. We weren't on the market; they found us. I liked them because they were a local company. They had the financial whereabouts to build a company. They're a family company, privately held, so it wasn't a financial institution that came and bought us. I think I got the best I could find as a new partner, and I'm welcome to stay as long as I have a passion to do what I'm doing. I'd like to stay at least another year.

**“The reality is you just love this business or you wouldn't have done it for 30 years.”**

**NG:** Just another year?

**TR:** You never know. I could do this longer. Entrepreneurs don't do well working for other people. But I would never abandon it until I'm comfortable leaving. But I also don't want to be dying at my desk worrying about machine tools. In the spirit of most of us, we enjoy going out and starting something else. It's in our blood. We love developing things. When we can't do it anymore or we become a bystander in it, it's much

more difficult. Am I enjoying this? To some extent it's nice. The risk is gone. The financial whereabouts is there for the employees, the growth, the benefits. But the reality of aging and time and taxes, we have to be honest about it all. But they treat me very well and I would like to contribute as long as I can.

**NG:** Do you ever clash with them?

**TR:** No, I honestly haven't. I don't always agree with them. I think it's easy to understand if you've run your company your way. We never worried a lot about making the last dollar. They don't either. But one of the things

meals, what motel they go to, what plane to catch, and the difference is they can spend thousands of dollars on a simple one- or two-week outing. Corporate companies tend to look at expense reports. What's this \$3 here? If people care about their company, they're going to try to do the right things. If they're not doing that, get rid of them. If you have a team like that, you don't have to even look at an expense report. You know it's fair and honest.

A long time ago in Racine, Wisconsin when I was managing a service department, a guy went out on a service call and got into some nasty weather. It was raining like hell, and he hadn't brought a raincoat. He



Milltronics ships 40 to 60 machines each month and 75 controls. The controls not put on new machines go into retrofits and to a builder in Turkey.



All Photos by Naoh Craff



Milltronics makes components and special features by using its own equipment in plant.

I always learned about bigger companies is they get so wound up in certain matters. If you've got a lot of guys traveling, they have a lot to do with their budgets, their

went in the store, bought a raincoat, and put it on his expense report. It went to accounting and they said, "We're not going to pay for a raincoat."

**LG:** Oh, my God.

**TR:** Now mind you this guy got up 5:00 in the morning, probably caught the cheap flight, stayed in a Holiday Inn. Next trip the guy goes out and does his week, turns in his expense account, every receipt...The raincoat's in there, but you won't find the f\*#\*ing thing. The reality is you can distort anything anyway.

What you really want is honesty, people who care about a common cause, their company and their job. I find small companies do a much better job of this than large companies. That part I have to get used to.

You really want a team effort. So if you're going to do something like that, have an incentive system. Do it

out of a pot, distribute it to everybody that can benefit. To me, that tribal nature is far more productive than getting individuals hooked somewhere where you think they're going to have some special thing they're going to do for you. It doesn't work in the community of a business. So I think it's just a different style. LDI was probably the best I could hope for though. But still, I'm not really a corporate guy. I'll never be one.

**LG:** Tell me about the unique aspects of running a machine tool builder.

**TR:** Service guys and phone support people are way



Training sessions are held frequently at the factory.

underestimated. Nobody calls to say, "Damn, my machines have worked 40 years. I'm happier than hell." They call, and it's "I need this thing tomorrow and..."

**LG:** I need a part. I have to have the part. What are you going to do for me?

**TR:** Yes, exactly. I think they forget all the money the machines made and the things it's done right. So we've seen a growing number of people who are a little bit unfair. There's a lot of anxiety in the market because they've been squeezed so hard on profits at the job shop level, maybe 10 or 20 percent call here that just aren't reasonable and fair. We deal with that fine, but there's a much nicer way to conduct business. I had a guy call a few months ago and said, "Tim, I'm so pissed off. I have called every day for two weeks and nobody's called me back, nobody's taking care of me. I want something

done about this part." We have a database under every machine sold, every serial number, log every call, every action, every part. I said, "Give me a minute to study this. Not that we're perfect, but this doesn't sound like us." I go to the database, I find not one single call. This guy's never called in; he's never had to get a part – his machines have been incredibly reliable for some time. So I call him back and I say, "You've got to help me here because I want to get to the bottom of who's not responding to you, but I can't find where you called." Well, then the guy got irate, accused me of calling him a liar. But after a little time went by, an apology came



Milltronics controls and fittings are done in Waconia, Minn.

forward. The reality is he never called in. He was just so used to getting a reaction by doing that.

**LG:** How many machines do you sell a month?

**TR:** Last month, I shipped out 60 machines. Some months are 40, some are 60. The goal in three years is 100 machines.

**LG:** You're competing with a Mazak that is having a huge extravaganza down in Florence, Ky., right now, and they'll have a thousand people there. You have a Mori that is heavily involved in training, and Okuma that just developed THINC with 25 different partners down on a campus in Charlotte. Haas says they're selling 12,000 machines a year. Then you've got Hurco with a huge export business. You've got Doosan building tech centers; they just put one down in Memphis.

So you have a lot of heavy duty competition. How do you see the competition and how do you see yourselves competing with it?

**TR:** It's amazing isn't it? Well I suppose I should be jealous of it. I've never visited some of those facilities because I'd be more demoralized. But I think it speaks to the fact they must operate with a bigger than 35 percent margin because you don't do that stuff on our budget.

**NG:** That's what your margin is, 35 percent?

**TR:** That covers this whole operation.

**LG:** So you're saying you work on a gross margin of 35?

**TR:** Right, and those people must work on a much higher margin. But our agenda has been a simple one. We want to take the small guy and make him better and affordable.

I can't compete with the big guys. I don't want to be their enemy. I admire these people. I admire Gene Haas, what he did with his company; I admire Mazak, so I'm hoping they look at us as sort of this little guy who doesn't mean much and so let's just sort of leave them alone.

**LG:** Right, but now you want to export more so you're going to compete with them on export.

**TR:** Yes. One of the nice things LDI can bring to the plate is financing in some of these countries. I could never do that. They're able to finance, for example, in South America. We just extended all our warranties to two years on our products. That's Japanese quality.

**LG:** Tell us a little about doing business in a country like Columbia? We think Columbia is all drug money.

**TR:** No, the differences in Columbia have been substantial. We see that country as a nicer business climate. We see those sort of problems diminishing. They also like Americans. We don't get too close to a lot of their customers, but a lot of them are very small, really mom and pop kind of shops. That's our sweet spot. Until recently, maybe two years ago or three years ago, our average customer was a \$3 or 4 million shop.

**LG:** How do you get distribution in Columbia?

**TR:** We cheated a little bit. I looked at Daewoo's distribution. We're a good ally with Daewoo. Most of our projects don't overlap and so we're a nice fit. I think we help them as much as they help us.

**LG:** Since it became visible to everybody that Gene Haas was in all this legal difficulty stemming from his IRS problems, has there been any effect that you can see competing with Haas on an everyday basis?

**TR:** I think it will have an effect. I think it's sad that he did this. I don't know why he did. I settled the same lawsuit he fought. I suspect he's got a drafting table in his cell and large screen TV. In fact, he may get more engineering done now than he was able to get done. But we aren't going to build our business on the failings of others.

