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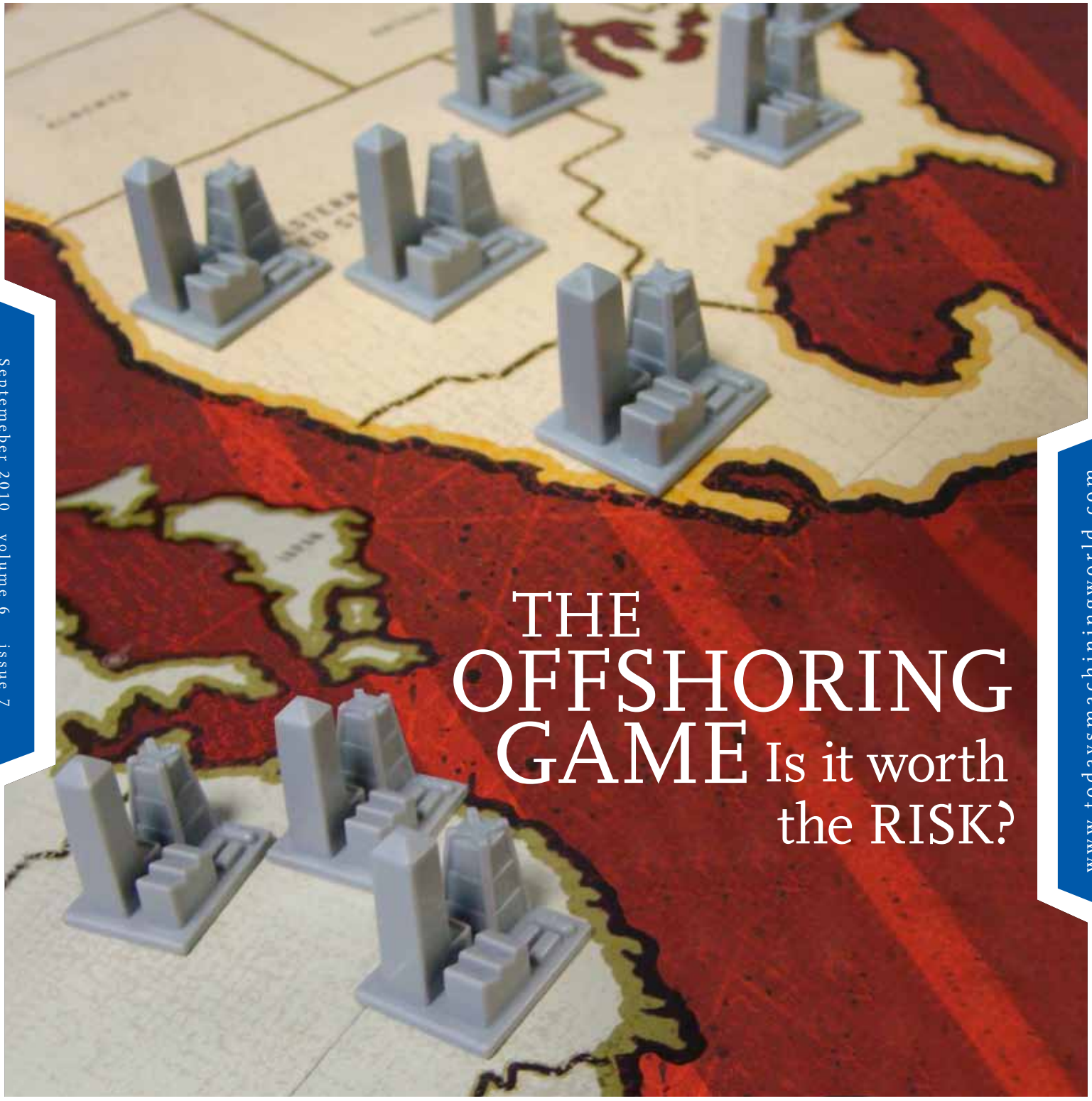

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September 2010 volume 6 issue 7

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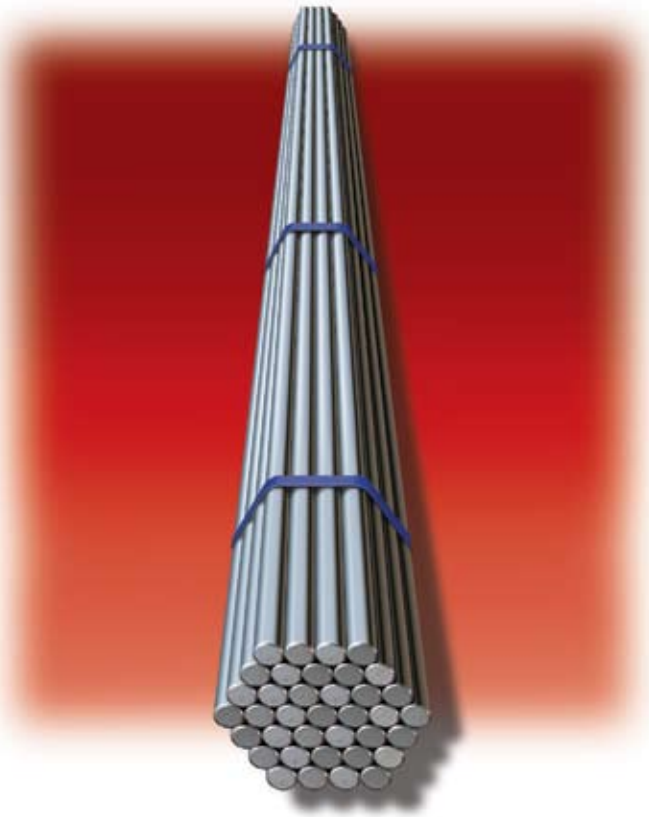

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BPA WORLDWIDE

editor's note

A Little Miracle

When we set out looking for something we seldom get exactly what we are looking for. But what we find is usually better.

Ten years ago I started *Screw Machine World* to take advantage of a perceived market opportunity offered by a fading *Automatic Machining* and the looming expansion of Web based education. My observation of the opening was on target, but my ability to take advantage of the opportunity has been hampered by the roller coaster economy since the 2001 recession, my inexperience in media, my reluctance to bet heavily financially on the magazine, and my desire to remain in the used machinery business. Each of these factors was sufficient to sink the publication. Add in a succession of eye surgeries for retina detachments, a near fatal cardiac catastrophe two years ago, and the common perception that print is passé and you have 10 reasons why we should not be celebrating our 10th anniversary at *Today's Machining World*.

The reason *TMW* is around is simple—I would not let it fail. It sure ain't for the money. The enterprise has been a struggle financially. We're on an upswing now, but advertising has been hard to nail down.

What I have found in my search for William Randolph Hearstdom has been the joy of creating something cool and unique. The magazine is a reflection of my view of journalism and the machining world. People used to ask me why a used machinery dealer would go into the magazine business. They no longer ask that question. I think *TMW*, in its one-of-a-kindness, answers the question before it is asked.

The blog and Web site have taken time to find their voice, but under Noah Graff's relentless efforts, the Web is thriving and fun now.

Emily Aniakou somehow manages to pull the magazine together each month on time, which is amazing, and Todd Toborg makes it look good.

I thought I wanted *TMW* to be a "major trade publication." But what I found was the unbelievable joy of producing a little miracle each month with people I care about.

Lloyd Graff
Editor/Owner

contributors

Lloyd Graff started *Today's Machining World* in 2000 to serve the precision parts community. His love of good journalism started with reading the work of great sports-writers like Jim Murray and Jimmy Breslin. He honed his interest in writing as a sports editor and columnist for University of Michigan's *Michigan Daily*. His love for the machining business started with being regaled by his father Leonard Graff and uncle Aaron Pinkert with stories about deals and characters out of their business careers. Lloyd's view of magazine writing is that its core should be important ideas illuminated by real human stories.

Bridget Mintz Testa has been a full-time freelance writer for 17 years. She's written about telecommunications, the Internet, electronics, business strategy, human capital, information technology, residential construction, concrete and cement standards, engineered wood and a bunch of other things she can't remember any more. Before she was a freelance writer Bridget worked at NASA's Johnson Space Center for five years, first on lunar and planetary exploration and then on space station robotics. She has degrees in physics and psychology. Recently, she spent a week with her granddaughter, crafting crowns and tiaras from a kit for the three-year-old princess.

Barbara Donohue who often writes the "How It Works" technology articles, is an MIT-educated mechanical engineer and has worked as a journalist for almost 20 years. She volunteers as a weekend puppy raiser for young dogs in training to assist deaf or disabled people. The pups live in a prison during the week, where they are trained and cared for by inmates. Volunteers like Barbara take the puppies out on the weekend so they can experience the outside world.

Emily Aniakou completed a degree from the Eastman School of Music in French horn performance, a year of service at a Bangladeshi orphanage, training at a Zen Center, and most recently, a stint in the Peace Corps in Benin, West Africa. Emily and her husband are just completing the 20 hours of training required to be licensed as foster parents. They are preparing for the home inspection, which includes putting all cleaners in high-sitting child-proof cupboards, putting a fire extinguisher in the kitchen, and vacuuming under the beds where the DCS licensing specialist will poke her head in search of anything peculiar.

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It All Needs a Home

I would first like to say that I very much enjoy your magazine and have been a reader from day one.

In your "Swarf" column in the July/August issue, you discussed a recent auction sale in Traverse City, Mich., called "MetaVision." To clarify, the actual name of the sale was MetaVation, and my firm, Loeb Winternitz, conducted the auction. You have always been very detailed in the accuracy of your reporting and I thought it would be beneficial to clarify the results that you described, as your readership does appreciate updated market information from many reporting venues, including your publication.

MetaVation ran only automotive related work, but did not have a lot of older cam equipment that went to the scrap yards. There were a lot of older CNC machines and a few newer CNC's, as well as many machine tools, plant support equipment, etc. But the cam equipment you mentioned consisted of only three machines out of 1,600 lots. The buyers consisted primarily of manufacturers and dealers, but as in most auctions, scrap buyers did participate at this two-day auction. Our client, and all of us at Loeb Winternitz, were thrilled with the results of the auction sale. Hopefully, the strength of the auction indicates a positive movement toward economic recovery. Are we in a recovery? Based on the results of our sale, we are working our way out. We have heard the same reporting from other auction companies that we are friends with and partner with.

Your statement that a large amount of equipment went to the scrap yard was a little too broad. We did scrap equipment from this sale, but at a nice profit. I think a big key to the success of this sale was that all of our expectations were in check. There has also been a pent-up demand in the buyers' marketplace. We had over 250 registered bidders, 110 of whom purchased something at the auction. The results were significantly higher than pre-sale estimates, including the prices of the three New Britain model 88 chuckers that you alluded to.

I think it's safe to say that whether the sale consists of brand new equipment or older more experienced equipment, it all needs a home. I'm just glad that this auction was a nice success story and I hope that the economy continues to recover.

Charles Winternitz
Loeb Winternitz Industrial Auctioneers
Chicago, Ill.

A Good Old Machine

I was going thru some old *TMW* magazines and came across the article on 86-year-old Emil Pakula and his shop. Is he still living and machining? It was a neat story but also a sad one as all across the nation corporate America has sold its soul to the Communist Chinese all for the almighty dollar. I was hoping the story could have brought someone to buy his business so he could enjoy his remaining years not having to work.

I know you probably do not remember me, Lloyd, but I started out in my business in 1985 in my parents basement with a Hardinge type turret lathe. A couple of years later I moved into a rented building and wanted to get into CNC turning. I came across a Miyano BNC-34 you had on your floor. If I remember right, you said you were holding it there due to the owner's bankruptcy. You gave me one day to see it and make a decision about whether to buy it, as there was a list of people who were interested in it. Well, I bought it and it was a good machine.

In the mean time I've gotten more machines and got into Swiss turning. In 1994 I sold the Miyano for almost what I paid you for it. I take very good care of my equipment. Now I have five Star CNC Swiss machines, four Hardinge CNC lathes, an old Wasino, and two Haas VMC's. I really love what I do, and it's just my wife, one full time employee, one part time employee, and me.

We have been really busy this year despite the down turn. I do not go out and do sales calls anymore. Probably the last time I did a cold sales call was 13 years ago. I have no sales reps and my work comes mostly by word of mouth. I look forward to the *TMW* magazine each month and read it cover to cover.

Don Muhlnickel
Hi-Point Machine & Tool, Inc.
New Paris, Ind.

Something on your mind? We'd love to hear it.

