

# CNC WEST

**THE MAGAZINE FOR WESTERN METAL WORKING MANUFACTURING**

## TURNING ISSUE

- **GOING BIG BY MACHINING SMALL**
- **TURNING OVER A NEW LEAF WITH CNC**
- **ONE AND DONE WITH A SEA OF TSUGAMIS**
- **...Plus Much Much More**

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35 YEARS**

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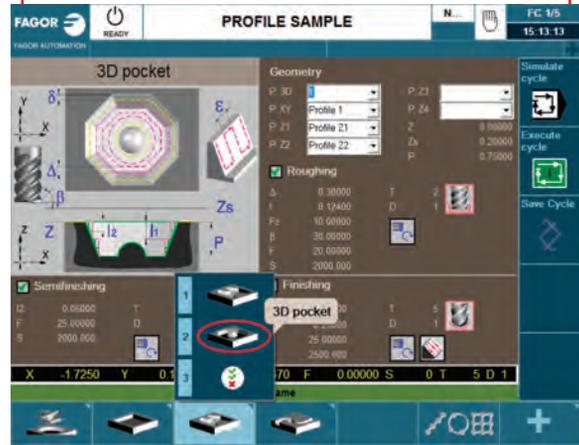
1

Select your cycle of choice



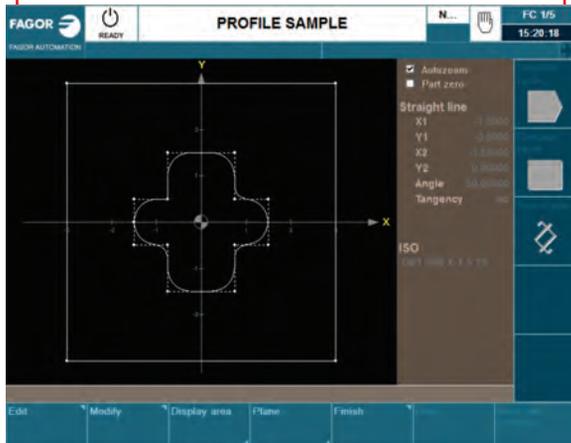
2

Fill in the cycle variables directly from blueprint in seconds



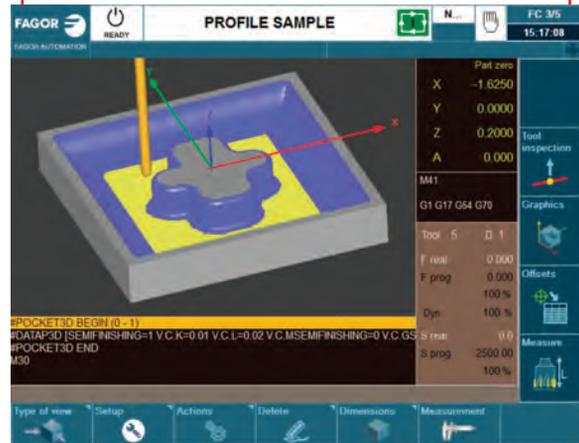
3

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### MCL-35f Features

- Fanuc M20iA-35M Robot
- Estimated 60lb part payload
- Load / Unload Station
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- 15" Touch screen HMI

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\*Plus installation by Trinity & Freight



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# CNC West

June/July 2017 • Volume XXXV No 5

## Feature Stories

**Boeing Everett Plant Celebrates 50 Years ..... 20**

**Going Big by Going Small**  
*An Oregon shop specializes in Swiss work ..... 22*

**Turning Over a New Leaf with CNC**  
*A wine country shop upgrades with a CNC Lathe and the results are fruitful ..... 30*

**Aerojet Rocketdyne Completes Critical Design Review for AR1 Engine ..... 38**

**One and Done in a Sea of Tsugamis**  
*An Arizona shop turns out almost a million parts a month ..... 40*

**Shrinkfit Helps Birdwell Soar**  
*A Washington shop finds out that quality pays..... 48*

**Organizations Shaping the Made in America Movement 50**

**Cad/Cam Perspective**  
*Tim Paul takes a look at doing it easy or hard ..... 54*

## Departments

4	Editorial	56	Industry News
8	Executive Hotline	72	New Products



Greg Cde Baca is a second-generation machinist and president of PS&M (Pacific Swiss & Manufacturing Inc.) in Clackamas, Oregon. Since the early 90's his big plan was to machine small, but it took until 1995 to make that a reality.  
- Page 22



Alex and Michelle Mitchell purchased York Machine and have increased business since adding CNC to the Shop  
- Pg.30



Tim Radziwill of Monogram Aerospace Fasteners has over a century of manufacturing know how in a very niche market..  
- Pg.40