But in terms of the impression left in the market, I think there's more concern than meets the eye. I think his distributors worry, and it's not so much that Gene isn't there running the ship. I think it could be a moral issue. I would expect my employees to not feel too great working for me if I'm in jail. How do you get excited? Isn't he part of the fuel of his operation even if he's not

## Father & Son

**NG:** Tim's son Benjamin is the Director of Operations at Milltronics. Ben, when did you start working in the company?

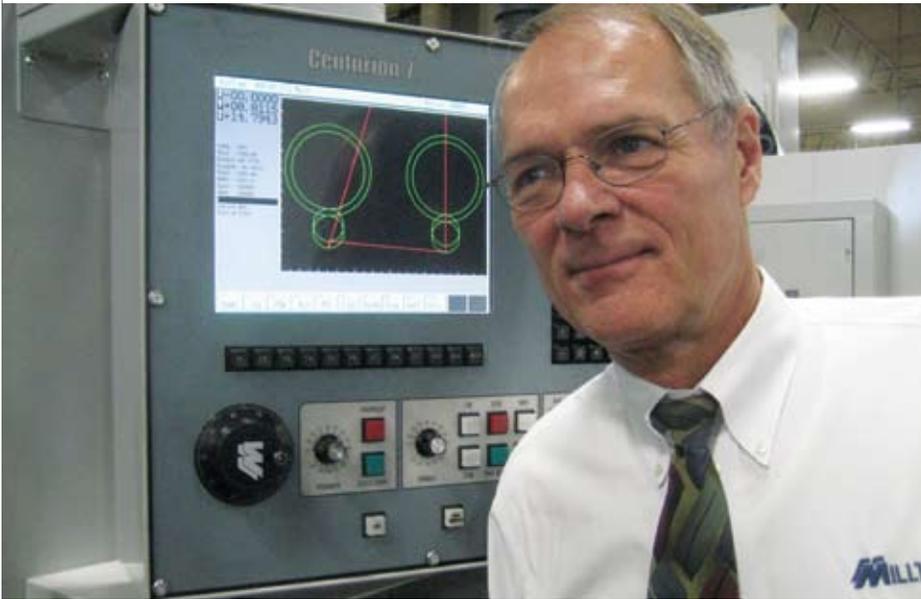
**BR:** That was 16 years ago and it was basically as soon as I was able to drive. I went from one department to another and did that pretty much all high school, and then through college, my summers, and then in college I could place my schedule so I could have a few days off and then come work. It felt like a 10-year internship while I was at school. Then once I graduated, I started full-time at learning every department and how they all connect.

**LG:** Were you fully onboard with the decision to sell the business?

**BR:** I totally supported it. We were limited to what we were able to do anymore just because we were strapped for capital and there's so much more we could do, if we had the resources to do it. This is a big market. There is a lot of opportunity for us out there. But there's risk. I've lived my whole life seeing the work my parents put into the business.

**LG:** Your dad said he knew that the bad day would come.

**BR:** Yeah, not if, but when. I had to look at it a little bit unselfishly. The sale was great for them, and selfishly, how's it going to impact me? It couldn't have been a better choice in the company that we sold to because LDI is very family-based and family oriented and committed to retaining that presence and that image. The deal was completed six months ago. I'm definitely committed to it. I have an open contract. As long as I want to work for them, I can.



Tim Rashleger got his big break in the machine tool business working for Tree Machine in Racine, Wisc., in developing his machining center and distribution network.

there every day? After all, he does own it. I'm surprised how many people don't know about it. Gene's put a very good face on this. I think the magazines haven't reported it fairly. It's big news. Do you find it in any of the magazines? Yours will cover it, but the reality is look in the other popular publications. Nothing there on Haas.

**LG:** Compared to a Mori or a Mazak, where is your pricing?

**TR:** Half for a 20 x 40. Yeah, a lot less. They are a higher precision machine, no doubt. They are, in certain environments, going to hold up better. I mean you must get something for twice the cost. But the differences are very subtle and often we use exactly the same components.

**LG:** During our tour, I realized you've always been overreaching.

**TR:** That's really interesting to say because my take on Milltronics is we were kind of naïve. We didn't know that there were boundaries we weren't supposed to cross. We did what nobody thought anybody could reasonably do. Who would've ever thought a little company and a few guys could make one of the best controls in the world? Who ever thought you could with a limited capital, small family business with no money end up producing \$40 million of machining centers that changed the world? I do believe a lot of our products do change the world. We didn't know better. That was the beauty of this company.

We just thought, "Why can't you do that?" I think it's sort of the ultimate entrepreneurship in this country. We were recognized for it locally. I was Entrepreneur of the Year for the upper Midwest, a nice prestigious award. So people locally did recognize we were able to do unusual things. But what they actually gave that award for was

**"We were kind of naïve. We didn't know there were boundaries we weren't supposed to cross."**

how much we shared with the employees. They thought that was so unique, and the bank at that time nominated our company as a unique company because you didn't see our kind of bonus system years ago. We did it, and have no regrets of giving out a lot of bonus money. I think it's a nice saga to leave because after we're gone, what are they going to remember about you and me, really? Just that they made a lot of money?



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## WICKMAN

5/8" 6-spindle, thdg., pickoff, 1971-88 (8)  
1" 6-spindle, 1960-1992 (9)  
1-3/8" 6-spindle, 1967-1979 (3)  
1-3/4" 6-spindle, 1965, 1993 (10)  
1-3/4" 8-spindle, 1970  
2-1/4" 6-spindle, 1962, 1973-79 (3)  
3-1/4" 6-spindle, 1982  
5-5/8" 6-spindle, 1979  
6-5/8" 6-spindle, 1979

## ACMES

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1-1/4" RB8, 1981  
1-5/8" RBN8, thdg  
1-5/8" RB8 thdg., pickup '68-72 (5)  
2" RB6, 1979  
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Davenport chucking package \$1250

Mectron laser measuring machine mfd. 2000  
Trion air cleaner (10)  
Ring-type for chucking for 1-1/4" RA6 (2)  
\$1,950 ea  
Smog Hog Air Cleaners (4)  
Davenport cross drill, pos. 3 or 4

## HYDROMATS

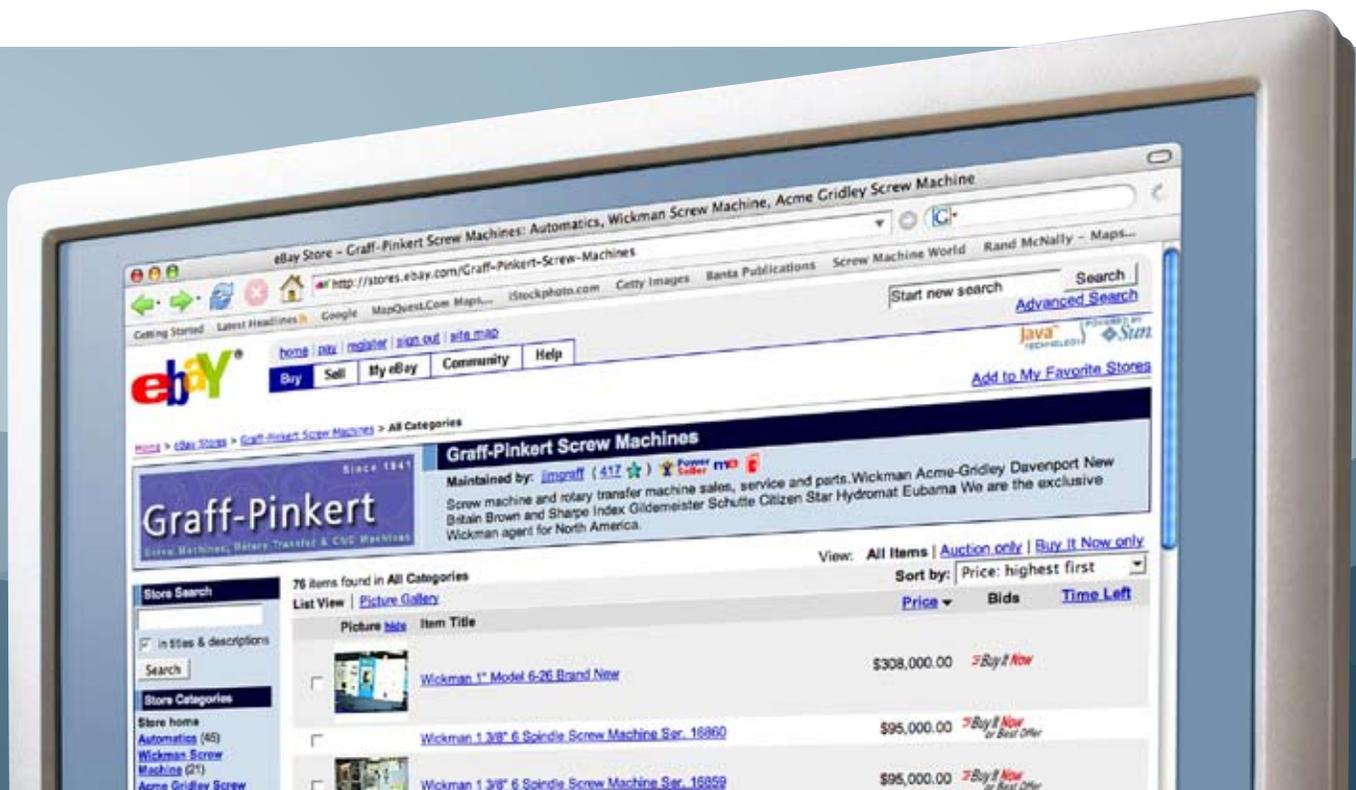
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WITH NOAH GRAFF