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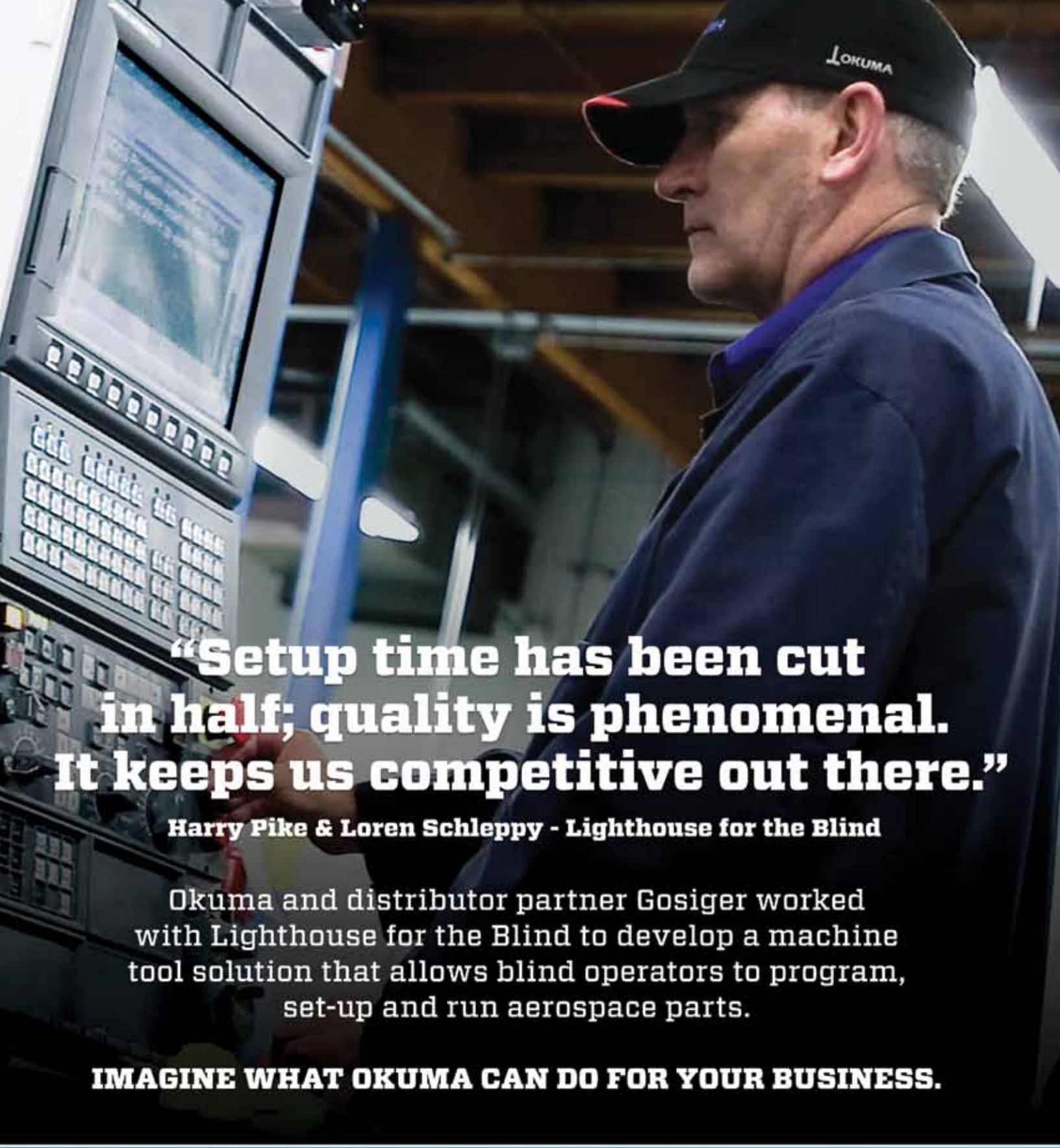
Or email us at: emily@todaysmachiningworld.com or lloydgrafftmw@yahoo.com



By Lloyd Graff

swarf

The Twinge Factor

Several years ago Graff Pinkert had a deal with a fellow who made a good living buying surplus machinery from government stockpiles and reselling it around the world. We talked about his bidding strategy and he told us his approach.

He would assess his risk in bidding on a bulldozer or crane and put down a price he was comfortable with. Then he would put down successively higher figures. When he reached the number that made his stomach twinge, he circled it and let it settle in his body for a while.

He told us he had learned from hard earned experience that the stomach twinge bid was the one that usually succeeded. The comfort zone bids won occasionally, but generally were also-rans.

I think the "twinge rule" is one of the most important and difficult laws to master for a business person. In business we negotiate with fear every week. Over time, many people understand their personal risk tolerance.

Some are adrenaline junkies and look forward to their "twinge" moments. Most people despise the fearful reaches and value predictability and safety.

The writer, Wayne Dyer, has written about going to a spa where there were a dozen sitting pools with temperatures ranging from very cold to very hot. Almost everybody gravitated towards the two pools that were around 100 degrees. He tried every pool and found he enjoyed them all.

Fear and uncertainty are constant companions in business today. The "twinge test" still works for those of us who can live outside the tepid zone.

The DMG/Mori-Seiki USA partnership is starting to pay dividends. I recently talked with a client who's buying one and possibly two expensive DMG twin turret lathes. He liked the DMG technology, but he told me he would not have considered buying DMG if they were not selling through Maruka on the East Coast. Maruka is the Mori distributor based in Rockaway, New Jersey, and it now also sells DMG. He trusts them, he respects his salesman, and he believes in Maruka's support.

The DMG/Mori-Seiki showroom in Hoffman Estates near Chicago is a superb facility, but it is the reliability of Maruka that will ultimately make the New York sale of a $500,000 machine tool.

Are we in a period of deflation in America? Will prices for goods and services, real estate and machinery trend downward for the foreseeable future? Will wages also move down? Will the value of cash be greater and illiquid assets like homes and machinery get harder and harder to sell?

This is a question of enormous importance to not only economists and statisticians, but to everyone who doesn't live in a cave.

The bond market is alerting us to the possibility of deflation, with the 2-year U.S. Treasury paying a .5 percent return and the 10-year yielding 2.6 percent. And this is in a period of trillion dollar federal deficits with foreigners supposedly skittish about U.S. debt.

If people are scared about repayment of principal or debasement of the currency, they will not accept less than three percent for 10 years.

The "sky is falling" inflation vigilantes who play the bond market were near apoplexy a few months ago about the pandemic of government deficits. Now many of the Henny Pennys, like Mohamed El-Erian of Pimco, are warning of deflation ala Japan in the 1990s.

I don't think anybody really knows if we are entering a prolonged period of deflation, but I think that developing a contingency plan for deflation is wise. And the first commandment would be "Thou shall not own real estate."

The worst thing to own during deflation is land and buildings. Better to rent with short-term leases and options to renew in case prices start to go way up. Small business people have traditionally built wealth by owning their buildings and renting to themselves, but this is absolutely wrong during deflation. Tokyo real estate has been a terrible investment for the last 20 years.

Leasing machinery and cars would be the way to go if prices slide. If a new Haas VF2 machining center dropped $10,000 in price over three years, the used value would depreciate accordingly.

An additional kicker is the likely appreciation of the U.S. dollar against foreign currency, which we have seen happen with the yen's rise. This would make imports cheaper.

Deflation would bring wage deterioration and givebacks. We are already seeing a lot of this. We may soon be asking the counter intuitive question, "Is my pay decrease in line with deflation?"

For the investor, big multi-national companies with well protected dividends would be the ticket. A company like Altria that pays six percent by selling to tobacco addicts might be a good bet, if you can stomach owning the stock.

If one figures in the recent drop in home prices, we are in a deflationary period now. It's a depressing prospect, but if you adapt to it, perhaps you can make it work for you.

As the details gradually emerge from the BP oil spill it becomes more and more clear that the management in London had incentivized the troops in the field to skimp on maintenance to enhance the company's bottom line. There probably is a connection between the BP refinery explosion at Texas City back in 2005 and the Deepwater catastrophe in the Gulf. It appears to me that London had incentivized its employees to emphasize the short-term bottom line and ignore the future consequences (see "Book Review").

With the U.S. productivity statistics showing incredible improvement in efficiency month after month, it prompts the question of whether productivity incentives are always good long-term.

In the machining game, there is a danger in setting productivity targets that invite people to game the system. If one machine operator or shift is competing with another the temptation for sabotage in the plant is real. When teams compete against norms and other teams, the peer pressure within teams can become destructive to the enterprise. In a coal mine, where tonnage means everything, safety is often neglected, which may culminate in tragedy.

Sales incentives based on monthly or quarterly results often end up with employees gaming the system.

I'm interested in your experience with incentives.

I had the opportunity to spend several hours with Mitch Liss of Edsal Manufacturing (interview on page 34), a major producer of steel shelving and office furniture with sales of $200 million, based in Chicago. Mitch gave Noah and I an insider's view of purchasing politics by big box retailers and huge catalog sellers.

He said that within massive organizations like Wal-Mart or Grainger you find two distinct parties influencing purchasing decisions, the buyers and the global (strategic) sourcing groups.

The shelving buyers, who work closely with the sourcing peo-

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ple, have the responsibility of making the final call about what product makes it to the sales floor or catalog and how much is ordered. The sourcing guys are charged with scouring the world to find cheaper shelves. Their salaries and bonuses are dependent on increasing the amount of dollars out-sourced, primarily from China.

The purchasing guys have little interest in where the product ultimately comes from, as long as it sells well. This drives a guy like Mitch Liss crazy because every rack and shelf he makes is a sitting target for the strategic sourcing dudes.

What bugs Liss is that the incentives are rigged to favor foreign placement of orders, even though he usually offers an equal or lower final price to the reseller.

His biggest irritation is with Costco, who he's been trying to sell to for eight years without success. He says he can sell a better product for less money than the Chinese currently supply, but the buyers refuse to allow him to be seriously considered head-to-head against the competition. Evidently, for the Costco buyers, the idea that an American firm based in Chicago can undersell the Chinese is so ridiculous that Edsal cannot even demonstrate its products side-by-side at Costco headquarters in Washington state.

Interesting how Costco has remained blind to the fact that Edsal sells millions of dollars of products to Home Depot, Lowe's, Menards, Grainger and McMaster-Carr.

I would think that an American company would at least get a fair look by a firm that sells most of its goods in this country.

Chelsea Clinton married

Marc Mezvinsky recently. Why should I care?

I care because Chelsea is American royalty and she just married a Jew. And not a plain clothes Jew or a hidden heritage Jew like John Kerry, but a practicing one. For better or worse, I grew up seeing everything through a Semitic lens.

Bernie Madoff was a colossal thief, but for me its worse because he was a Jewish thief. I cared that Scott Feldman won 17 games for the Texas Rangers last season because he is Jewish. I voted for Al Gore in 2004 because Jewish Joe Lieberman was the vice presidential candidate.

For my generation of post World War II Jews, life is about proving Hitler did not win in his effort to exterminate us. The phenomenal success of Jews in America during the last 50 years in business, politics, science, the arts, academia etc. and the amazing ascendance of Israel, despite being surrounded by militant enemies, affords me great pride. When Elena Kagan was confirmed to the Supreme Court she became the third Jew on the Court. To most of America, she's another New York liberal woman, if they care at all, but to me she is an MOT—a Member Of the Tribe, which makes her important. I keep score and I always will.

My acute sense of Jewish success in the U.S. scares me. I wonder when the next wave of jealousy and resentment will pop up like a mushroom. Personally, I am ashamed of my Jew-

ish brethren at Goldman Sachs, whose cynicism and greed helped bring on the economic collapse of 2008. I am surprised that the resentment against Wall Street has not morphed into overt anti-Semitism and that the Tea Party movement has stayed away from "blaming the Jews," which was common during the Great Depression.

When I heard the title of the new Steve Carell movie was " Dinner for Schmucks" I feared it was Hollywood turning on the Jews, but now I think I'm just ultra-sensitive about the topic.

I have taken a chance in writing about my Judaism and my Jewishness. It may be risky for business reasons, but to my surprise I feel very little pushback for it.

This country has changed in my lifetime—for the better. Chelsea Clinton was married under a chuppah, the canopy traditionally used in Jewish weddings, by a rabbi and a reverend, and the traditional Jewish Seven Blessings were read. It wasn't that big a deal in the press. The father of the groom was a former congressman who had been in jail and married a congresswoman. But who keeps score anymore?

Summer jobs have run their course in 2010, for those lucky enough to get one. My first summer job was in 1960, when I was 16 years old. I found it by placing a situation wanted ad in the *Chicago Tribune*. I advertised my skill as a writer, perhaps slightly embellished (well, doesn't everybody) and promptly heard from a small magazine publisher located in downtown Chicago. His name was Hadley and he published *The Civil Service News* which was a job posting rag, and *Midwest Ports*, a nondescript magazine about local shipping.

Hadley hired me for a little more than minimum wage, gave me a desk, and told me to write some stuff for *Midwest Ports*. The job was a blur. The exciting part was the 20 minute train trip to the Loop, working in the office building next to the Shubert Theatre, and occasionally eating at Wimpy's Hamburgers for lunch.

I worked for Hadley, who wore sunglasses indoors, for six weeks. He was a grouchy curmudgeon so I stayed away from him as much as I could. Then out of nowhere he called me into his office and fired me. No explanation, just bye bye. One of the ad guys called me over while I was packing my pencils. He said Hadley had learned I was Jewish, which was all he needed to know.

It was an interesting lesson for a teenager to learn in his first summer job.

My wife Risa was cleaning out the garage and found a duffle bag packed with clothes, tools, photos and batteries. It was a "catastrophe" bag we had put together after September 11th, 2001.

We pitched the big jar of peanut butter and the oatmeal but kept the family photos and blank writing journals. It also held $120 in cash, which seems like a paltry sum for fleeing Armageddon.

I know I am superstitious, but I wish we had kept the duffle bag as it was, just so we would never need it. I don't think the idea is obsolete. I'm going to update a new "flee fast" bag with new pictures including our grandchildren, son-in-law and daughter-in-law, if for no other reason than to remind me about what is really important in life.

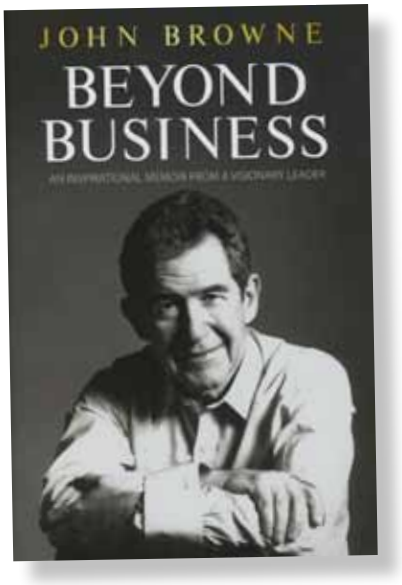
By Jerry Levine

Beyond Belief

I am a chemical engineer and spent my entire 36-year career working for the company formerly known as Amoco, retiring a few months before it was acquired by BP. I have a few friends who continue to work there, but most of my coworkers were fired shortly after BP took over.

Almost no one (including current and former employees) has anything good to say about the former CEO John Browne, or Lord Browne of Madingley, as he insisted on being called in the office. Coming from this perspective, I was intrigued to read his recent autobiography, *Beyond Business, An Inspirational Memoir from a Visionary Leader.* Looking at the title I didn't know whether to laugh or puke.

To be fair, Browne took BP, a relatively small, lackluster, formerly national oil company, through a series of acquisitions and transformed it into the second largest super-major, just one acquisition (Royal Dutch Shell) away from surpassing Exxon-Mobil. The Shell acquisition would have made BP not only the world's largest oil company, but also the world's largest corporation. Just before the BP board dumped Browne for a non-business related personal issue, he made the initial proposals to the board for acquiring Shell.



Browne grew the company by focusing on higher risk/higher reward "elephants" (big oil reservoirs) and ruthlessly cutting costs, as well as people. The company was run not as an engineering company, but rather as a financial holding company—contracting out much of its needs.