**Coming in Aug/Sept 2017**  
EDM, Waterjet & Grinding Issue: This issue provides readers with profit-making ideas in three major metalworking areas – EDM, Waterjet and Grinding. We'll visit western plants to report on innovative methods and equipment involving wire and sinker EDM, Waterjet and new ideas in grinding. *We will also preview the Westec Show*  
*Editorial: July 21, 2017*  
*Ad Space: July 28, 2017*  
*Ad Material: August 8, 2017*



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*June/July 2017*

The oldest regional industrial publication serving the Western States manufacturing managers, owners and engineers from 1 employee to those larger plants of 5,000 or more. Its editorials feature numerical control applications in all size machine shops, tooling, programming, robotics and shop operations, training personnel, financing of new equipment, cutting tools and all related manufacturing requirements. Coverage extends to all of Arizona, California, Oregon, Washington, Nevada, Utah, Idaho, Colorado, New Mexico and Texas.

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# You Can't Say Swiss Without Smiling

A Swiss-style lathe is a specific design of lathe providing extreme accuracy (sometimes holding tolerances as small as a few tenths of a thousandth of an inch—a few micrometers). This June/July Turning issue has two articles on western region companies that specialize in Swiss machining.

Our cover article written by Sean Buur is about an Oregon company that makes tiny, tiny parts. In-fact the parts are so tiny on their website they put 7 parts on a penny and have room to 10 put times more. Not everyone wants to tackle that kind of work but Pacific Swiss & Manufacturing loves the challenge.

Another article by Sean Buur about Swiss CNC machining is about Monogram Aerospace. While California based, they opened a shop in Arizona that started up in 2013 with one single Tsugami. They now have 21 Tsugami's and produce nearly 1 million parts per month.

Swiss is also a cheese and wine goes great with cheese. While not a Swiss shop, York Machine Works in the wine country in California makes products for numerous industries including for wineries. When the owner bought the shop, they had all manual machines but now have added a Romi turning machine that has been instrumental in bringing in new work and tackling jobs they could not have done before.

We also have an article about a shop in Washington. That means there are stories from Oregon, Washington, Arizona and California in this issue. That along with a few more articles and our popular Hotline and New Product and Industry News sections and our regular feature from our regular Cad/Cam columnist Tim Paul. Put all that together with the ads of companies that show they really want western region sales by advertising with CNC WEST and I think you have the ingredients for an enjoyable issue.

Enjoy!

Sincerely

*Shawn Arnold*

Shawn Arnold

Publisher

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# EXEC HOTLINE

## Boeing Honors Three Puget Sound-area Suppliers for Big Performances

Boeing suppliers from greater Seattle snared a quarter of the 2016 awards the jetmaker handed to its global aerospace suppliers for delivering high quality products and services.

Boeing said strong performances and close collaboration with suppliers helped its various business units exceed customers' expectations, while contributing to the Chicago-based company's overall financial results. Thirteen companies from around the world, including three from the Puget Sound area, were recognized.

"In order for Boeing to be the best in aerospace and an enduring global industrial champion – a top-performer in all areas of our business – we must have the best team, and our supply chain is absolutely vital to those efforts," Boeing Chairman and CEO Dennis Muilenburg said in a news release.

## GA-ASI, Northrop Receive Pentagon Contracts

Two major producers of unmanned military aircraft received contracts collectively worth approximately \$700 million in mid May. The Pentagon announced the two contract wins on May 16.

General Atomics Aeronautical Systems Inc. of Poway received a \$400 million order for 36 MQ-9 Reaper aircraft, to be built for the U.S. Air Force. Work on the aircraft will keep GA-ASI's production line busy through August 2020.

Northrop Grumman Corp. received a \$304 million contract modification from the U.S. Navy to buy three MQ-4C Triton unmanned aircraft and associated equipment. Work will continue through April 2021.

The Reaper is a large version of the Predator aircraft that the Air Force uses for intelligence, surveillance and reconnaissance, as well as to deliver bombs and missiles.

General Atomics Aeronautical, part of privately held General Atomics, will build the Reaper aircraft to 2016 specifications, the Pentagon announcement said. All work will be done in Poway, CA. The award is a sole-source acquisition, and the Air Force is obligating funds from the fiscal 2016 budget.

Northrop Grumman assembles the Tritons at Air Force Plant 42 in Palmdale, CA. but it manages the program in Rancho Bernardo, CA. Some 43 percent of contract funds will flow to San Diego, the Pentagon announcement said.

## Colorado Might Land New Company

Colorado is among three states being considered for a new headquarters for a 3-D printing company now based in Florida.

DeLand, Florida-based 3D Material Technologies LLC – a division of ARC Group Worldwide Inc. is considering Colorado, Georgia and Daytona Beach, Florida, as the home for its new HQ.

3D Material Technologies' new headquarters facility will focus on production capabilities for printing metal components. The expansion would create 30 jobs.