Today's Machining World's "Shop Doc" column taps into our vast contact base of machining experts to help you find solutions to your problems. We invite our readers to contribute suggestions and comments on the Shop Doc's advice. If you consider yourself a Shop Doc or know a potential Shop Doc, please let us know.

Have a technical issue you'd like addressed? Please email [noah@todaysmachiningworld.com](mailto:noah@todaysmachiningworld.com). We'll help solve your problem, then publish both the problem and solution in the next issue of the magazine.

Dear Shop Doc,

Dear Shop Doc. I'm milling a slot along the length of the part on .875 aluminum hex parts with a Mitsubishi M635 controlled Citizen-Cincom C32. In the process, my hex stock sometimes has a large twist in the bar, resulting in up to 8 degrees of rotational error from the hex flat to the milled slot. What can I do to get rid of this error?

### Twist and Shout

Dear Twist,

All of the Mitsubishi M635/M700 controlled Citizen-Cincom machines come standard with a torque sensing feature "G160", that can be used for many interesting applications such as yours. We helped a customer a while back with the exact same problem as yours. The following is what we did.

To be quick and simple for the customer, we installed a .187 ball nose end-mill in an unused live tooling station. We then programmed the tool as a probe and touched it to one side of the hex, recording the position it touched (Fig-1). We then touched the other side of the hex the same way (Fig-2). With two points known, we did a macro calculation to figure the amount of error (Fig-3), and then positioned the C axis to that value. This process only added about 3 seconds to the cycle time.

See the program example below...

```
M5
T800(BALL-MILL-USED-AS-PIN)
M18Co (C axis to zero)
G50W-.5905
G98GoX1.3Z2.T8
Y.35(a Y position good for checking)
GoX1.
G160Q30.X.7F10. (check Y+ side When X axis reached 30% of load stop)
#100=#5041 (record the X value on the Y+ side)
GoX1.
IF[#5041GT.75]GOTO10
#3000=1(---ERROR -CHECK PART ROTATION)

N10(CHECK-2ND-SIDE)
Y-.35(same as above but negative)
GoX1.
G160Q30.X.7F10. (check Y- side When X axis reached 30% of load stop)
#101=#5041 (record the X value on the Y- side)
GoX1.
IF[#5041GT.75]GOTO20
#3000=1(---ERROR -CHECK PART ROTATION IS TOO BIG)

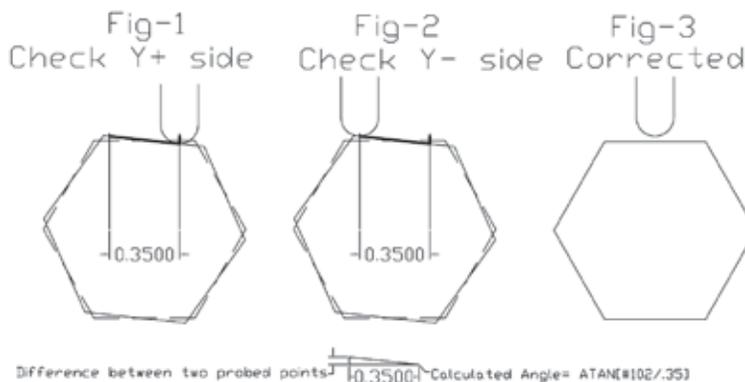
N20(DO-CALC)
#102=#100-#101)/2
#103=ATAN[#102/.35] (Find the rotation error)
GoH.#103 (re-position the C axis incrementally)
GoX1.3To
G50W.5906
```

Here are a few other applications you can use the "G160" for:

- To check if a cross drill or face drill was broken.
- To find the location of special extruded stock with a special multi-shaped ID.
- Often it's used to check the collet pressure on the main- or sub-spindle to confirm clamping pressure before heavy drilling/turning.
- You can even use it for in-process gauging to set and check offsets while running.

Good luck with your problem. If you can follow these instructions these twisting problems should get under control.

Brian Such  
Marubeni Citizen-Cincom Inc.,  
Cust. Support Group Manager [www.marucit.com](http://www.marucit.com)



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A continuing column in which we ask smart people to discuss their views on topics related to the future of business

next

BY NOAH GRAFF

## Will a significant number of baby boomers choose to make RVs their homes when they retire?

*As the U.S. housing market remains stagnant and technology such as Wi-Fi Internet and cell-phones make traveling more convenient, many new retirees are considering buying motor homes.*

The simple answer is that those who can become full time RVers will. Think for a moment about the characteristics of an RVer, let alone a full time traveler. RVers are independent, resourceful, inquisitive, friendly, interested, and self-reliant. They have a pioneering spirit and an urge to volunteer. They want to know what's around the bend and down the road less traveled. Baby boomers who are known for possessing any of these traits will certainly embrace a lifestyle that eliminates property taxes and minimizes rules while offering an expanded horizon. Boomers are able to manage their lives via the Internet and email, eliminating the need to stay put whether they migrate from one set location to another several times during the year, or live a totally migratory lifestyle. If they can, they will.

Nancy Brinton  
Marketing Director, Escapees RV Club

I feel that a "significant" (approx. 20-35 percent) amount of boomers will make RVs (motor homes, 5th Wheels, travel trailers, etc...) their primary residence when they "retire." I also feel that it will be a relatively brief experience. Too many "retirees" get into the RV lifestyle totally uneducated in over-the-road living. It's a great idea to take several trips (minimum of three weeks) prior to making a purchase.

If a 3,000 square foot house isn't big enough, a 250 sq. ft. motor home may be too close for comfort... point being, ARE YOU COMPATIBLE WITH YOUR TRAVELING PARTNER? Separation anxiety is another issue. If Joe & Jane RV-owner are in one part of the country and their grandbabies are in another, grandma will have a "For Sale" sign ready for that motor home when the trip is over.

Consider these issues for RV ownership (and that's NOT "Ruined Vacation!").