Browne was obsessed with cutting costs. His slogan was "more for less." He demanded a 10 percent production increase annually with only 90 percent of the previous year's resources. Browne never overtly said that maintenance or safety should be compromised, but deferring these non-productive costs was tolerated. While failure to meet goals led to firing, this also led to unmanagable risk taking.

Browne rotated managers into top jobs, gave them tough profit and cost cutting goals, and then moved them before they had to deal with the consequences. The Texas City refinery, for example, had five managers in six years. Each new manager had to either deal with the accumulated maintenance deferrals of his predecessors, which might mean being fired, or kick the can down the road for another year, and hope nothing went wrong.

The resulting can-kicking led the company into a series of major disasters in every BP operation—the Texas City explosion, which killed 15 people, the collapse of the $1 billion Thunder Horse oil production platform in the Gulf of Mexico, two major oil spills on the Trans-Alaska Pipeline, and most recently the Deepwater Horizon disaster, which killed 11 people and created the largest oil spill in U.S. history.

The penny-wise, pound-foolish approach led to many smaller, less publicized problems, which have made BP the most heavily fined oil company. BP's total safety and environmental fines exceed the rest of the industry combined.

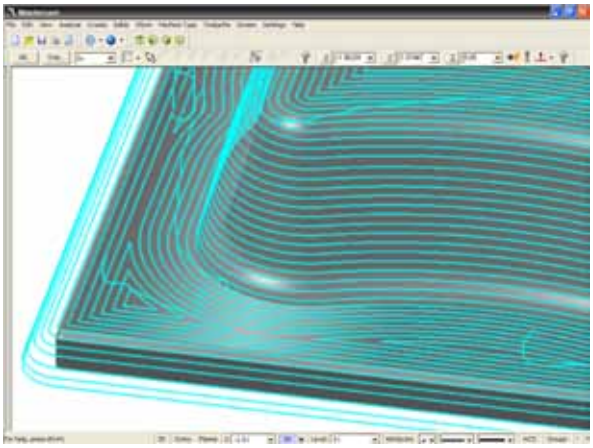
Both internal BP and U.S. government studies conducted a few years ago showed that while one or two bad accidents over a relatively short time-frame could be random chance, so many large and small accidents indicated a systemic problem. Browne's ruthless cutting of people and costs left an unsafe environment ripe for disasters.

I am no psychologist, but Browne is a relatively short man, standing just over five feet tall. Pervading his autobiography is an insecurity that can be felt on almost every page. I'm sure this insecurity drove him to his successes, and they are many. But there is a sadness in reading it, where on one page he uses the word "I" 13 times interspersed with references to Margaret Thatcher, Intel CEO Andy Grove, Exxon CEO Lee Raymond, and the Dean of Stanford Business School. Other pages and photographs link him to Bill Clinton, Al Gore, Tony Blair, Arnold Schwarzenegger and many other prominent people.

I also found much of the book quite disingenuous. Browne portrays himself as a great humanitarian, concerned about the environment and colonialism and poverty in the Third World. This is all very hard to reconcile with his real world performance—the record oil spills and the ruthless treatment of his own employees.

Comments? You can email Jerry Levine at jerroldlevine@yahoo.com

The following companies will be displaying at IMTS 2010 at McCormick Place in Chicago, Ill. September 13-18.



◀ CNC Software, Inc.

The new Mastercam X5 introduces significant new capabilities, including new dynamic milling techniques, multi-axis machining, Smart Hybrid Finishing and more. Dynamic milling constantly adjusts the toolpath to ensure the most efficient cut possible and allows use of the entire tool flute length, often eliminating the need for multiple depth cuts. Mastercam's new 3D surface high speed OptiRough toolpath is a new technique designed to remove large amounts of material quickly using its successful dynamic milling motion.

For more information, please visit CNC Software, Inc. at booth E-3840 or visit www.mastercam.com.

▶ DMG/Mori Seiki

Ten newly developed models will be shown for the first time at IMTS 2010, including the Mori Seiki NHX4000, NLX2500/700 and NVX5000 machines. DMG highlights will include the ULTRASONIC 10, a broad selection of automatic lathes, the DMF 260 linear traveling column machine and the DMU 50 eco machine. IMTS visitors will see the diversity of the enhanced Turn Mill portfolio in the exhibition of the new Mori Seiki NT1000SZM, as well as the DMG CTX gamma 2000 TC.

For more information, please visit DMG/Mori Seiki at booth S-8900 or visit www.dmgmoriseiki.com.

◀ Doosan

The Puma 2600SY is a versatile turning center that's able to machine complex geometries from tough materials quickly and to demanding tolerances. The Puma 2600SY is designed for parts up to 14.8" diameter and 29.9" long. An elongated-bed version produces parts up to 50.4" long. The spindle is powered by a 35 Hp spindle motor generating speeds up to 4000 rpm. The Y-axis movement is achieved by linear interpolation and the synchronous movement of X1 and X2 axes. This makes possible a lower machine height for greater stability.

For more information, please visit Doosan at booth S-8100 or visit www.usa.doosaninfracore.co.kr.

fresh stuff

▶ EMCO Maier

EMCO Maier will introduce its new line of heavy-duty vertical turning machines for production. The VT250 is designed with integrated automation for complete machining of chucking, cast or forged parts up to 200 mm diameter. With its vertical, high-torque, high-power 25 kW (33,5 hp) 4000 rpm main spindle, the VT 250 makes turning, drilling and threading operations easy and keeps cycle times brief even when using tough material. The VT250 main spindle torque is a strong 250 Nm.

For more information, please visit EMCO Maier at booth 8748 or visit www.emcomaier-usa.com.

◀ Ganesh Machinery

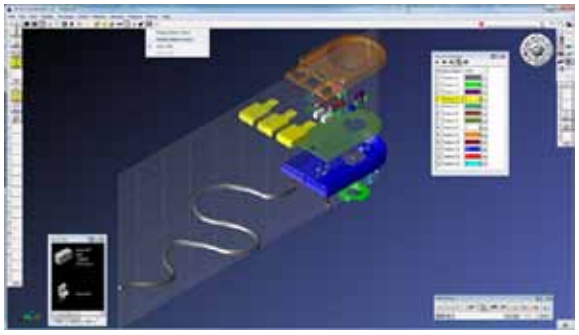
Ganesh will be showing the 7-axis Cyclone-32 CS 1-1/4" Swiss-style CNC lathe featuring 28-tools with up to 11-driven tools for complete "done-in-one" part processing of complex parts. Ganesh will also have its first international showing of the new 8-axis Cyclone-52 TTMY twin-turret lathe with 32-tools, for 2" bar work. Both the main and sub-spindles use "dead-length" collets for accurate part transfer and complete "done-in-one" machining efficiency, including all radial, end-working, and Y-axis live tooling work on both the front and backside of the part.

For more information, please visit Ganesh Machinery at booth S-9371 or visit www.ganeshmachinery.com.

▶ Gibbs and Associates

Gibbs and Associates, developer of GibbsCAM® software for programming CNC machine tools and a Cimatron company, will preview GibbsCAM 2011 with enhancements to the automatic and feature-based programming capabilities of GibbsCAM. A new Auto Wizard within Hole Manager allows storing default settings for reuse at any time, and the Auto Wizard button will allow invoking the Hole Wizard multiple times quickly. Using the streamlined Hole Manager options, users will be able to take a part with hundreds of holes and auto-recognize and program them all in just three mouse clicks.

For more information, please visit Gibbs and Associates at booth E-3810 or visit www.gibbscam.com.



▶ Hardinge

Hardinge announces the introduction of the GS 51 A Turning Center, which features the Hardinge unique collet-ready spindle to allow for better part accuracy and surface finish. The GS 51 A with automatic gantry offers a unique compact design that harmoniously couples with the Hardinge GS 51 for easy installation and transportation. The modular pallets are designed to accommodate a range of part diameters. A slant design along with auto part center increases the part storage capacity and saves valuable floor space.

For more information, please visit Hardinge at booth S-8343 or visit www.hardinge.com.

▶ Kennametal

Kennametal will introduce the first Beyond inserts for hole-making applications. Three new grades are available: KCPK10, KCU25 and KCU40. Together with the DFS drill bodies, diameters range from 24.0 mm to 55.0 mm (1.00" – 2.125"). Kennametal's DFS indexable drill platform offers the economy of a square insert, having four edges in the outside pocket combined with the outstanding centering and high feed ability of a DFT trigon insert. The DFS indexable drill can be used in virtually any short-hole applications and materials performed on CNC lathes or machining centers.

For more information, please visit Kennametal Inc. at booth W-1522 or visit www.kennametal.com.

◀ Makino

Makino will be introducing a number of new machines at IMTS, including the F5 vertical machining center for accuracy and speed in dies and molds. It features complex geometries, UPV-3 wire EDM with oil-based dielectric fluid system for high-accuracy machining of carbide and mirror-like surface finishes to 0.08 µm Rz, EDAF3 sinker EDM with fine hole option, iQ300 precision micromachining center, and the a51nx and a61nx horizontal machining centers.

For more information, please visit Makino at booth S-8700 or visit www.makino.com/imts.

fresh stuff

▶ Mitsui Seiki

The new Vertex 750 offers a work envelope of X-axis 750 mm, Y-axis 800 mm, Z-axis 700 mm and a weight capacity of 500 Kg (1100 lbs); small footprint 2200 mm X 3740 mm (87" X 147"). It is hand-scraped casting for ultra high geometrical accuracy and also features a rapid traverse rate of 48m/min. (1890 ipm) with a feed rate of 20 m/min. (787 ipm). The Vertex 750-5X is available with a wide variety of options and features to permit versatile machining opportunities.

For more information, please visit Mitsui Seiki at booth S-8336 or www.mitsuiseiki.com.

▶ Siemens

Siemens will introduce new solutions and services for machine tool manufacturers and end-users. For the job shop, the new Sinumerik 828D numerical control will be presented for the first time in the United States. The Sinumerik 828D is designed to address the needs of complex milling and turning machines in the job shop segment. It combines CNC, PLC, and axis control for six CNC measurement circuits in a single robust operator panel.

For more information, please visit Siemens at booth E-4933 or www.usa.siemens.com/industry.

▶ Star CNC

The unveiling of Star CNC's newest product line will feature several models to be seen for the first time, including the debut of their most recent machine the ST-38. The ST-38's innovative triple-turret design was specifically created to capitalize on simultaneous capabilities in an effort to reduce overall machining time. With deep-hole drilling on front and rear ends of components parts, the ST-38 offers high speed and universal control.

For more information, please visit Star CNC at booth S-8559 or www.starcnc.com.

◀ Sunnen Products Company

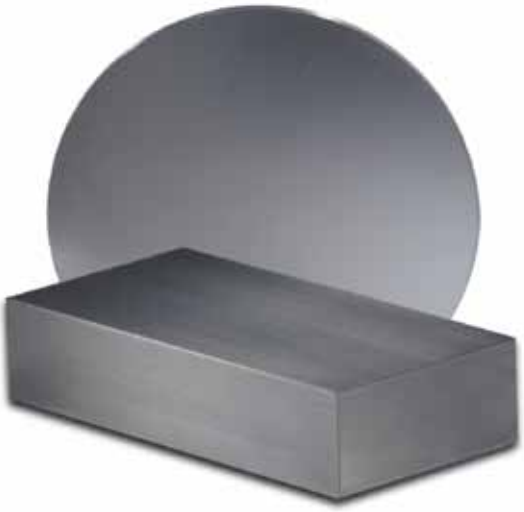
Sunnen will display the new KRQ tool, which is designed for optimum performance with Sunnen's SV-1000 Series vertical honing systems, but can also be used with ML Series horizontal machines for dramatic reductions in setup time. It is available in diameters of 5.0 mm to 19 mm, in size increments of 0.10 mm. The KRQ mandrel works with diamond and CBN super abrasives and utilizes long lived carbide shoes.

For more information, please visit Sunnen Products Company at booth N-7400 or visit www.sunnen.com.

▶ TCI Precision Metals

TCI Precision Metals will demonstrate how purchasing machine-ready blanks allows dramatic reductions in the cost of labor, leading to lower overall part costs and greater operational efficiency. Machine-ready blanks allow production to start immediately, i.e. load blanks directly into the machine without prep operations, including sawing, grinding, flattening, or squaring. Additionally, less time is spent adjusting setups and fixture offsets. In many situations this can save $15 per part and more.

For more information, please visit TCI Precision Metals at booth W-1267 or visit www.TCIprecison.com.



◀ ZPS America LLC

ZPS America LLC announces its newest Swiss CNC, the ZPS Swiss. The ZPS Swiss series covers a range from 3 mm to 32 mm bar diameter. Solid base casting ensures maximum rigidity and stability. Swiss style turning centers provide outstanding accuracy and quality surface finish conditions for precision parts. The machines are equipped with the GE Fanuc 160i control systems and drives that are capable of handling up to 12 controlled axes.

For more information, please visit ZPS America at booth S-8640 or visit www.zpsamerica.com.

"The new Standard in Swiss Turning"

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- Hybrid Swiss with removable guide bushing
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- FANUC HD-ALPHA series drives and motors
- 1,260 ipm Rapids with .75G's Acceleration/Deceleration
- C Axis with Main and Sub Spindle
- 7-Axis with simultaneous sub spindle
- Part chute with parts bin
- MPG hand wheel with program check
- Synchronous revolving guide bushing
- Pneumatic parts ejector (100mm)
- Centralized lubrication system with fluid level supervision
- German made quality with unmatched capability at this price!