## Boeing Continues its Blowout of Airbus on Orders in 2017

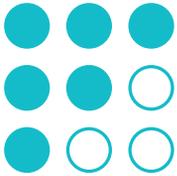
Another month into 2017 has only allowed the Boeing Co. to continue its large lead on rival Airbus for net new commercial aircraft orders for the year. While Airbus had a busier order month in April after amassing only six net orders for the entire first quarter, its total of 23 for the first four months of the year is still well behind the 210 posted by Boeing during the same period.

## Boeing Customer WestJet in Canada Plans new Ultra-Low-Cost Airline

Canadian discount airline WestJet, an important Boeing airplane customer, said in early May it's launching a new, ultra-low-cost carrier in Canada later this year.

The Calgary, Alberta-based discount airline, which operates in Canada much like Southwest Airlines does in the U.S., said in a news release that its new carrier launch is subject to reaching an agreement with its pilots and to securing required Canadian regulatory approvals

Continued on page 96.....

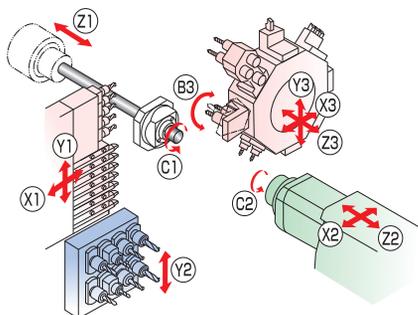


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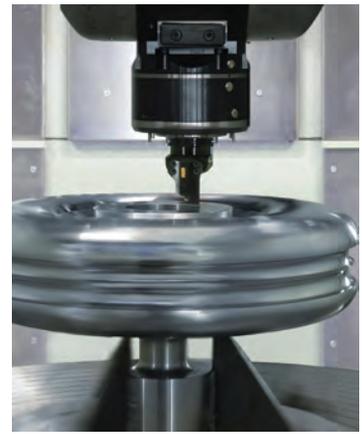
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- Conical teeth for extra gripping power
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- Black oxide for long life
- 2 steps (1 step also available)



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Chuck Model	Chuck Dia	Part Number	Price Per Set
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B-208, HS08	8"	KT-80HJ2	\$408.41
B-210, HS10	10"	KT-100HJ2	\$486.21
B-12, HCH12	12"	KT-120HJ2	\$525.09
B-212, HS12	12"	KT-128HJ2	\$525.09

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						KT-6400F	\$ 91.15	RKT-6400A	\$ 115.42
Kit B208 HS08	8"	0.551	12MM	0.984	2"	KT-8200F	\$ 42.85	RKT-8200A	\$ 89.55
						KT-8400F	\$ 72.88	RKT-8400A	\$ 159.00
Kit B210 HS10, N210	10"	0.630	12MM	1.181	2"	KT-10200F	\$ 47.85	RKT-10200A	\$ 132.47
						KT-10400F	\$ 78.57	RKT-10400A	\$ 213.26
Kit B12 HS12	12"	0.709	14MM	1.181	2"	KT-12200F	\$ 68.57	RKT-12200A	\$ 179.33
						KT-12300F	\$102.82	RKT-12300A	\$ 270.67
Kit B212 N212	12"	0.827	16MM	1.181	2"	KT-12208F	\$ 68.57	RKT-12208A	\$ 179.33
						KT-12308F	\$102.82	RKT-12308A	\$ 270.45

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# Boeing Everett Plant Celebrates 50 Years



In May 1967, Boeing employees moved into a new factory built beside Paine Field near Everett, Wash. Thirteen months later, the group that became known in aerospace legend as “The Incredibles” rolled out the 747.

A half-century later, more than 40,000 employees, customers and suppliers visit Boeing’s largest manufacturing site daily. The hub of wide body factories is home to the 747-8, 767, 777, 787 Dreamliner, the KC-46 Tanker and several derivative programs. Building renovations and new construction tell a tale of continuous improvement and transformation -- including the 1.3 million square foot (120, 800 square meter) Composite Wing Center -- as today’s production system prepares for the 777X.

The company in May commemorated 50 years of Team Everett’s contributions, those changes reflect Boeing’s continued investment in the region, company leaders say. And several employees who joined the Everett site in the 1960s added their unique perspectives about the past and future.

“The 777X represents a tremendous commitment and 787 and our freighters are well positioned – customers love them,” said Bill Rietkirk, a 767 Tanker engine program manager who joined Boeing right out of college in 1966. He believes Everett’s future is bright.

“If we can keep the other programs going, it looks like the company will be building planes in Everett for quite

some time,” he said.

Cognizant of the ‘incredible’ legacy they inherited, employees reflected on those first years at the site.