Chris Broussard  
Sales Consultant  
Motor Home Specialist, LP



I think so. We're starting to see younger couples come in. They're already retired and they want to get away from the high pressure atmosphere. They just want the leisure lifestyle. A lot of RV clubs such as Escapees are starting to have special events such as going rafting or going to a balloon festival for a week – things a lot of boomers go for.

Also, some of these people retiring still do a little consulting type work with their old companies. With new technology (Internet access, cell-phones) they can go anywhere they want so it's not like they're leaving their jobs, they're just moving away from the everyday routine of the job. A big difference in owning an RV instead of a house is we don't have to mow the lawn. If we don't like our neighbors, we move. We don't like the park, we move.

Dennis Hill  
RV Driving School LLC

## the facts:

About 300 million-dollar RVs are sold each year, according to RV industry officials. *Seattle Times*

Nearly nine percent of U.S. households headed by 35- to 54-year-olds own an RV, slightly exceeding the 8.6 percent ownership rates of those 55 and over. Today's typical RV owner is 49 years old, married, with an annual household income of \$68,000.

Phil Ingrassia National RV Dealers Association

Marketplace by Bloomberg reported that for the past three decades deliveries of motor homes and travel trailers have dropped before each decline in the U.S. economy, giving the \$15 billion industry a reputation as a bellwether. As the U.S. housing slump worsens, gasoline prices rise and consumer confidence wanes, RV sales are forecast to slide this year and next. 11,000 people turn 50 years-old each day, the peak buying age for RV owners, according to Thor Industries chief operating officer Dicky Riegel.

RV Business December 4, 2007

NFL broadcaster John Madden travels more than 100,000 miles per year in his famous "Madden Cruiser," having avoided planes since 1979. The Madden cruiser is 45 feet long, holds 200 gallons of diesel fuel, and can make a coast-to-coast trip in 50 hours with two drivers. Amenities include a full kitchen with granite flooring and countertops and a master bedroom/bathroom with a steam shower. [www.RVwest.com](http://www.RVwest.com)



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one on one

**Bre Pettis** creates a short video broadcast weekly on the Internet demonstrating how to make things, ranging from a robot to a workbench to wallet made out of duct tape. The videos, entitled “Weekend Projects,” presented by *MAKE* magazine, have gotten hundreds of thousands of views. You can watch the videos at [www.youtube.com/makemagazine](http://www.youtube.com/makemagazine).

**NG:** Is it a trend today to make things, or is it a dying art in our society?

**BP:** I think we're on the upward curve of a trend. I think more and more people want to be in control of the technology they have in their life.

**NG:** Do you think a lot of your viewers actually make the stuff that you demonstrate?

**BP:** I get emails regularly with pictures. It depends on the project though. Really practical projects like a workbench or duck tape wallet have had a lot of people make them. The other thing that's great is that people have improved on projects' designs and customized them to suit their needs.

**NG:** How have they improved upon them?

**BP:** The workbench design I made has been modified a lot. Someone made a cement top for a big aquarium table. People added support beams. People made it taller or shorter to make it fit their workshop perfectly.

**NG:** What is the production process for a weekend project? How long does it take from start to finish?

**BP:** I start off doing research and figuring out the key points I want to get across, then spend a day or two shooting video, a day or two editing video, and a day writing the PDF documentation that goes along with the video. I pull all-nighters to get things done regularly.

**NG:** I read that you're living in Europe right now. What are you doing there?

**BP:** I was invited by the art group Monochrom to be an artist in residence. It's been really inspiring to be around them. They

are prolific trickster artists who bring a fresh perspective to everything they do. I've also had a chance to hang out with the folks at metalab and GRL Vienna and found a lot of inspiration from the creativity in Vienna.

**NG:** What's your favorite thing you've made?

**BP:** It's hard to pick a favorite. Right now I'm enjoying learning to program an open source microcontroller called an arduino.

**NG:** Why do you like to make things?

**BP:** It's a sense of satisfaction that you really can't get any other way. The only feeling better than making something is fixing something!

**NG:** How often do you fail when you are making something?

**BP:** I believe in 100 percent success as long as you don't mind breaking things and starting over! A lot of times what I am building is really a prototype. If I make a mistake or something doesn't work out, that's part of the process.

**NG:** Was there ever a project you gave up on?

**BP:** Nope.

**NG:** What's the most difficult project you've done?

**BP:** I made a CNC robot with some friends that takes your picture and draws you. The software was tricky and I ended up buying a few pizzas and lots of Mountain Dew.

**NG:** If you could be any machine, what would you be?

**BP:** I think I would be a tractor. That way I'd get to spend time outdoors. And with maintenance, a tractor will run forever.

# how it works

how it works



IBAG Model HFK95 high speed milling spindle provides 60,000 RPM and fits into standard CNC machining center main spindle. (Photo courtesy of IBAG North America.)

# Putting the Spin in Spindles

BY BARBARA DONOHUE

## High-speed spindles crank up the RPM and cut machining time.

**W**hat do you do when there's a step in a machining process that slows you way, way down? That tiny hole in a fuel system part, for instance, or that very long, very narrow groove on an arthroscopic surgery instrument. They can take what seems like forever at the normal speed of your screw machine's live tooling or even on your machining center, if it's not the latest, greatest and fastest. And for sure you don't want to go to a secondary operation – let go of that part and there goes your accuracy, never mind the additional time, handling and cost.

But there is a solution. You can install a high speed spindle to solve these problems, cut your processing time, and eliminate the need for that secondary operation.

High speed spindles come in small sizes suitable for your screw machine and large sizes suitable for replacing the main spindle on your machining center, and everything in between. They are powered by compressed air or electricity.

High speed spindles are used in many applications, including creating intricate wood inlay work on musical instruments and pool cues, or making detailed molds for jewelry manufacture. They can be installed on the end of a robot arm to do drilling, milling or grinding. Handheld versions can be used for hand-deburring that requires a minimum of effort on the operator's part. In the Swiss-type screw machine business, medical and aerospace/defense parts are the big applications for high speed spindles, said Greg Nottoli, product manager, NSK America Corp., Schaumburg, Ill., manufacturer of both electric and air-powered spindles.

Suppose your live tooling in your screw machine is limited

to 10,000 RPM, maximum, said Bill Popoli, president, IBAG North America, North Haven, Conn., "If you can go to 60,000 RPM, theoretically [you can go at] six times the feed," reducing cycle time. "The tool doesn't know the difference," he said.

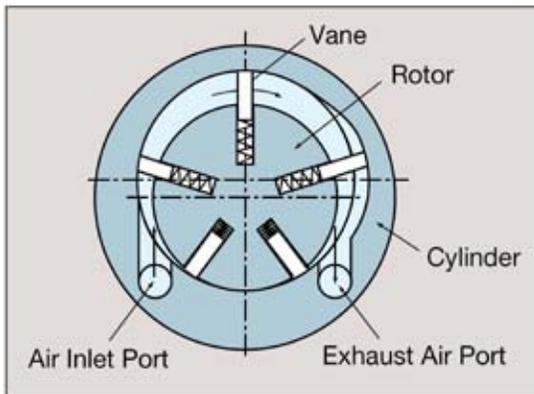
With tools over 3 mm (about 1/8") diameter, you'll probably be using the standard live tooling that came with your machine. If you are using smaller tools, less than 3 mm diameter, you'll probably want a high-speed spindle. And when you use tiny tools, under a millimeter or two, you really do need to run them at high RPM.



This Air Line Kit from NSK supplies regulated, filtered, lubricated air to air-driven spindles. (Photo courtesy of NSK America Corp.)