MLK-32 Hybrid

*Package price with bar loader mid $160,000s

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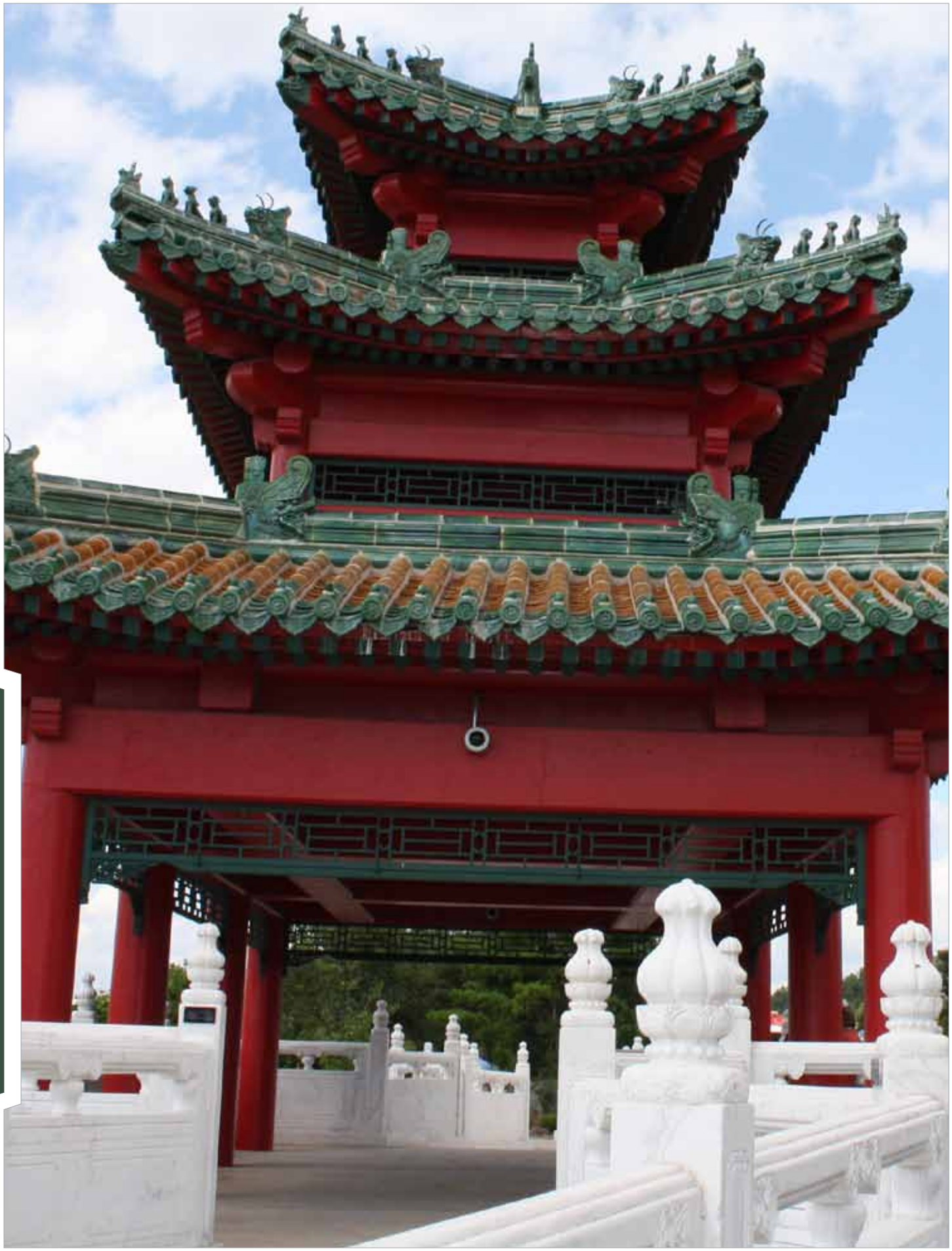
SWISS TURNING



The Risks and Rewards of Offshoring for Smaller Manufacturers

By Bridget Mintz-Testa

Responding to customer demands

Globalization. Whether you hate it or not, it's dramatically changed the way business in the United States and elsewhere is done. Initially, only Fortune 500 companies were big enough to play in the global environment. Although they started about 10 years later than large companies did, small- and medium-sized businesses eventually went global, too. Now, even companies with fewer than 10 employees, like Central Screw Products of Detroit, Michigan, can have a big international presence.

Central Screw Products went global in response to customer demands, but the experience gave it many more advantages than just cheap labor. Houston-based Tech-Seal International, founded and owned by Mark Adamson, went global for other reasons. For both companies, the experience taught them a lot and changed their businesses in many ways.

Going abroad to expand capabilities

Banks' current reluctance to lend capital to businesses is nothing new to Mark Adamson, founder and owner of Tech-Seal International in Houston. After starting his company in 1989, Adamson wanted to expand. "The banks wouldn't buy me a Coke, much less anything else," Adamson says. "I couldn't afford the $400,000 to $500,000 I needed to buy a machine, so I decided to go overseas."

On the advice of Michael Mai, a friend Adamson had met before opening his Houston shop, he tried China first. Adamson wanted to eventually create his own products, but the Chinese factory was only interested in mass production. So Mai, a Vietnamese national, suggested his home country.

The two of them, partners by then, went to the Southeast Asian nation in 1992. Two years later, they started manufacturing commodity oil and gas industry parts in Ho Chi Minh City. Mai stayed in Vietnam to manage the operation.

"We bought manual machines on credit cards and used cheap labor to run them," Adamson says. "I'd wire Michael $1,500 or $2,000 at a time, and he'd buy more machines."

Below: Tech-Seals gate valves control the flow of natural gas or oil.
Photo courtesy of Tech-Seals International

Left: Mark Adamson located his offshore manufacturing facilities in Vietnam, first in Ho Chi Minh City, then in Lam Dong Province and most recently in Binh Phuoc Province.
Illustration courtesy of Wikipedia Commons

Above: Mark Adamson located his offshore manufacturing facilities in Vietnam, first in Ho Chi Minh City, then in Lam Dong Province and most recently in Binh Phuoc Province.
Illustration courtesy of Wikipedia Commons

Opposite: Tech-Seals warehouse 2 of 4: lathe shop.
Photo courtesy of Tech-Seals International

Headaches of doing business in Vietnam

In 1995, Adamson and Mai left the first location and built a facility in Lam Dong Province, about four hours northeast of Ho Chi Minh City. Adamson didn't have his own products yet, so this new facility was also initially for commodity oil and gas parts.

There, Adamson and Mai ran into one of the perils of doing business in Asia—corruption. "There is a lot of bribery," says David James, president of Business Strategies International in San Francisco, a consulting firm for American businesses that want to establish operations abroad.

United States law prohibits citizens from bribing foreign government officials, but James says, "In most Asian countries, things don't get done without acknowledging that favors are being asked. It may look like bribery, but it is the way things get done."

In Adamson's case, the problem wasn't outright bribery. "If you want to get your electricity hooked up, you can always get it done faster [by paying someone a bribe]," Adamson says. "But I don't do that, because they always come back for more." Beyond the hook-up issue, "they wanted to charge me a fortune for power," he says.

Instead, Adamson installed his own diesel generators. "Then electricity got cheaper," he says. The generators are still there, on standby, because power is unreliable in Vietnam.

Developing their products

In 2003-2004, Adamson finished developing his own specialty flow-back equipment, mainly valves and manifolds, to handle liquids involved in oil and gas production. He had also purchased a new product, a solar-powered pump. He began using the Vietnamese facility to produce parts for these products.

"We developed a good workforce there," Adamson says. "It took several years. It's tough to build a workforce from an agricultural society, because they aren't used to clocking in to work every day. If you're working a coffee field, you can go and work today or not—whenever you feel like it."

Despite the money and employment Adamson provided, the government aggravation in Lam Dong Province continued. So, he and Mai leased 22 acres for 50 years in Binh Phuoc Province, which is closer to Ho Chi Minh City.

"My partner's wife is an ex-Communist, and she got the land on the promise of jobs," Adamson says. In 2005-2006, the company started building a one-million-square-foot facility in the new location. Upon completion, Adamson equipped it with more than 100 used CNC machines purchased from Japanese dealers in Vietnam. He also purchased forging hammers and presses stateside and transferred them to the Binh Phuoc facility.

Adamson uses the forging tools to make valve bodies and

ancillary parts for the flowback product—the tech seals—for which his company is named. He also makes the tech seals in Houston, "but we focus more [in Houston] on the job shop business for local companies," he says. There's no forging in Houston.

Making money

Adamson doesn't limit Vietnam operations to forging. "There is no sense in just forging there and shipping all that weight over here to finish," he says. "I may as well take advantage of the labor. We forge the raw material, heat-treat it, and then machine it over there. We control the cost and quality for every step, it gives us a good cost advantage."

"There are a lot of machinists that own businesses who run them like machine shops," Adamson says. "I'm interested in running my company like a business. I want it to get me to where I want to be—to have my own product lines. I'm developing other product lines, like pumps. I want to delegate and get into other businesses."

Adamson is also extremely loyal to his employees. "I've had three good months in a row [in Houston], and I've given out $25,000 in bonuses in each of those months," he says. "My people are wonderful and work very hard. If you treat people well, you can be happy. That's what matters."

Competing globally

Founded in 1924, the niche for Detroit-based Central Screw Products was a "low-to-medium volume of non-standard parts," says Matthew D. Heller, chief operating officer of the family-owned firm. "In the late 1990s, we started to get lots of pressure from customers about lower global pricing."

Sources for help in setting up business abroad

China Council for Promotion of International Trade: www.english.ccpit.org

U.S. International Trade Administration: www.trade.gov

Korea Chamber of Commerce and Industry: www.english.korcham.net/

Hong Kong Government and Trade Offices in the U.S.: www.hketousa.gov.hk/usa/index.htm

U.S. Small Business Administration, International Trade: www.sba.gov/aboutsba/sbaprograms/internationaltrade/index.html

U.S. China Chamber of Commerce: www.usccc.org

U.S. embassies in the foreign country of interest

Foreign embassies and consulates in the U.S.

U.S. business/commerce organizations in the country of interest

After investigating India and China as possible manufacturing locations, the company chose China. "The big decision when you go international is whether you'll contract, create a joint venture, or open your own facility," Heller says. "We didn't set up our own factory. Manufacturing parts is one level of difficulty, having a workforce is another. We didn't want to get into human relations and politics." So when Central Screw Products went to China in 2000, the decision had already been made to contract the work out.

Creating relationships

Central Screw Products worked with a consultant to locate potential companies in China who would be a good fit as partners. "In the beginning, there were language and cultural barriers," Heller says. "It was good to have help."

Language and cultural barriers are the two biggest for Americans who travel to Asia for business. "Asians are more reticent and are slow to establish relationships," Business Strategies International's James says. "They believe more in relationships than in signing paperwork. Americans tend to be awfully forthright, and that can be an impediment in dealing with Asians. They object to people who come on too strong."

Asians won't sign agreements until trust can be established. That takes a lot of groundwork before meeting a possible Chinese business partner. "You must find out a lot about them first so you're not just asking them to tell you about themselves and so you can demonstrate your knowledge of them and their business," James says.

In the early stages, consultants or others with expertise and contacts in a specific country can help. "It is very useful to approach contacts through formal channels," James says. "Get a trustworthy source in the country who can introduce you to sources and contacts."

And don't expect to establish trust or build relationships long-distance. "Face-to-face is best, although much of the groundwork can and should be done beforehand," James says.

Getting busy

Once Heller met the potential partners, "we worked with our customers and decided there were some flagship products they wanted to try out," he says. Those products were pins and bushings. The orders were placed in mid- to late-2000, and the parts were delivered in 2002. "That's set-up, making and proving samples, then making the parts and arranging shipping," Heller says. After that, the company signed with

Left: Chinese factory with CNC cell set-up in Zheijiang Province, south of Shanghai.
Photo courtesy of Matthew Heller, Central Screw Products/CSP Global, Inc.

Below: Central Screw Products partnered with manufacturers in China.
Illustration courtesy of CIA World Factbook

several partners and began manufacturing products in China in 2002 and 2003.

"Doing business in China really requires a serious review of your business model and practices," Heller says. "One of the pressures in the U.S. is less lead time, but internationally, a four-week timeframe isn't feasible. You need a commitment from your customer and your own business for this change."

Central Screw Products (CPS) worked closely with its stateside customers, explaining that things worked differently in China in a lot of ways. "When we went international, some customers were willing to change their model so CSP could make products abroad, but others weren't," Heller says. "When customers are willing to change their model, it lets us show both our international and domestic capabilities. We give our customers options."

> "Americans tend to be awfully forthright, and that can be an impediment in dealing with Asians. They object to people who come on too strong."

Learning the ropes

How do things work differently in China? "It is not true that manufacturing in China is the same as here, just cheaper," Heller says. "Things are made differently. In the U.S., we'll use a CNC machine with bar stock. There, a part may start as a cast or forged product. You start with different material and process it on different types of machines. We've had to use our manufacturing and quality knowledge to make sure that even though a part is processed differently in China, it will still work for the customer."

Heller explains that, for example, raw materials in China aren't the same as they are in the U.S. "In the U.S., 12L14 steel is readily available and machines well," he says. That's not so in China, so Central Screw Products must determine if it's the specific chemical properties of 12L14 that are needed—low-carbon steel with a lead additive—or if another low-carbon steel with no lead would suffice. "We have to find what works in China and bring it to the customer," Heller says. "The workforce is entirely capable of making a part, but it's not the same part if it's a different process. That can either be a problem or a significant competitive advantage."

Above: Rubber grommets used by CSP International, Inc. in a larger assembly showcase the company's ability to branch out into different materials and styles of parts thanks to its Chinese partners.

Right: From left to right, Arnot Heller III; Mr. Zhou; Matt Heller, at factory in Zheijiang Province, south of Shanghai.

Opposite: At a park in Shanghai, Alexis Heller tries out the kung fu outfit she was given by her Chinese hosts while Mr. Chen looks on.

Photos courtesy of Matthew Heller, Central Screw Products/CSP Global, Inc.

In 2008, Central Screw Products added a new division, CSP Global Inc., to reflect its proven international capabilities. That was also the year the company invested and built its own technical center in Jining, a city in Shandong Province, roughly halfway between Beijing and Shanghai. However, no core people from CSP Global stayed permanently in China to run the technical center.

The goal of the technical center was to "let us do things faster, better and more efficiently," Heller says. Unfortunately, with no CSP Global personnel there at all times to take ownership of the center and its relationships with the Chinese partners, "it became a scapegoat for quality and timing issues." If there was a problem with a product, the technical center got the blame. "We shut it down in 2009," Heller says.

CSP Global also tried using third-party quality inspectors to check part shipments before they left China and assure that they met specifications. That experiment didn't work out quite as planned, either. Parts arrived that didn't meet expectations, and the Chinese factories blamed the third-party inspectors. That experiment was canceled, too.

"The difficulty we've run into again and again is the lack of ownership outside of CSP," Heller says. "Consultants, third-party inspectors...at the end of the day, it doesn't matter to

Shipping machine tools abroad from the U.S.

Any citizen of the United States can start a business in another country (as long as it's legal in that country) without stateside government involvement. If you want to transfer goods abroad from the United States, though, for export or to set up a shop, you must abide by the federal Export Administration Regulations and Commerce Country Charts. Both documents are created and maintained by the Bureau of Industry and Security in the Commerce Department.

The EARs specify what equipment or other goods can or cannot be transferred and if you need a license (export licenses are free). Machine tools are on the list. The other crucial factor is where you plan to ship the goods. That's where the Commerce Country Charts come in. Find both of these documents and other kinds of help, both online and by phone, via the Bureau of Industry and Security's Website, www.bis.doc.gov.

anyone else if our customer gets its parts. The overriding theme of our nine years in China is that it's not easy, you must be persistent, and you must own what you do 100 percent in terms of accountability. You must own your processes from start to finish."

After nine years in China, CSP Global is sold on its partnerships and the benefits of manufacturing abroad. "It allows us to bring a new set of skills to customers," Heller says. "It lets us find and utilize the strengths of our business. It's given us a lot more opportunity in areas we wouldn't have had before—parts we couldn't have produced on our own floor, like rubber and plastic, and parts that were best to make in Asia for competitive reasons. Now we're able to get that business."

Mitch Liss, president of Edsal Manufacturing, in front of the company's plant in Chicago, Ill.

Lloyd and Noah Graff met with **Mitchell Liss**, president of Edsal Manufacturing Company, Inc., to talk about the issues facing an American manufacturer trying to sell to American distribution outlets and the what it's like to be one of the largest manufacturers of steel shelving.

Interviewed by Lloyd Graff • Photographed by Derick Larrow

Lloyd Graff: Give us a little background on Edsal Manufacturing and your relationship with it.

Mitch Liss: Edsal Manufacturing opened in the 1950s and now makes industrial shelving and office furniture. The name Edsal came from my father-in-law, whose first name is Ed and whose last name is Saltzberg. At that time he worked for somebody else and was unhappy with how he was being treated, so he decided to go out on his own. He started with about $800 in a small garage and some pretty basic machinery. One of the tenets of his company since day one was to never sell product directly to an end-user, only through dealers and distributors. The company started by making steel furniture, like sewing tables.

LG: Why not sell direct?

ML: It was his philosophy to build a very strong relationship with distributors. Ed had an engineer's mind, and I have an engineer's mind too. We're not sales people by nature. We have a philosophy that if we build it for the right price, the customers will be there.

LG: Who's your biggest customer?

ML: On the industrial side, it's Grainger. On the consumer side, our two biggest customers are Lowe's and Home Depot.

LG: Contrast dealing with Grainger versus Home Depot. Do they overlap?

ML: They don't. The businesses are dramatically different because Grainger has an extreme number of items with low volume [in stock]. Home Depot or Lowe's might only have three items, but the trucks go out full every day.

LG: Is your brand important to Grainger?

ML: My personal opinion is that it's not particularly important. I would say that on a scale of one to 10, with one being a completely generic item to a 10 being like the name GE on lighting, it would be about a four.

LG: Is your brand important to Home Depot?

ML: More so. On that same scale, it's maybe a six or a seven. [I say that] because we have done testing in which some of those retailers tried using their own private brand and have lost a significant amount of market share. In fact, around seven years ago Home Depot changed over to their own brand, but in 2009 switched back to the Edsal brand. They wouldn't have done that if they felt that using their own brand [was working].

LG: Where does Sam's Club fit into this landscape?

ML: From my perspective, Sam's Club is focused on small businesses like restaurants and other target customers who need shelving. You can contrast it with Wal-Mart, where probably 80 percent of what they carry is plastic or resin product. At Sam's Club there are no plastic shelving units. They place themselves so they're not competing against one another. I think they have different target customers. Sam's Club is clearly an important player in the steel shelving market.

Above: Mitchell Liss in his office Edsal Manufacturing Co.

> "The typical buyer from Menards will look at the product for price. They're not necessarily trying to shake things up."

LG: Is all the buying for Sam's Club done in Shanghai?
ML: In order to have an efficient buying process the buyers from the regular product side, who decide what goes on the shelf, often get their information from their global sourcing team, which assembles a group of options. What happens is that several times a year the buyers go to their buying office over in China and begin a week-long process of looking at and evaluating product. The people who organize and run those product line reviews are in the global sourcing part of the business. If you want to sell something, the best way to do it is to get to that meeting. Monday the buyer will meet with you and Tuesday they will tell you what they want brought to a finalization process.

LG: What is a product line review?
ML: A product line review is where a retailer makes their buying decisions for the upcoming year. There's a typical cycle, maybe in the clothing industry it will be four times a year, but in our industry, it's usually once a year for the major retailers.

LG: So you're over in Shanghai. Do you pre-position a whole group of product there?
ML: Yes. As soon as we find out about the meeting we assemble all of our ideas. [We'll ship] tons of product there. We will typically make it here and ship it over.

LG: You rent space?
ML: We rent a hotel room. We ship the stuff at a tremendous expense and spend $10,000 to $20,000 on space in a nice hotel. If we thought we could sell it, we'd have crystal with us. We'll take anything, it doesn't really matter. So when we get there the buyer picks out [however many things they want]. There's a tremendous amount of paperwork involved. How does he want the container? How many pounds of plastic are going to be in this thing? How many dollars worth of labor is there? How much overhead? They ask you to break down the cost elements of every item. Then you wait around in China for a few days, because they're going to call you up and say, "Hey, Lloyd, I really like this thing, but you got to be kidding me, $98? Come on now. I was thinking more like $85." Then I say, "Oh, I can't do it for $85. You saw my cost build-up. I said I was only making a half point more." They'll pick an item from you but they also pick a similar item from somebody else, then they really compare them.

LG: Why doesn't Sam's Club do more buying in the U.S.?
ML: Sam's Club had [regulations] for a lot of years that really didn't let them do business here, but we've overcome those. Sam's Club is moving towards a 50/50 split with 50 percent of product from China and 50 percent from the U.S. At a place like Sam's Club there's an open dialogue where we can say, "Here are the benefits—you order from us on a Monday and we have to ship by Thursday. You have lower inventories. We ship to you on pallets that work for you." In China the product is floor loaded. There are 200-pound boxes that are stacked up to get every last little one into a shipping container. Those boxes have to be more or less unloaded by hand at tremendous cost.

LG: How does selling to Sam's Club differ from selling to Menards?
ML: It's very straightforward at Menards. They don't really have a buying operation outside of Eau Claire, Wisconsin, by design. Everything they do is there. We bring a whole truckload of stuff to Wisconsin, all different shapes and sizes. They have a set up room [where companies bring in their product] about once a year. They'll have our stuff right there, 20-feet over from a competitor, with another competitor 15-feet over from them. The typical buyer from Menards will look at the product for price. They want to make sure that they're priced right. They're not necessarily trying to shake things up. Maybe they'll see one new item and will try one thing. In the seven or eight years I've been doing business with Menards we've added and removed just a handful of items.

LG: What about selling to Home Depot?

ML: Home Depot's buying has changed over the years. I would categorize it as collaborative. We launched an initiative with them about three years ago to come up with something new and different, so we tested about 10 different things in 10 different markets to see how they did. Home Depot's buyer and Edsal developed a new product line and launched that product together with a pretty high degree of confidence that it was going to work. We are not in constant review or price negotiation with Home Depot. It's almost impossible to ever change your price. But I don't want to make it sound like the price pressure isn't unbearable, it's really hard. Steel has gone up 30 percent to 40 percent since last year. We gave Home Depot two percent off on something for a special and I couldn't even get the two percent back.

LG: So they don't give you any leeway for raw material shifts?

ML: No.

LG: I'd like to ask you about manufacturing Edsal products in the U.S. versus China. Do you consider it to be Edsal versus China Inc.?

ML: [In the spirit of] full disclosure, about six years ago Edsal started its own facility in China, because I didn't feel like I could be a credible source about doing business in China without knowing exactly what it cost to run a facility. I wanted to know exactly what the labor costs are. We have a facility and about a hundred employees there. It's run by a guy who grew up in Virginia and lived in China for 14 years while he was in the military. So, no, it's Edsal against every other person who can bend a piece of steel, not necessarily just China. What it really comes down to is where raw material cost is effective, that's how you can cross off a lot of places. For example, India, where steel is pretty expensive. In China, the cost of commodities is fairly competitive. Sometimes it's much lower there than in the U.S. and sometimes it's about equivalent to the U.S. Of course, the Chinese government has a big hand in regulating what the cost is. Some people have firsthand knowledge of whether they subsidize steel or not. Is it illegally subsidized? I don't know. All I know is the cost of goods coming out of China, and that as a manufacturer, you get a value-added tax rebate. On a piece of commodity coming out of China, you can get 8, 10, 12 or 15 percent back from the Chinese government on a VAT rebate, which is basically a subsidy.

LG: Do you buy Chinese steel?

ML: Yes, for the product we make in our Chinese facility, although we have shipped U.S. steel [over there]. We never buy Chinese material for products sold here. In our experience it's not the same quality we're able to get here. What we have used here over the last five or six years has been 100 percent U.S. steel. Our goal in China is 100 percent in-country sales. The reality is that about 95 percent of what we sell goes outside of China. We're trying to grow by selling from there, but it's very difficult. A year ago container costs were very, very low. Today the cost is $4,500 per container.

LG: What would you recommend the U.S. government do to help domestic manufacturers?

ML: If I were the Obama administration and I wanted to see domestic manufacturers do better I would have the TSA, who has to inspect every container coming into the country, slap on $300 for the inspection cost. If that turns into a profit for the U.S., fantastic. At least it funds our infrastructure. As an example, let's take our number one item that I think we compete with China on by way of Costco, who basically demands that their stuff come from China. They get roughly 180 items in a container at $20 a foot. That's $20 in freight on top of an item that they are paying $100 for. That's 20 percent of the cost in freight. Over here, if our labor cost is, on the high end say 15 percent of product cost, but

Left: Inside Edsal Manufacturing.
Below: Manufacturing components for steel shelving.

we have no freight, and they've already got 20 percent of the cost in freight, why should Costco be asking, "Well how could the U.S. possibly compete with China on such an item?" Even if labor were free here, it wouldn't equal the freight costs.

LG: Tell me more about Costco, why can't you sell to them?

ML: I've called on Costco for eight years and have gotten nothing but a blank stare. We'll have a pleasant meeting where I'll walk in and say, "I know you're buying this stuff [in China], but we're right here in Chicago." I'll leave the meeting and get not so much as an email back, just dead air. I happen to be a Costco member, and a really loyal one at that. Don't ask me why, it kills me every time I walk in there.

LG: Why do you think that is?

ML: Obviously the current supplier, who is an importer and has a product made in China, has convinced them for whatever reason to not talk to anybody else. It doesn't make any sense to me. I fired our sales rep here [because of it]. We don't usually have sales reps, but in this case, I was convinced that we should have some. Costco does a lot of business through a small number of sales reps, in other words, guys who are focused just on selling stuff to Costco. They know the Costco way, know the buyers, know what they ate for breakfast, what they ate for lunch. Supposedly, they can help you. But our guys in that position hadn't sold anything in eight years.

LG: What was your next move?

ML: I sent a letter to the head of Costco. I didn't know who to aim for so I aimed high, right to the CEO and chairman. I laid it out just like I'm telling you. "Your members are paying too much." I started the letter with, "How would you like to get a lower cost for the exact same product and lower your prices for your members while adding American jobs?" Then I went on to show how Home Depot has actually been priced better than Costco in some markets. I went through all that, gave them details, information and an action plan. I FedEx'd it to them on a Wednesday two weeks ago. Friday, I got a call from somebody in middle management. His questions were geared towards trying to pick my argument apart. He asked, "How could you be as cost effective as China?" I thought, "Why are you asking that question? You have a price, you can come see my facility. Heck, you can go into Home Depot, Lowe's, Menards or Sam's Club and see my product." So we had a conversation and that was it. A few days later the buyer sent an email out to my rep, who I've since fired, saying, "Hey, has that Edsal product been tested?" He replied, "No, it hasn't been tested by your lab, by your spec, you never asked for it to be." This is kind of the typical stuff. So there's been kind of a back and forth. I'll say, "Sure, we'll send it in for testing, give us the forms," and they don't give us the forms. We finally get the forms and they say, "You can send it to our testing lab in Shanghai, Hong Kong or Manila." I say, "Excuse me, I'm a U.S. manufacturer, I'd like to have it tested here in the U.S. if it's okay with you." They say, "Oh, okay, we don't normally deal with that."

Above: Mitch Liss showing the special cuts for their shelving frames.

Right: Edsal Manufacturing has over 1.4 million square feet of space in seven facilities.

Opposite: Edsal employs over 1,500 full-time employees and offers five grades of industrial shelving, storage cabinets, lockers, service carts, work benches, shop desks, stools and more.

[Working with a U.S. based manufacturer] is almost like a foreign notion for them.

LG: How can you manufacture that efficiently?

ML: It's all about material. We buy it right and we don't have a lot of overhead. We look at it like we look at each one of our customers. It is an incremental business. As a company, have we had months where we've lost money? Sure, but we've never had a year where we lost money. We don't have any debt and we don't have any outside investors. At the end of the year whatever pennies are left over, that's what the family takes home. If we lose money we know that every penny we lose comes out of our pocket, so it hits home. We know exactly what it costs us to make that product. In China, there are a lot of costs. There's transportation to the port, transportation to the U.S., quality certifications that have to happen, and a whole host of infrastructure. All of that stuff doesn't exist here, so we save on the logistical side of things tremendously.

LG: How do you buy material cheaper than your competitors?

ML: By having a really good supply base. We're based in Chicago and there's a tremendous amount of material available in and around here. We're an hour away from Steel City. Almost all of our cartons for all of our facilities in the U.S. come from Chicago. As a transportation hub, it's cheaper to ship from Chicago to almost any point in the U.S. than from anywhere else. There's so much activity here and so many railroads.

LG: What kind of equipment do you buy?

ML: We take used equipment and make it run faster than it ever ran before. We're really good at doing that. If we have a specific spec on steel and it comes in a little heavier or a little lighter, we can work with it. A lot of facilities can't handle that. We're really good at being able to handle a wide variety of material and we have a wide supply base. We're not scared to take a position with commodities. We have the wherewithal because we don't owe the bank anymore. If I like the price of steel, like I did last year, I keep buying it. Last year I bought as much as I could possibly store away.

LG: So you stockpile.