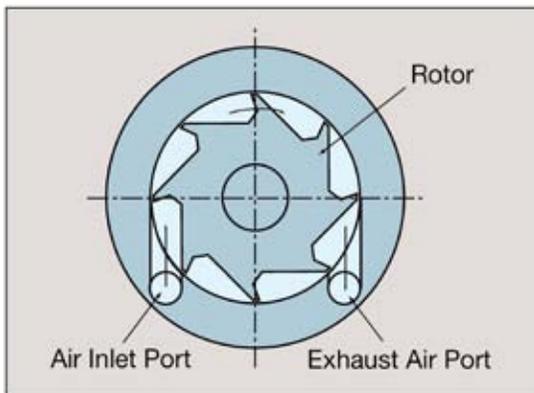
MS Series air-motor spindles from NSK are designed to mount in 25 mm holders and are used in screw machine and CNC lathe applications. The highest-speed models run at 30,000 RPM. Versions are also available for lower speeds, such as 8000 or 1500 RPM.

(Photo courtesy of NSK America Corp.)



**Air Motor:** The rotor of the air motor rotates off center in the cylinder. The vanes are pushed by compressed air and this rotates the rotor. This small air motor produces high torque making it suitable for small diameter drilling, milling, slitting and grinding.

(Illustration courtesy of NSK America Corp.)



**Air Turbine:** The rotor is rotated by the velocity of the air stream, making this type of spindle perfect for applications requiring very high speed rotation.

(Illustration courtesy of NSK America Corp.)

### Air power

One supplier offers air-powered spindles up to 1.4 HP and speeds ranging from 20,000 RPM to 65,000 RPM. Air-powered spindles can be designed to run at extremely high speeds, some 200,000 RPM or higher. Think dentistry; the hand piece of a dental drill is actually a very high speed spindle.

Air-powered spindles can be quite small in diameter; NSK America offers air spindles down to 17 mm (0.67") in diameter, for example.

Air spindles are often longer than the same diameter electric spindle, which may be an issue where space is limited, inside screw machines, for example.

Air-driven spindles run best at their design speed.

Controlling them means simply turning them on and off using M codes. But all they need to run is a supply of clean, lubricated, regulated compressed air, typically at 90 PSI. NSK America offers an air line kit, which filters, lubricates and regulates the air supply for a spindle.

For lower speed, higher torque applications, the air spindle will likely be powered by an air motor. This has a rotor located off-center in a cavity, with spring-loaded vanes that seal between the rotor and the cavity wall. The pressure of the compressed air turns the rotor. To achieve even higher torque, but at lower speed, some spindles have an internal planetary gear set that reduces the speed and increases the torque. Higher speed air spindles are powered by air turbines, in which air impinging on the rotor blades turns the rotor.

### Electric

Electric-powered spindles are available in a huge range of sizes with power ranging from a fraction of a horsepower to more than one hundred; IBAG offers spindles from 20 mm to 350 mm (0.79" to 13.78") in diameter.

These spindles require a controller, a variable frequency drive to adjust the speed. You can control it from the CNC with an S code.

To select either type of spindle, electric or air, you'll need to consider the space available for the spindle, the RPM, power

# how it works



and torque required, the tool size and the material being cut. Application engineers at your spindle supplier will be able to advise you.

## What price productivity?

At this point, you may be wondering how much this is likely to cost. You could install a high speed spindle on a screw machine for well under \$10,000, one source said. The cost of the spindle would account for probably half of that, and the rest would be the control, wiring, etc.

If you are installing multiple electric spindles in the same machine, you can get a sort of switch box that allows one control to operate two or four spindles. For larger spindle systems, such as an auxiliary spindle mounted on a machining center (see below), the spindle will likely account for about one-third of the cost.

You can easily calculate your return on investment by figuring out how many seconds or minutes you will save when machining the parts you will run.

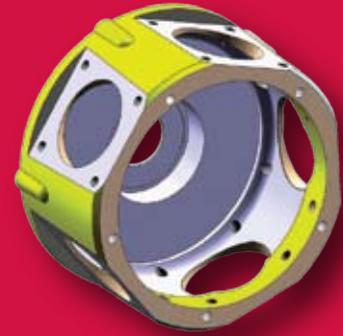
## Life in the high speed lane

Most high speed spindles are now built with hybrid ceramic bearings – the bearing races are steel, and the balls are made of a ceramic material, typically silicon nitride. The ceramic balls don't fatigue like steel does, and they are lighter in weight. Back in the early 1990s, hybrid ceramic bearings cost several times as much as all-steel, said Popoli, but the price has come down so that now they only cost about 50 percent more than all steel. Increased bearing life makes the extra cost worthwhile, and now hybrid ceramic bearings are commonly used.

Spindles with the hybrid ceramic bearings can be expected to last 4,000 to 5,000 hours in normal service, Popoli said. The failure mode is often breakage of the ball retainers. And by that time, when you take the bearing apart you can see that the races are going bad, too, he said. Some shops try to anticipate failure by measuring the runout on the spindle. When it's new, the runout might be a few microns. When the runout exceeds, say, 10 microns, this means the bearings are showing wear.

Some users keep a replacement spindle on hand. Rebuilding a spindle can take a week or more. You can calculate the cost of shutting down the machine for that time, and decide whether it is worth the expense of buying a spare.

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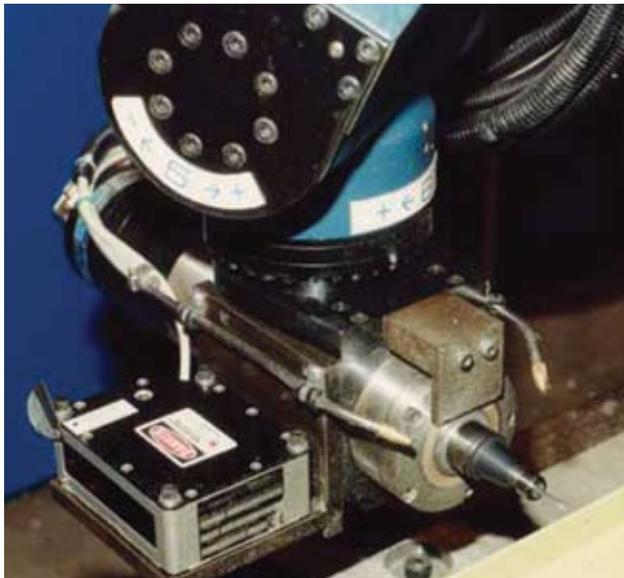
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# how it works



An auxiliary high speed spindle mounted on machining center finish-cuts a satellite honeycomb panel with 0.013 walls. This part starts out as a 4000-pound piece of aluminum, and weighs about 32 pounds when completed.

(Photo courtesy of Fischer Precise USA)



A moveable robot fitted with a high speed spindle system drills holes in aircraft floor beams, a job that was formerly done by hand. The unit also mills larger openings an inch or more in diameter. An attached tool magazine enables tool changes. This Fischer Precise SC 50104 spindle is electric powered and provides speeds up to 30,000 RPM. (Photo courtesy of Fischer Precise USA)

## Your machining center on speed

If your machining center doesn't have high-speed capability, but you need it, you have a number of options:

- You can use a high-speed spindle that mounts into the tool holder, so the main spindle doesn't rotate, it just acts as a holder for the high-speed spindle. Some high-speed air-driven spindles can be loaded and unloaded by the tool changer as if they were ordinary tools.
- You can have an auxiliary spindle mounted next to the main spindle on the head. This can work well when you need both "normal" and high speeds on the same machine. For example, when machining a mold, you can rough and semi-finish with the regular spindle and do a final finish cut at high speed. When using the auxiliary spindle, you just input the necessary offsets into the CNC control to correctly locate the auxiliary spindle, and machine as usual. (Though this seems as if it should be an economical alternative, by the time you get the auxiliary spindle installed and integrated, it may cost only 10 to 20 percent less than replacing the main spindle, below).
- You could replace the main spindle in the machine with a new, higher-speed version.