ML: Yes, we physically take possession of it. We're not scared to do that. If you had a big loan the bank would look at it and say, "What if the market goes the wrong way? That stuff could be worth a lot less than it is in the books." When we think the prices are very high, like we saw in May and June of this year, we stay really, really short. We might only have 30 or 60 days worth. As soon as we see prices come down, we go a little long. It's not like we have a two-year supply, we might have six or nine months worth, but it gives us a little edge.

LG: Do you want to build a brand, or is that less important than keeping the commodity price down?

ML: I think if we had the choice to spend our resources on building the brand or to spend resources to take costs out of the business, we would always invest the money in taking costs out of the business. My brother-in-law, Bruce, and I both think that a lot of our customers are too picky about the finish. They say, "I want it a little grainier," or "I want a little more texture." We say, "It's a shelving unit." At the end of the day it's a commodity. Do you care what brand lumber was used to build your house?

Interviewed by Noah Graff

Jim Chiodo of Holland, Michigan, is the founder and organizer of the Holland-Zeeland Patriot Tea Party, a subgroup of the Tea Party of West Michigan.

Jim, what's your role in the Tea Party?

JC: I prefer to consider myself an organizer, somebody that helps other people speak up. We have no roles or titles or anything like that. You can call me the guy with the big mouth.

What are the main principles of the Tea Party, and what is its goal?

JC: Fiscal responsibility, smaller government, and constitutional adherence. The goal is to affect policy and influence the election of officials who will defend and protect the original meaning of the Declaration of Independence and the Constitution. Now that said, when you say "affect the election," that doesn't mean we're going to go out and knock on doors saying, "Vote for Joe Blow." As a Tea Party member I will not do that. As Jim Chiodo, John Q. Citizen, I can say to vote for anybody I want.

Explain the difference between the Tea Party and a standard political party.

JC: The Tea Party is not in any way, shape or form a registered political party. With that said, there is a nefarious group in Michigan that has collected petitions to put a political party on the ballot with the name "Tea Party." Since we do not have the name registered or copyrighted and it's a free country, the Secretary of State is obliged to register the party.

What do the Tea Party meetings focus on?

JC: We are issue-oriented, education-oriented, and personal freedom-oriented. That is what our meetings focus on. We have candidates come and speak and our people ask them questions—although that doesn't mean they come to campaign. It's an education process whereby Tea Party members educate themselves on issues and problems facing our country, and then make their own intelligent decisions based on that education. We hope it will lead the attendees to vote for candidates that do support the principles of our Tea Party.

Is Sarah Palin the face of the Tea Party?

JC: No, there is no face of the Tea Party, unless you hold up a tea bag and it's orange pekoe or green or whatever the hell color it is.

Is there any national Tea Party organization or hierarchy?

JC: It's been said that to get our people or the organizers together to march in one direction is like herding cats. We're individuals with individual opinions, sometimes strong opinions. We do not agree within our Tea Parties all the time. We do agree on our principles.

How does the Tea Party respond to accusations of racism?

JC: It is a desperation move on the part of the Democrats and the progressives that support them. For every sign you can show me with Obama as Hitler or Obama as the Joker, I'll show you 10 of the same exact Photoshop pictures of Bush.

Is there ever an appropriate time where the government should step in and bail out a company or subsidize, for example, a manufacturing plant in Michigan?

JC: Yeah, they can [step in], by promoting free enterprise, by stopping all the regulations, all the fees, all the hidden costs. The way it would trickle down is by lowering taxes to make you invest in a company, take the risk, create a company, build that company, and hire people. That's trickle down. When the government takes the money out of my taxes and gives it to you, that's not trickle down. That may create a job, but I'm paying for it. When you look at $300 million [invested in] 400 jobs, that's $750,000 per job.

For more information you can visit the Holland-Zeeland Patriot Tea Party at www.hollandzeelandpatriots.org.

With Noah Graff

shop doc

Today's Machining World's "Shop Doc" column taps into our 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. You can also check out the Shop Doc Blog at www.todaysmachiningworld.com.

Dear Shop Doc,

We have a machine that occasionally frustrates us to no end. Sometimes a dimension goes out and we can't get it back unless we touch all the tools off again. Then it works fine. I've had it, I'm almost ready to sell the machine. Can you help?

Touched-off in Dayton, Tenn.

Dear Touched-Off,

I've had similar experiences with CNC machines. Normally, when the wear offset value is adjusted, the dimension on the part closely follows the offset change. Life is good when this is happening. Unfortunately, I've had some experiences when it didn't work quite this way because certain offset changes led to a condition where there was not enough material to make the complete part. Basically, I'm referring to a non-cleanup condition, which can be difficult to detect on parts made from a solid bar.

My most-recent experience with a similar problem was on a Takisawa lathe. It cut the OD and right end of the part from a bar, then the pickoff spindle moved over, clamped the part, fed the bar out for the next part, cut the part off the bar, and returned home to finish the part ID and left end.

After a relatively new operator had been running the machine for a few hours and making miscellaneous offset adjustments, he ended up in a situation where he couldn't bring a specific dimension back in. The offsets, which were supposed to control the surface, no longer had any effect. He had no idea what he did to make this happen and attempts at resolving the situation made things worse.

Working with a more experienced operator, we inspected the tools in the machine to make sure none had built-up edges or other problems. They were all fine. Next, we tried to paint the end of the bar with layout dye and verify that the tool was actually cutting the part. We found that it wasn't even touching it anymore. This was an example of the proverbial "I keep cutting it, but it's still too short."

The machined surface on the end of the part was the same surface that was left over from the previous part cut-off. The bar was no longer coming out far enough to allow for full clean-up of the surface.

To find out why, I looked at the program to determine how far the bar was fed after cut-off and calculated how much cleanup stock was available on the ends. The total cleanup stock was only 0.335 mm, or about .0065" per end. It was small enough to increase the chances of this problem occuring.

As it turned out, the operator had made a Z- change to the cut-off location. By making this change, he actually reduced the bar protrusion past the main spindle. The machine relied on a certain amount of bar-length from the main spindle to ensure enough clean-up stock on the right side of the part.

The solution was to simply move the cut-off tool 0.2 mm

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We'll help solve your problem, then publish both the problem and solution in the next issue of the magazine.

in the Z+ direction, which allowed a full cleanup of both ends of the part.

In this example, the problem was with both the roughing and finishing tools. I have seen other instances where the rougher removed too much material and the finisher didn't have enough clean-up stock remaining.

A relatively inexperienced operator may not have had a full understanding of how the program and machine functioned.

The problem of too little clean-up stock can be fixed easily, as can creating some type of visual reference for the operators to use.

If you are having this type of problem with your dimensions and wear offsets, pull out the layout dye and make sure the tools are actually cutting the surfaces as intended. Give the operators training on how to identify and remedy this situation. Make some changes to the program to reduce the chances of this problem occurring.

Mark Bos
Robert Bosch Fuel Systems

Mark Bos is a manufacturing process engineer with Robert Bosch Fuel Systems in Grand Rapids, Mich.

A Boeing 787 Dreamliner in flight.
Illustration courtesy of Boeing.

By Barbara Donohue

Where's the Steel?

Composites and graphite require a new way of thinking about machining

You might not normally think of making things out of carbon, but lately the material of the future is carbon fiber reinforced polymer (CFRP) as used in the new Boeing 787 airliner. In a whole different approach to commercial aircraft design, body sections of composites act as both skin and structure.

Workpieces made of graphite, another form of carbon, are machined for use in many industries. Graphite's electrical conductivity and high temperature capability suit it for a wide range of applications.

More fiber

A composite material is made up of two or more different materials that keep their individual characteristics. For example, fiberglass contains a plastic material reinforced with glass fibers. Many metal/metal composites or metal/ceramic composites are also in use, but won't be covered here.

In a fiber reinforced composite, the geometry of the reinforcement fibers, whether parallel, random, or woven, and the proportions of fiber and resin (epoxy or various plastics) can tailor the mechanical properties of the material to a particular application. In high stress areas, different configurations of materials, like layered sandwiches, provide added strength.

In an aircraft such as the 787, composites' high strength-to-weight ratio allows designers to minimize the weight of the craft, reducing fuel consumption. CFRP and other composites also generally require less frequent maintenance, and this reduces upkeep costs. Over the life of the airplane, the savings could add up to the original cost of the plane.

Composites also fit well in such large precision components as wind turbine vanes.

Cutting carbon

When machining graphite and CFRP, you'll need to take into account their special characteristics.

First, rather than cleanly shearing as metal will usually do, these materials fracture, leaving you with fine graphite powder or little chunks of plastic and carbon. The powder from graphite or small shards of carbon fiber are abrasive and can quickly wear cutting tools.

These materials generally have a higher coefficient of thermal expansion than most metals, so they can shrink and grow more than you'd expect with changes in temperature. In precision work, especially, you must work in climate-controlled space and allow parts or blanks to come to room temperature before cutting or inspecting.

Because these materials are somewhat porous, you need to cut them dry, so they won't absorb coolant which can cause problems later on.

These materials are expensive. A 12-inch square of CFRP an inch thick might cost $1400, or 40 or 50 times the cost of a similar-sized piece of graphite and 150 times the cost of aluminum stock, said Peter Guercio, vice president of sales and application support at Graphite Machining Services, Inc., Tempe, Ariz.

Composites, by their nature, are created at near net shape, and often the only machining required is a bit of milling along the edges and drilling holes. Because the parts can be quite large, too large for available machining centers, much drilling has been done by hand, said Kevin Mayer, aerospace manager at Sandvik Coromant, Fair Lawn, N.J.

Graphite material and applications

Graphite is a form of carbon. It occurs in nature, but the type of graphite used in industry is manufactured to exacting specifications.

"What we use is petroleum coke, a byproduct of oil refining," Guercio said. The process, which takes three to six months, starts with superheating and cleaning the petroleum coke, mixing it with binders and then subjecting it to heat and pressure. Then the material is graphitized, a heat treating process that changes the material's structure.

Graphite is available in many forms and grades for different applications. Machining parts with a good surface finish requires a fine-grained grade of graphite, for example.

The blocks of graphite his shop starts with are 12" x 20" x 40". "Basically, you're dealing with a coffin that weighs 1200 or 1300 pounds," Guercio said. The first step in machining is to saw the blocks into pieces.

Applications for graphite cover many industries. Graphite crucibles take advantage of high temperature capability. EDM tools take advantage of graphite's electrical conductance and stability. Bearings and bushings make use of graphite's low wear rates and lubricity.

Many industries use graphite parts, including semiconductors, glass working, electronics, electrical and mining/refining. "I'm actually shocked what people use graphite for," Guercio said.

Composite materials and applications

The fiber or fabric reinforcing material, pre-impregnated with epoxy or other polymers, known as "prepreg," is laid into a mold of the desired shape. It is cured, often under the pressure and heat of an autoclave. The mechanical properties of a composite depend on its components, their proportions, and the process by which the part is assembled and cured.

Left Top: The Boeing 787 Dreamliner nose section is a single composite part, shown before doors and windows were cut.

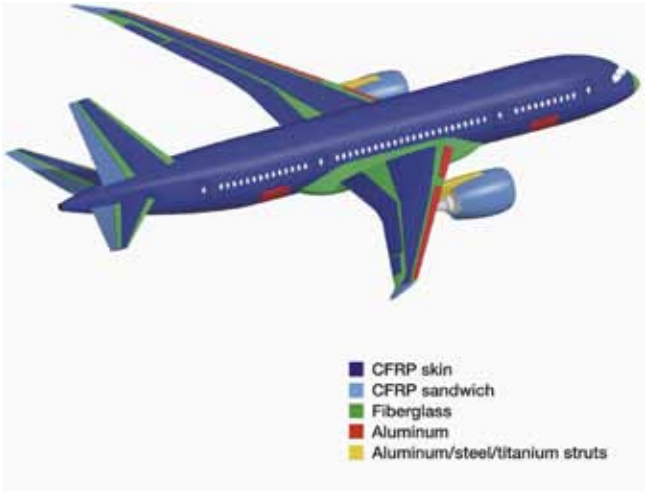
Left Bottom: Building the Boeing 787 Dreamliner fuselage sections as full barrels with integrated stringers reduces the number of parts in the airplane, improves overall aerodynamic performance, and helps make the airplane more fuel efficient.

Above: Boeing 787 Dreamliner horizontal stabilizers attached to the tail cone, with the vertical fin in the background.

Below: Boeing 787 Dreamliner, showing where various materials are used.

Opposite: Boeing 787 Dreamliners in the final assembly facility, Everett, Wash.

Photos courtesy of Boeing.



The many kinds of composites have innumerable applications. The carbon composites discussed here have been used for decades in military aircraft and now in commercial craft and ground-based vehicles. The place many people encounter carbon composites is in recreational equipment like tennis rackets, golf clubs, masts for windsurfers, bicycle frames.

Machines for graphite and CFRP

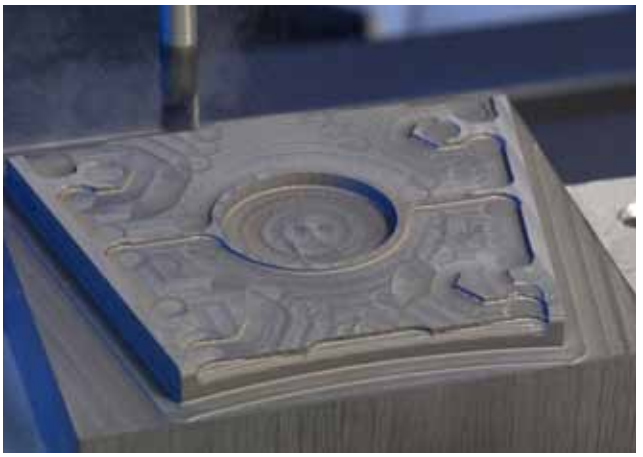
Since you shouldn't use coolant with these materials, you may want to use a cold air gun, which can both cool the tool and remove the dust from the cutting area.

When machining graphite, you need to keep three things in mind, said Bill Howard, product line manager for vertical machining centers at Makino, Mason, Ohio.

First, you'll need a fairly high RPM spindle. Graphite cuts freely, so it's pretty much wide open —you can cut it as fast as you want. Makino offers 20, 30, 40 thousand RPM machines. Horsepower and torque are not that big of a concern.

Since cutting forces are small, he said, you can have aggressive feed rates.