If you're thinking about replacing the machine's main spindle, start out by looking at a new machine that will give you the speed you require, recommended Paul Frederickson, sales applications engineer at Fischer Precise USA, Racine, WI, a spindle manufacturer. The cost of a new machine might be, say, \$250,000, while installing a new high-speed spindle on your old machine could easily total \$70,000 to \$100,000. Besides buying and installing the new spindle and its control, you will quite likely need to use a different tool retention method for high speed operation, and tool geometries are different for high speed cutting, which would mean updating the tools, tool holders, tool changer, etc.

Evaluate your existing machining center with a critical eye, with regard to accuracy and rigidity. Is it worthy of making a \$70,000 to \$100,000 upgrade? Also make sure that the machining center and the CNC are capable of accurately producing the higher feed rates that you will need in order to take advantage of higher spindle speeds.

If you decide to install a replacement high-speed spindle, a good starting point is talking to spindle manufacturers, said Frederickson. "The technology is changing all the time."



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# how it works



IBAG compact 60,000 RPM spindle and drive system.  
(Photo courtesy of IBAG North America)

## High-speed surprises

There are some things to watch out for when changing over to high-speed machining, said Frederickson. "You may never have had to deal with balanced tooling [before]. Be sure all tooling is balanced and well made. Six thousand

RPM is one thing, but at 60,000, you may run into forces and issues you never thought of." The balance of the tooling is critical at high speed. Small imbalances that you never noticed at 6,000 RPM can make for major vibrations at 60,000.

Also, the resonant frequency of tooling can be an issue, particularly with longer tools. As you run an extended-length tool at higher and higher speed, it may reach its resonant frequency, sometimes with shocking results. John Easley, vice president of sales and marketing at Fischer Precise, recalled one situation in which the customer was milling Styrofoam, basically a no-load application, yet he experienced tool breakage. Because he was cutting with extended-length tooling, at high RPM, the tool reached its natural resonant frequency. And broke. In general, for accuracy and to prevent resonance problems, the tooling for high speed machining should be as short and as rigid as possible.



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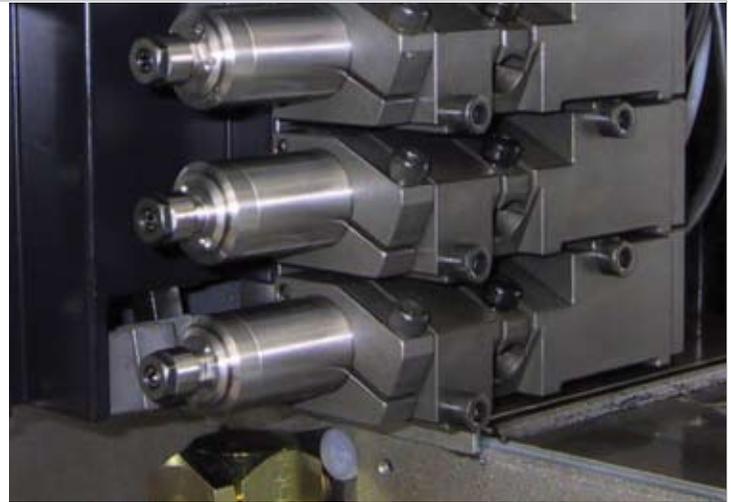
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Most spindle manufacturers will be able to do a pre-analysis for you and forewarn you of any such problems.

High speed spindles available as accessories or retrofits can help you obtain the many benefits of running tools at high RPM, so you can reduce cycle time and eliminate secondary operations without having to buy a whole new machine. Select the spindle according to your process requirements. And then don't be afraid to use it, even at those super-fast speeds.

**RIGHT PHOTO: Multiple IBAG high speed spindles on a Swiss type screw machine.** (Photo courtesy of IBAG North America)



For more information

#### **Companies that contributed to this article:**

Fischer Precise USA: [www.precise-corp.com](http://www.precise-corp.com)  
IBAG North America: [www.ibagna.com](http://www.ibagna.com)  
Marubeni Citizen-Cincom, Inc.: [www.marucit.com](http://www.marucit.com)  
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# product focus

Each month, *Today's Machining World* works to help you understand how the precision parts marketplace works, what's available in the industry, and how you can use available resources, as well as knowledge, to run a more efficient and effective shop. In every issue, we'll feature a product category and focus on equipment key to remaining competitive in our marketplace.

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## Gildemeister-DMG (right)

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The Citizen CAV Bar Loader is engineered for use exclusively with Cincom Swiss-type turning centers. Since the CAV and the Cincom share the same CNC controller and the same electrical system, bar feeder movements can be viewed and controlled from the lathe's CNC. A single controller, rather than two, allows for faster setups, easier operation, and total control from a single console.

For more information about Marubeni Citizen-Cincom please go to [www.marucit.com](http://www.marucit.com).

# product focus



## Hanwha Machinery America (left)

Hanwha has recently released the XD32/35/38 series, which offers built in main and counter spindles, 7.5KW (10 HP) 8000 rpm main spindle and 5.5KW (7.37 HP) 7000 rpm counter spindle, all built on a heavy casting with a total weight of 4,050 Kg (8910 lbs). There is a full 320 mm (12.6 in) Z-travel on both main and counter spindle, with a total of 20 tools with 4 driven cross main, two front driven and two back driven. It also features a full C-axis along with 1 Deg indexing on main and counter spindle.

Standard features include a parts conveyor, long parts removal, rigid tapping, bar feed interface, air blow counter spindle, coolant flow monitoring, work light for machining and main spindle area, Pendant type MPG, Memory SRAM/Flash card, I/O interface RS232C, Y axis origin shift function, tool holder package, I/O board.

For more information, please contact Hanwha Machinery America at 262 373-1600 or visit [www.hanwhamachinery.com](http://www.hanwhamachinery.com).

## Star CNC Machine Tool Corp. (right)

Star's newest machine, the SR-20RIII is equipped with Star's unique and proprietary "Motion Control System" optimizing program processing time, which significantly improves productivity. This control system, combined with high-speed feed rates (35m) on all axis, direct C-axis indexing and increased acceleration reduces non-cutting time. The machine's rigid construction provides stability and maintains a high accuracy level for very close tolerance work.

For more information, please contact Star CNC Machine Tool Corp. at 516-484-0500 or visit [www.starcnc.com](http://www.starcnc.com).



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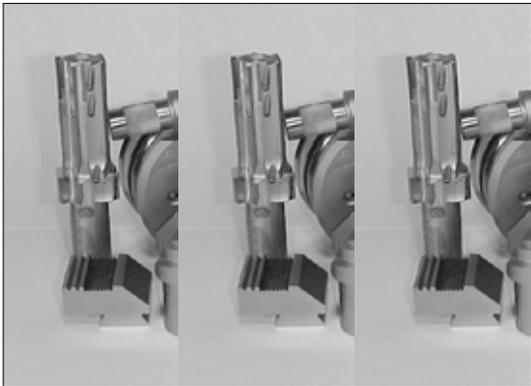
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### Tsugami (above)

The new Tsugami SS 32 offers 32 mm capacity, and also offers users a modular tool zone, increased capability over previous gang type models, and a roomier tool zone for easier setup. The SS-32's standard main spindle configuration includes seven turning tools, five cross rotary tools, and five ID tools, while the standard sub spindle setup includes four ID stations, two face drills and two cross rotary tools. Quick changes to the configuration of main and sub spindle cross rotary, ID, and turning tools can be made. Thread whirling, polygon turning and angular face drilling operations are possible with an adjustable face tool attachment. In addition to these attributes, the SS 32 comes with CAD/CAM software.