Second, you need to have a control capable of extremely precise feeding. It's one thing to have a car go fast if you're



Top: Rolls of prepreg composite material.
Photo courtesy of Innovative Composite Engineering.

Middle: Machining graphite

Bottom: Makino's S56 vertical machining center with graphite package has wet and dry hard milling capabilities but can also be configured for graphite milling.
Photos courtesy of Makino.

going in a straight line. But if you're contouring in 3D your control needs to be able to control overshoot and undershoot. "Once you start spinning the spindle at high RPM, you need to have control over the feeding," Howard said.

Lastly, you need to be able to handle the dust and keep it away from the operator and the workpiece. "The concept we use is to put a slight vacuum in the work zone and pull air in at the top of the operator door and across the work zone," said Howard, creating turbulence so the dust doesn't settle on table or workpiece.

"It's a dirty business," he said. "Mostly we have point-of-contact collection, as the graphite is being cut. We create custom dust collectors – at the tool or the fixture. " The dust collectors have HEPA (high efficiency particulate air) filters to catch the extremely fine dust particles. "Particles of graphite tend to destroy your machine," said Guercio. They're abrasive. They conduct electricity.

Makino offers a number of vertical machining centers designed for graphite, and a multipurpose vertical machine, the S56, which, with a special graphite package, can machine graphite.

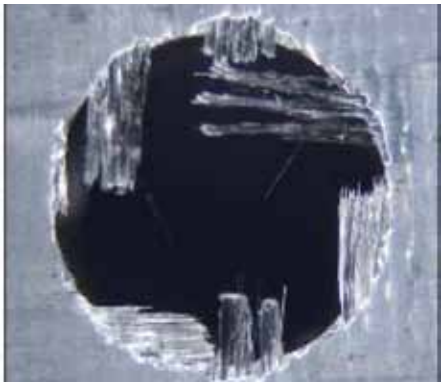
Tooling for graphite, CFRP, and other composites

Due to its abrasiveness, graphite can quickly wear down tools. For precision work, you should use carbide tools with appropriate coatings, Guercio said. "Make sure you use tools from well-known manufacturers," he said, "or the coating will crack right off when you machine graphite."

You have to deal with multiple materials when you cut composites. Tool manufacturers have developed specialized drills and other tools to help alleviate some of the problems. Drilling presents particular challenges.

With sandwich composites, you may be drilling through layers of vastly different materials, such as titanium and CFRP. The CMD drill from Precorp, Spanish Fork, Utah, is designed to give consistent hole size from one layer to the next through different materials, said company president Rich Garrick.

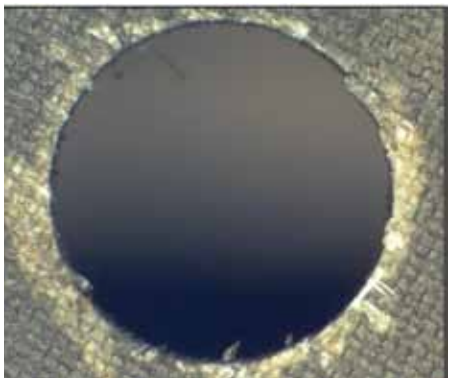
Drilling CFRP may result in separation of the layers of material—delamination—or splinters of fiber may break out. Sandvik Coromant offers drills to prevent these problems. For composites with relatively high fiber content, splintering tends to be a problem. The CoroDrill 854 can alleviate this problem with extra cutting edges that sever the fibers on the hole diameter. For resin-rich composites, Sandvik Coromant offers the CoroDrill 856 designed to alleviate delamination problems.



Left: This hole drilled in composite material shows fraying and splintering of the material.

Right: CoroDrill 854, designed to prevent splintering and fraying.

Photos courtesy of Sandvik Coromant.



Left: This hole drilled in composite material shows delamination around the edges.

Right: CoroDrill 856, designed to reduce delamination.

Photos courtesy of Sandvik Coromant.

Polycrystalline Diamond (PCD) coatings or edges help tools to last. Crystallume and Precorp have processes for incorporating a section of PCD in a tool just at the cutting edge.

Tricks of the trade

Shops experienced with machining these challenging materials have learned how to tame them.

"Graphite is black magic, no pun intended," said Guercio. "You really need to know what you're doing. Err to the side of caution, especially when tolerances are a concern. Take your time, measure your part, and gradually ramp up your feeds and speeds until you optimize [the process]."

When drilling through a part made up of layers of radically different materials, you should program different spindle speeds for each material.

Because graphite and composites wear tools so fast, you'll probably want to monitor and manage the tools to keep good product coming off the machine. Howard suggested using laser automatic tooling measurement. The spindle periodically moves the tool into the path of the laser, which can not only measure the length and diameter of the tool as it spins, but some systems can detect the tool's form and trigger a tool change if it is worn or if an edge is chipped.

More to come

With development of advanced composites, you'll be seeing more and more of them showing up in many applications. Even if a part comes in made from metal, it's quite likely the customer has looked at making it in composite, Mayer said. "There is this tidal change taking place. What's really happening here is being driven through these more flexible, more tolerant, lightweight materials."

For more information:

Boeing: www.boeing.com

Graphite Machining Services, Inc.: www.graphitespecialists.com

Makino: www.makino.com

Precorp: www.precorp.net

Sandvik Coromant: www.coromant.sandvik.com/us

CNC fiber layup videos:

http://www.ingersoll.com/news/Mongoose/Mongoose_V1-081212.mov

http://www.mag-ias.com/en/mag/products-services/composites/tape-laying.html

The following companies have provided information on stainless steel and aluminun bar

product focus

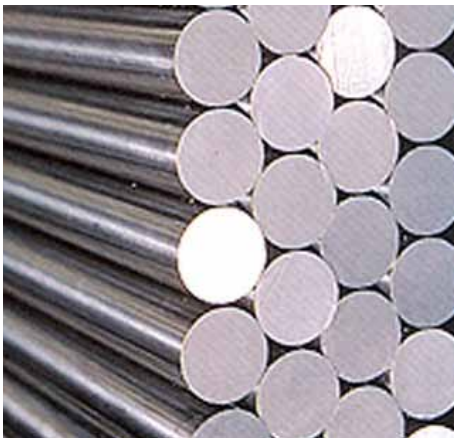
The price of metal is crucial to the competitiveness of North American machining firms. Currency swings certainly affect the end user price, but equally important is the scrap value of chips and transport costs. Machinability does not show up in the quotes, but consistency of material is a demand of people who deal with metal on the shop floor every day.

With transportation and handling costs factored in, today's domestic material is competitively priced and may even have a price advantage in the spot market. This is one reason why companies like Caterpillar and GE have recently announced expansions in American manufacturing and a pullback of production in China. Below is information about products related to precision machining offered by aluminum and stainless steel companies.

▶ Alcoa Inc.

Alcoa's UltrAlloy® 6020 is a lead free, cold finished aluminum alloy featuring machinability, a high anodizing response, good surface finish and corrosion resistance with high dimensional cold finished tolerances. The T8 temper offers excellent residual stress control for applications requiring tight dimensional control after machining. UltrAlloy® 6020 is used for automotive transmission valves, brake pistons, air conditioning compressor pistons, CATV connectors, hinge pins, camera parts, and tripod fittings.

For more information, please contact Alcoa at 412-553-4545 or visit www.alcoa.com.



◀ Carpenter Steel

Carpenter VIM-VAR M-50 high-speed steel uses vacuum-induction melting (VIM) and vacuum-arc remelting (VAR) processes, and exhibits strong resistance to multi-axial stresses and softening at high service temperatures, as well as a resistance to oxidation. VIM-VAR M-50 high-speed steel has been used in a wide variety of applications in the bearing and missile industry for components, which require high wear resistance and strength at elevated temperatures, and for bearings in aircraft and gas turbine engines operating at service temperatures up to about 700 degrees Fahrenheit. This alloy should be considered for use in tooling applications where high levels of performance are required.

For more information, please contact Carpenter Steel at 610-208-2000 or visit www.cartech.com.

▶ Kaiser Aluminum

Precision Rod® is available in Kaiser's exclusive 6061 alloy KEP 1 in sizes ranging from .625" up to 3" in diameter. The enhanced 6061 alloy KEP 1 used in Kaiser Select Precision Rod increases mechanical strength and overall hardness, resulting in a consistently higher mechanical performance level. Kaiser Aluminum utilizes innovative new die designs and a certified Press Control System to dramatically improve rod straightness. As a result, Kaiser produces Precision Rod to a straightness of no more than 0.100" in 12 feet—a full 1/3 improvement over the Aluminum Association Standard of 0.150" in 12 feet. Precision Rod generates compact chips from form tools allowing machinery to operate smoothly, minimizing downtime and lowering costs. It offers improved and repeatable piece-to-piece, lot-to-lot performance over other extruded aluminum products.

For more information, please contact Kaiser Aluminum at 800-873-2011 or visit www.kaiseraluminum.com.

◀ Outokumpu Bar

Outokumpu introduces 303 HST™, a PRODEC-treated stainless steel bar engineered to optimize machine performance in high volume screw machines and other intricate machining applications. 303 HST also delivers superior surface finish and product consistency. Designed for high-speed-machined products the 303 HST uses cold drawn 303 under one inch; primarily small, intricate, threaded fittings, Available in cold-drawn round bar and hex bar from 3/16" through 1" diameter, 303 HST is chamfered, boxed and 100 percent Eddy-current tested. Round bar is centerless ground to half standard size tolerance for precise machining.

For more information, please contact Outokumpu Bar/Long Products at 888-458-4600 or visit www.outokumpu.com.

▶ Sapa Extrusions

Sapa's rod and bar products offer quality and consistency for meeting customer requirements. Integrated capabilities in both direct and indirect extrusion technology enable us to offer a wide range of specialty extruded aluminum rod and bar products which have a combination of properties and close tolerances. In addition to their attractive appearance and corrosion-resistant finish, they offer high performance properties and excellent machining characteristics. With our in-house billet casting capabilities, we can offer special chemistries that are more precise than, or customized from, Aluminum Association standards. In conjunction with our in-house heat treating operation, we can produce products with special tempers to enhance formability and machinability.

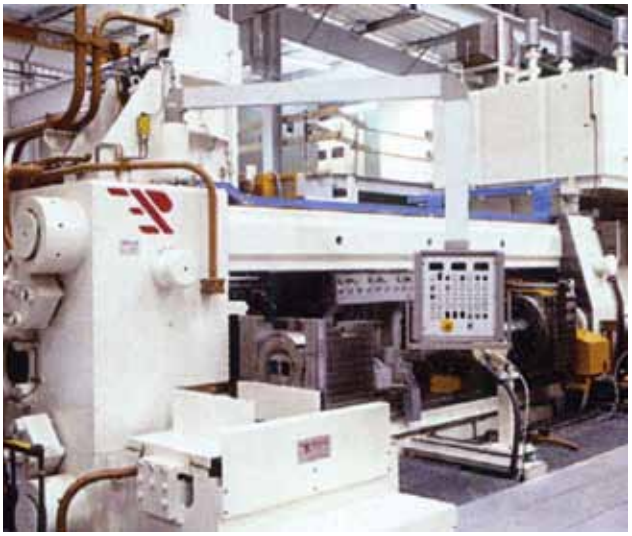
For more information, please contact Sapa Extrusions at 800-547-0790 or visit www.sapagroup.com/us.

product focus

▲SCHMOLZ + BICKENBACH USA

303 UGIMA® is Ugitech's improved machining grade steel. It represents the latest generation of Ugitech's popular UGIMA® family of high machinability grades. Through the use of new and beneficial modifications in the steel-making process, 303 UGIMA® builds upon the proprietary UGIMA® manufacturing process to allow for excellent machinability across a wider range of operations and cutting conditions. When compared with older versions, 303 UGIMA® allows for superior machinability at both low and high speeds, in cam-driven and CNC machines, and with high-speed steel or carbide tooling.

For more information, please contact SCHMOLZ + BICKENBACH USA at 630-871-7456 or visit www.schmolz-bickenbach.us.



▲ Western Extrusions

Western Extrusion, an aluminum extrusion company, has a new 5100 Ton press that is capable of producing profiles up to 20" wide and 25 pounds per foot. The new press will be installed beside Western Extrusions' existing 5000 Ton 14" press and will expand their capacity and flexibility across all markets including building and construction, transportation, electrical, solar, consumer durables, machinery and equipment, and distribution products. Western Extrusions has five presses capable of producing shapes from 0.100 lbs/ft. to 25 lbs/ft., shapes up to 20-inch circle size, and lengths up to 60 feet.

For more information, please contact Western Extrusion at 800-888-6063 or visit www.westernextrusions.com.

CURRENT INVENTORY

Serviceman available with machine purchase. All machines can be equipped with threading, pickoff or thread chasing. As you want it.

WICKMAN
5/8" 6-spindle, thdg., pickoff, 1981
1" 6-spindle, 1985 (8), rebuilt
1" 8-spindle, 1980
1-3/8" 6-spindle, 1978
1-3/4" 6-spindle, 1965, 1984 (4)
1-3/4" 6-spindle 1984
1-3/4" 8-spindle, 1970
2-1/4" 6-spindle, 1962, 1973-79 (3)

ACME
1" RAN6 1970
1-1/4" RA6 1978-61 (9) - some w/threading pickoff
7/16" RA6, 1975 & 1964
1-1/4" RB8, 1981, thdg., pickoff (2)
1-5/8" RBN8, 1979, thdg., pickoff (3)
1-5/8" RB8 thdg., pickup '68-72 (5)
2" RB6, 1967 & 1980
2" RB8, 1966 (2)
2-3/8" HSC chucker, gov't surplus
8" RPA8 chucker-as new
3-1/2" RB6, 1970

INDEX
G200, 1997, Index
G300, 1997, Index
ABC 60mm Index 1996
B60, 1985

SCHUTTE & GILDEMEISTER
SF51, 1985-79 (3)

SWISS
Hanwha ML26H
Star SR20, 1999
Tornos Deco 26 2006
Citizen L-20, 1999

HYDROMATS & ROTARY TRANSFER
V12 Trunion (1990)
HW 25-12, 1985, 1994, 1997
HB45-16, 1989 - '97 chucker
36-100 Recess unit
Pro-20, 1998

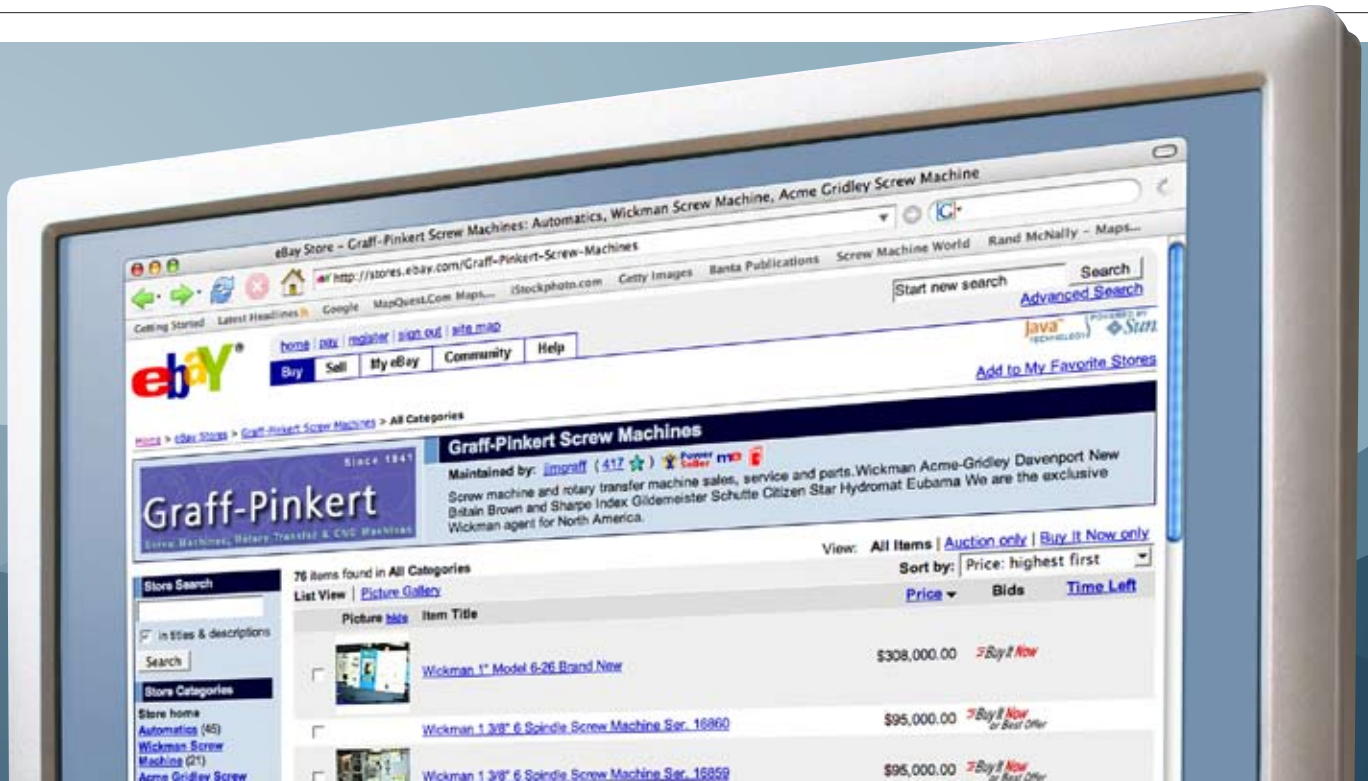
EUBAMA
S-12 1998 (2)
S-8.1 1982

ESCOMATICS
D9 (2), 1995
D6SR (2)
D-2, D-4, 1975

MISCELLANEOUS
Strausak CNC Tool & Cutter Spindle 1999
Cincinnati 107-4 centerless
2 5/8" RB6 spindle bearings
C-29 Index long turning
3-1/2 RB6 thdg. attachment
IMG recess 1-5/8" RB6 (2)
Hydromat recess unit and flange 36-100
Siemens varispeed motor off Wickman
Wickman thread chasing 5/8" – 3 1/4"
Every Wickman spare part
Haas VF3-2000
Okuma Crown, barfeed, 1999 (3)
Detroit Horizontal Broach-gov't surplus

gpc

WICKMAN AND INDEX ASK FOR OUR IN-HOUSE PARTS EXPERT



swarfblog.com

If you're only reading "Swarf" in the magazine you're missing out! Every week, thousands of people log on to our Web site to read and comment on new articles on current interesting topics. Below are some recent comments from our "Swarfblog" readers at www.todaysmachiningworld.com.

What's Religion Got to Do With It?

Lloyd Graff blogged about the recent mixed Marriage of Chelsea Clinton to Marc Mezvinsky. He then confessed that he takes pleasure in the success of Jews and admitted to voting for Al Gore because Jewish Joe Lieberman was his running mate. He asked readers, "Do you pay attention to the religions of famous people?"

Bill Hopcraft August 4, 2010 at 10:48 a.m.
Personally, I don't give a damn if you're Christian, Jew, Muslim or anything else for that matter—as long as you're a part of some faith. Atheists scare me—they've got nothing to lose. As for the Clintons, Bill and Hillary are a far cry from royalty and I've got no respect for either. I do, however, wish all the best to Chelsea and Marc.

Buelldog August 3, 2010 at 12:44 p.m.
As a gentile, I feel your comments are racist in nature. I am not an anti-Semite. Like many Americans, I too feel Israel has a right to exist, and I am proud that the United States has stood by her and provided support. Your comments tell me that someone like you could never place the same value on someone like me, because I'm not Jewish. Racism? Ethnocentrism? What's the difference?

Should the Government Not Help Michigan?

Noah Graff blogged about Obama's visit to the new government subsidized battery plant in Holland, Michigan. He asked readers whether or not they thought the Obama Administration should have helped build the plant.

Ken Pendleton July 19, 2010 at 3:11 p.m.
Your question makes no sense. If Ford and GM are going to need batteries and it is expected to be profitable, then there are plenty of investors waiting to build the plant. Why should Obama be involved in making the decision of who builds it and where the plant is built? If the truth be known, this is another proposition that is not profitable and would not be built without government intervention. Like ethanol, there will soon be more plants to be removed for scrap value.

Shawn Ferguson July 16, 2010 at 10:59 a.m.
I pose a question for everyone opposing the help the government is giving. If YOU and YOUR company were given hundreds of thousands of dollars to build a new plant, hire new people, and generate more income—would you turn it down? Because if you are true to your ideals espoused here and believe that free markets should totally determine growth and recovery, then your answer must be no. I'm not so sure it would be. I'm not judging anyone—it's just something for everyone to think about.

Purchasing Politics

Lloyd blogged about Edsal Manufacturing, a large Chicago-based producer of steel shelving that can't get distribution from Costco, despite the company's ability to sell a superior product for less money than its Chinese competitors. He asked readers if they thought there should be an inspection fee or tax on every shipping container that arrives in the U.S.

Gopal July 30, 2010 at 11:05 a.m.
I don't think that non-tariff barriers will solve the problem. I believe that the market is the ultimate decision maker. If Edsal makes world class product with world class prices its products will sell on their own. Edsal's success with other retailers should be an automatic endorsement of its techno-commercial prowess. I would suggest that Edsal run a co-promotion with its channel partners and generate "pull" for its products—no one can keep a good thing down once the secret is out.

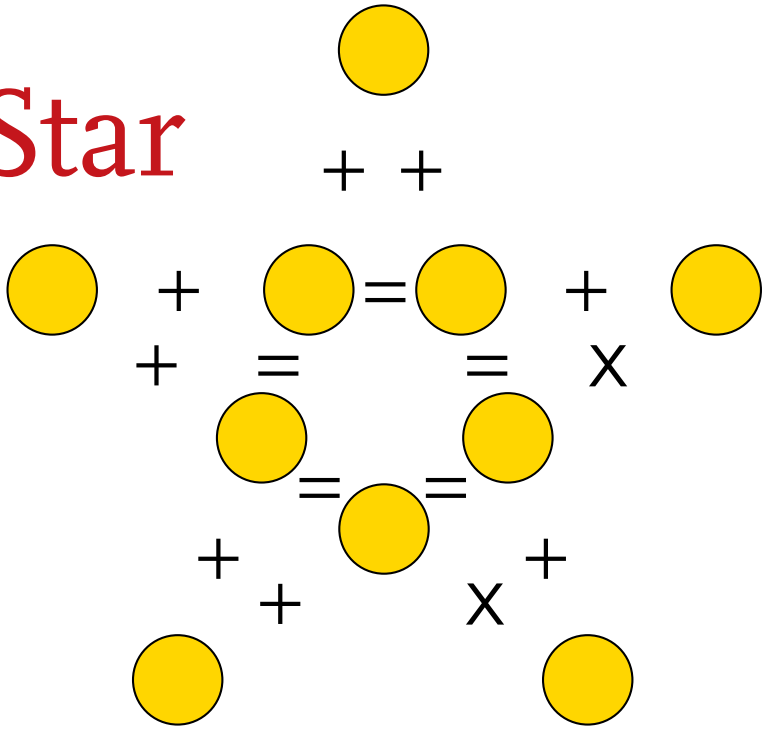
Join TMW's email list comprised of over 25,000 readers, to receive articles as soon as they're posted. Email emily@todaysmachiningworld.com with "add me to your email list" in the subject line.

Send in your answer—quick!
Fax Emily at 708-850-1334, or email
emily@todaysmachiningworld.com

think tank

The Gold Star

Insert the digits 0-9 into the circles to make the five equations true when read from left to right. Each digit is used exactly once.



Answer to the July/August Puzzle:

The letter M.

Who Can Use the Non-Math Side of Their Brain, or knows how to Google?

Abdul Khatri of Kamet Manufacturing Solutions in Sunnyvale, Cal. **Jerry Levine** of Chicago, Ill.; **Richard M. Hanus** of Lockrey Manufacturing in Toledo, Ohio; **Dirc Lindeman** of W.B. Jones Spring Co., Inc. in Wilder, Ky.; **Ashlee Caputo** of Mountain Trails Middle School in Phoenix, Arizona; **Dean Kent** of Synthes, Inc. in Monument, Col.; **Amy Newell** of Lockrey Manufacturing. in Toledo, Ohio; **Bob Sandora** of Solar Atmospheres in Western, Pa.; **Cathy** and **John Mandell** of Point Technologies in Austin, Texas; **Mike Burbes** of Roton Products, Inc. in Kirkwood, Mo.; **Brian Adams** of R.F. Mau Co. in Lincolnwood, Ill.; **Roger Stillman** of Metric & Multistandard Components Corp. in Hawthorne, N.Y.; **Jason S. Habib** of Hi-Tek Manufacturing, Inc. in Mason, Ohio; **Kevin Albright** of Gear Headquarters in Kansas City Kan.; **Douglas Stevenson** of Wilson's Machine Products, Inc. in Winter Park, Fla. New Baltimore, Mich.; **Rick Stein** of Key Products, Inc. in Milwaukee, Wis.; **Ron May** of Hunter Engineering Company in Bridgeton, Mo.; **Pat Bresnahan** of Genevieve Swiss Industries in Westfield, Mass.; **Cara Bradshaw** of Midwest Screw Co. Inc. in Racine, Wis.; **Robert W. Richmond** in Mequon, Wis.; **Lon Adamietz** of Bergmann Machine in Minneapolis, Minn.; **John Schmitz** of Orscheln Products in George L. Hernandez of Kohler Co. Faucets Plant in Malvern, Ark.; **Dan Evans** of Evans Machine & Fabrication in Monmouth, Ore.; **Joe Casioppo** of Hambleton Design in Collinsville, Conn.; **Sheldon Wheaton** of Garmin International; **Samantha Orr** and **Zac McDaniel** of A-1 Machine Works,Inc. in Bristow, Okla.

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To Buy or Not to Buy

I am beginning to reassess the importance of owning things like real estate, cars, books and perhaps capital equipment in America.

We are now in the crest of the third wave of home foreclosures as the idiotic subprime mortgage blister oozes on. If there was ever a strong argument for renting housing, the massive drop in home values makes it. I live in a home we bought 30 years ago for $130,000 in Olympia Fields, Illinois. I paid off the mortgage several years ago. My wife and I have put at least $200,000 more in renovations into the property over the years. If we tried to sell it today we would probably struggle to get $180,000 for the five-bedroom home on half an acre in the southern suburb where the 2003 U.S. Open Golf Tournament was held.

I think the idea that a house should be one of the principle repositories of wealth for people is suspect. It is a proposition that has been sold by the real estate industry so hard that it has become a pervasive belief in this country. The second home, or the vacation home, has been pushed hard too, which is why so many people own homes that are vacant 95 percent of the time but still burning money.

My daughter, Sarah, lives in a totally different real estate market—Palo Alto, California. Prices in her town, home to Stanford University, Hewlett Packard, Facebook and Tesla Motors, are as high as ever. Home prices never fell and now are rising again. But does it make sense to buy a home there? She and her husband Scott don't think so.

If my house sat on the same lot where Sarah's three-bedroom rental sits, it would be worth 10 times its value in Olympia Fields, Ill. I estimate it would be worth $1.8 million and you could expect to sell it in one month if you put it on the market.

> "If my house sat on the same lot where Sarah's three-bedroom rental sits, it would be worth 10 times its value in Olympia Fields, Ill."

Sarah and Scott have calculated that their best option is to rent a home in their crazy Palo Alto island of prosperity. They figure that one third of the houses on their block are rented. People come and go a lot in the Silicon Valley, which makes leasing particularly attractive, but the average home occupancy in the U.S. is seven years, which is not much different than Palo Alto. Sarah gets a special tax deduction as a member of the clergy, which makes house rental the equivalent of ownership.

Sarah has observed that most of the rental homes in her area are owned by Chinese and Japanese people, who take a long-term perspective on owning property. Their belief in the safety of owning a house in America trumps the meager returns they get from Palo Alto home rentals. There seems to be an insatiable demand for houses to rent if they are priced at a level that values the real estate at less than half of the current selling prices on a cash return basis.

Olympia Fields, Illinois, and Palo Alto, California, are completely different markets, but in both cases house rental from an economic point of view makes sense. In the deflationary market where I live, why buy? In a buoyant market where Sarah lives and people from around the world will pay double what a house is worth, why buy?

This brings us to the interesting question of whether or not to buy precision machining equipment. Should a machine be considered a repository of wealth, or a tool to be rented like a Rototiller in the spring?

Lloyd Graff