For more information on Tsugami's new SS32, please visit  
[www.tsugamiusa.com](http://www.tsugamiusa.com).

# product focus

## Ganesh (below)

Ganesh's CYCLONE-25 CS is a 7-axis sliding headstock CNC Turning Center with a counter spindle. Armed with up to 27-cutting tools and the ability to do simultaneous work with the main spindle and the counter spindle, the Cyclone-25 CS allows you to complete your parts in one setup. Do front end, backend, turning & milling work all on one setup. It features a full C axis and a full Y axis. The CYCLONE-25 CS configuration also allows for shorter cycle-times because the Counter Spindle can work simultaneously with the Main Spindle. The CYCLONE-25 CS does not require the use of ground barstock. You get a lot of precision production capability for only \$99,900.00.

For more information, please contact Ganesh at 888-542-6374 or visit [www.ganeshmachiney.com](http://www.ganeshmachiney.com).



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# product focus



## Maier

Maier has introduced the new MLK 125 Linear Automatic Series of Swiss-type turning centers featuring 1,600 ipm rapids in all axes. Maier Linear Machines can accelerate up to 2g. Spindles are driven by built-in 3HP integral motors that can reach a speed rate of 15,000 RPM. The MLK Linear Series offers a "2 machines in 1" design function that allows removal of the guide bushing, which enables the machine to operate as a standard lathe. These machines are capable of machining up to 1/2" bar stock, and have a compact footprint of 60" x 32".

The Linear Series has a 4,600 lb. solid polymer concrete base which eliminates vibration and ensures accuracy of 0.0001". The Linear Centers accommodate up to 19 tools including 4 driven tools. A powerful main and opposed spindle offer both C-axis indexing of .001 degrees and locked, 5 degree mechanical indexing capability with a 3 HP power rating and a 1/2" maximum spindle bore diameter.

For more information, please visit Maier at [www.maier-swiss.com](http://www.maier-swiss.com).

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# product focus



## KSI Swiss (above)

KSI Swiss, Inc. features the SQC series machine, which comes fully loaded with 9 live tools, 22 standard tools, C-axis both spindles, a dual path 18iTB control, all Fanuc electronics and motors and a 2 year Fanuc warranty. KSI Swiss, and HJC international have entered into a joint venture. This new resource will allow KSI Swiss to improve current design, launch new products with even more value and speed to its customer's floor. KSI has also launched a new value pricing structure, new sheet metal design, as well as a new color scheme for 2008.

For more information, please contact KSI Swiss at 952-564-3290 or visit [www.ksiswiss.com](http://www.ksiswiss.com).

## Tornos (below)

Tornos has introduced the Sigma 20 BioPak, a sliding headstock turning center featuring a thread-whirling capability on the main or counter spindle, making it possible to eliminate secondary finishing operations. Designed with a done-in-one philosophy in mind, the machine can hold up to 14 front and 8 back working tools, all of which can be loaded in a single setup.

The Sigma 20 BioPak boosts faster cutting speeds and the ability to simultaneously turn parts on both spindles. Tool life has been improved, with the ability to turn up to 2,500 titanium parts without breakage. The machine possesses the ability to machine to the bottom of very small threads and blind holes. The Sigma 20 BioPak contains everything required to turn medical parts, eliminating the need for tooling and accessory decisions.

For more information please contact Tornos at 630-812-2040 or visit [www.tornos.us](http://www.tornos.us).



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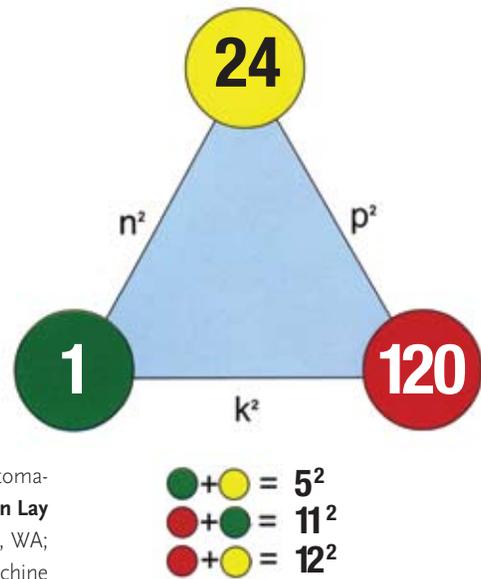


The lock shown here is opened by selecting the correct non-repeating three-letter combination. If a bank robber has one guess at opening the lock, what are the chances that he'll guess correctly?

## Square Number Triangle

Can you place three different numbers in the circle below so that the sum of the two numbers along any given side is equal to the square of another number?

Who's too hip to be square?



**Todd Storch** of Ready2Render in Seattle, WA; **Bill Todd** of Michigan Rebuild and Automation in Litchfield, MI; **Joel Gray** of Service Industries, LLC in Rolling Meadows, IL; **John Lay** of Webster Manufacturing in Tiffin, OH; **Dick Thomson** of TAE Corporation in Kent, WA; **Al McBride** of Threading 101 in Menomonee Falls, WI; **Greg Tetric** of Cass Screw Machine Products in Minneapolis, MN; **John Mandell** of Point Technologies in Austin, TX; **Jim Riddell** of Baker College in Flint, MI; **Uli Kuster** of Blaser Swisslube in Goshen, NY; **Jeff Staton** of Twin City EDM in Fridley, MN; **Jeff Kovalenko** of Key Machine Tool in Elkhart, IN; **Jeffrey Goodman** of Eaton Steel Bar Co. in Oak Park, MI; **Rocco Sarro** of MAHLE, Inc. in Trumbull, CT; **Al Bjork** of Toledo Screw Machine Products in Toledo, OH; **Joe Manfreda** of PICO Chemical in Chicago Heights, IL; **Doug Bourque** of Electric Boat Corp. in Groton, CT; **Peter Bagwell** of Slater Tools in Clinton Township, MI; **Nancy Weber-Zehren** of Weber Systems, Inc. in Menomonee Falls, WI; and **Tuyen Tran** of Plastic Engineering in Tempe, AZ.

# postings



Noteable and newsworthy information and events for the month of March

## WESTEC

2008  
Exposition &  
Conference

Los Angeles,  
CA

March 31 thru  
Apr. 03

[www.sme.org](http://www.sme.org)

## Lean for the Supply Chain

San Jose, CA

March 12th - 13th

[www.sme.org](http://www.sme.org)

## Advanced Manufacturing Expo

Mississauga,  
ON, CAN

[www.sme.org](http://www.sme.org)

March 26th  
thru  
March 27th

## Central Valley Facilities Expo

Modesto, CA

March 12-13

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

## Borderland Tradeshow~ El Paso 2008

El Paso, TX

Mar. 13-14

[www.borderlandtradeshow.net](http://www.borderlandtradeshow.net)

## Shutdowns, Turnarounds, and Outages

March  
13 - 14

New Orleans, LA

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

## Design & Manufacturing South

March 19-20

Charlotte, NC

[www.devicelink.com/expo/dmsouth08/](http://www.devicelink.com/expo/dmsouth08/)

## AM Expo/ATX South 2008

March 19-20

Charlotte, NC

[www.devicelink.com/expo/atxsamx08/](http://www.devicelink.com/expo/atxsamx08/)

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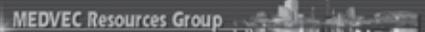
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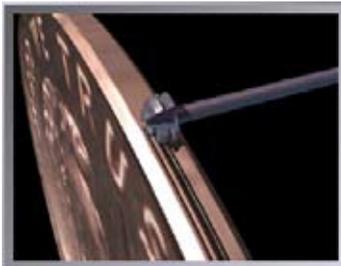
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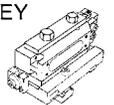
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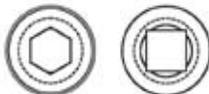
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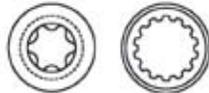
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## Joie de Vivre

I still love my local Starbucks for the friendly people who serve me and the crowd that offices there, but with 10,000 stores, lousy pastries and generic coffee cups on the shelves, I can see why the stock has lost almost half its value in the last year.

I'm always looking for the next Zingerman's of Ann Arbor or Mario's Italian Lemonade storefront near Chicago's McCormick Place that serve great food with energy and a sense of humor to make it a destination stop, if only to feel the vibe. I'm always looking for magic, a spark, a joie de vivre in the people I do business with. Even if you are grinding parts, or chroming a shaft, if you can convey happiness and fun as you connect with clients, you will be ahead of the game.

Noah and I collect these vibes. We search for that special touch in places we encounter. Here are a few of our favorites.

In Chicago, Noah considers a Saturday without a sausage at Hot Doug's a weekend frittered away. Hot Doug's is to hot dogs as Emeril is to Subway. Doug, the owner, takes every

*"If you can convey happiness and fun as you connect with clients, you will be ahead of the game."*

order and kibitzes with each customer. No Doug, no hot dog that day. During the summer Doug broke his leg. He closed his joint for several weeks while he recovered because he would never compromise his sausage and fries due to infirmity. Even during Chicago's winters, patrons will often wait outside for over a half-hour because he's closed on Sunday and serves only from 10:30 a.m. to 4:00 p.m.

What makes Doug's sausages so wonderful are his innovative, unprecedented, gourmet recipes. A recent menu included a smoked rattlesnake sausage with sweet & spicy chipotle mustard and St. Pete's bleu cheese drizzled with honey, and a smoked shrimp and pork sausage with Cajun remoulade and smoked gouda cheese.

Each week he develops a "Game of the Week" recipe as well as a "Celebrity Special" having something to do with baseball or the Chicago Cubs, the team Doug lives and dies with.

With the recent Mitchell report on steroids in baseball, Doug came up with the "Jim Parque" sausage, named for the former White Sox pitcher mentioned in the tome as a user. The Parque was a bleu cheese pork sausage with green apple

crème fraiche and smoked almonds.

If you are in Chicago for IMTS, it may be worth leaving early for the succulent encased meats and French fries cooked in duck fat.

When Noah was a student at University of Wisconsin Madison, Gin's (pronounced Jin's) was a local institution on Fraternity Row. Working out of a rolling cart pulled by a pickup, the black family that owned the operation cooked up exquisite deep fried chicken and fish sandwiches. They started serving the sandwiches topped with lettuce, mayo and hot sauce around midnight. Patrons, mostly students frequently drunk or stoned, lined up in long queues, even in zero degree weather, for the humble delicacies. The fish and chicken were fried in small batches in the little coach. The line was slow but a great meeting place. The police allowed the nocturnal operation because Gin gave them priority status no matter how long the wait.

In Portland, Ore., Apizza Scholls sets the standard in the Rose City. They open at 4:00 p.m. and stay open 'til the day's dough runs out. The ingredients are what is fresh at the market that day. A friend went there recently and had a pizza with truffles. The three owners are the only ones allowed to touch the crust, which is prepared with only flour, water, salt and a little yeast, and allowed to rise for 24 hours. It is said to be a local Mecca for the food and the atmosphere.

I am intrigued by these terrific, local, one-and-only places. They are about fun and creativity more than scale and tonnage. They are cool and they are successful. As we plod through our days, I think most of us, at least unconsciously, search for the unique burst of creativity of these places, yet we often paint our own businesses with the color of blah.

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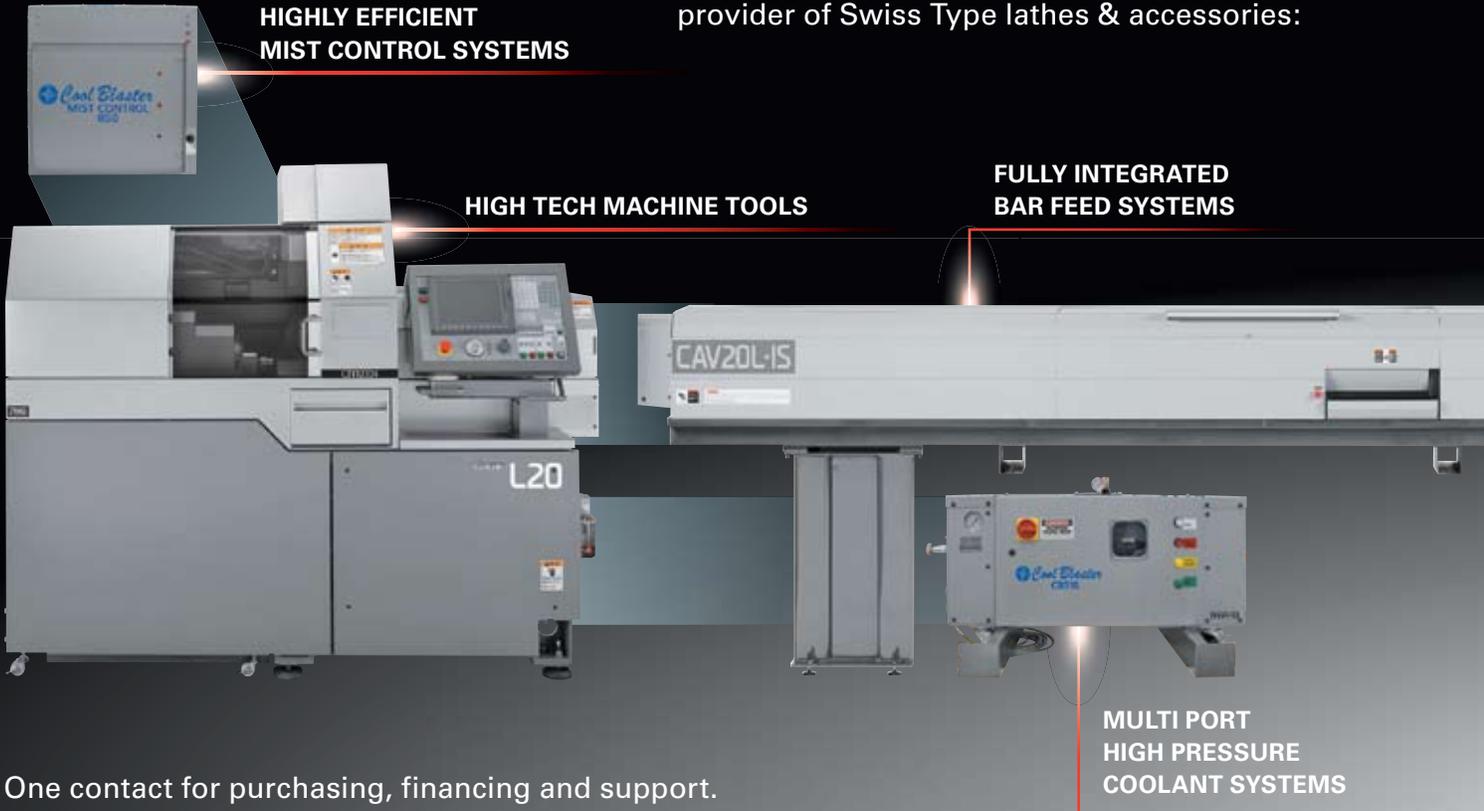
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