“Boeing was bringing a lot of people into the company,” Patricia Walters, a technical designer on the 767 program, recalled of the ramp up to support the 747. It also seemed that we were always adding onto the factory and making the buildings bigger to accommodate the newest airplanes,” she said.

Woo Lee, currently on the 747 program, was working in Renton

in 1966 when the Everett site was announced.

“I volunteered and got a job doing operational planning for 747 scheduling and have been here ever since,” he said. First flights and VIP visits are highlights of his time in Everett.

“It is always exciting to see dignitaries and U.S. presidents like Bill Clinton come to Boeing. Naturally, we were very proud of our products and always trying to sneak a peek to see what they were doing,” Lee said.

Among the many other VIPS who have toured and spoken at the site are, in recent years, former U.S. Presidents George W. Bush and Barack Obama; former U.S. Vice President Al Gore; China President Xi Jinping and former Russian President Boris Yeltsin.

You can go see the factory yourself by booking a tour at the Future of Flight here: <https://www.futureofflight.org/boeing-tour-seattle>

Today, Boeing’s Current Market Outlook forecasts 9,100 new widebody airplanes will be needed over the next two decades – a \$2.8 trillion opportunity. Employees and leaders said the 777X and other widebody programs, coupled with a sharp focus on quality and affordability, will help the company compete -- ensuring the likelihood of future first flights and VIP visits.



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# PACIFIC SWISS & MANUFACTURING

Article by Sean Buur & Photos by Sean Buur and supplied by Pacific Swiss & Manufacturing



Greg Cde Baca, president of Pacific Swiss & Manufacturing

## GOING BIG BY MACHINING SMALL

**G**reg Cde Baca is a second-generation machinist and president of PS&M (Pacific Swiss & Manufacturing Inc.) in Clackamas, Oregon. Since the early 90's his big plan was to machine small, but it took until 1995 to make that a reality. Today, Pacific Swiss & Manufacturing Inc. specialize in multi axis CNC Swiss Turning and multi axis CNC Swiss Micro/Miniature machining.

Greg has been a machinist his entire adult life. He began by sweeping floors in his father's machine shop right after high school graduation. "I learned my craft on manual machines," tells Greg on a misty Oregon afternoon. "I progressed to operating and setting up the CNC mills and lathes then ran sales for a number of years." Greg's father built his machining business in Southern California in the 60's before moving to the

Pacific Northwest in the late 70's. "Dad was set in his ways and liked the level of comfort he'd grown accustomed to," explains Greg. "When I went to him about the possibility of expanding into the small parts arena, he wasn't interested. Customers were asking for us to make these small Swiss style parts and we were turning them down." After three long years of telling customers no, Greg was set to tell them yes.

In 1995 Greg was in a position to finance his first Swiss machine and took delivery of a Citizen B12. "I knew the sales rep for Citizen, so that's what I purchased" tells Greg. "It was a B12 with a single spindle and only seven tools. It was the most I could afford and just enough to get the ball rolling. My core idea was precision small parts made in the Pacific Northwest so I named my new company Pacific Swiss Precision."



**Top - Pacific Swiss & Manufacturing work in a variety of metals and plastics. A few of the primary industries they serve are: medical, aerospace, automotive, dental, test and measurement, microwave, linear & motion control.**

**Right - Pacific Swiss & Manufacturing are micro machining specialists. To them micro ranks just above nano manufacturing. PSSM consider micro machining to be anything with a diameter down to .010" and a drilled hole size down to .005. You can see here the size of the parts they manufacture compared to a penny and yes, grains of salt.**



Clackamas Community College has an advanced technology center that trains CNC personnel and Greg spent his first year in business as part of their program. "I was the first person in their new incubator program for startup manufacturing businesses," details Greg. "I took business classes and had a small work space within their facility. When that program came to an end I sublet a 10'x30' space from my dad in the back corner of his shop. He was fair as a landlord, but it was definitely a business to business relationship and he didn't cut me any slack."

Greg added a second Citizen a year later and increased his rented floor space. The same thing happened again in 1998 when he added a third CNC Swiss machine. "It wasn't until I added the third machine that my dad really understood the idea I had pitched him years before," explains Greg. As he was ready to retire in 2000 we discussed and agreed on a buyout. I purchased all the assets of his company and renamed the company Pacific Swiss & Manufacturing." Greg spent the next few years attempting to grow the traditional manufacturing side of the business, but it wasn't performing near as well as the Swiss side. He sold off the standard CNC mills and lathes and reinvested 100% into CNC Swiss manu-

facturing. By 2005 they were a 100% CNC Swiss shop again. Greg had realized his dream of CNC Swiss manufacturing, but by then instead of being a regional source for CNC Swiss parts and micro machining PS&M had become international with customers all over the globe.

Pacific Swiss & Manufacturing has 5000sq.ft., nine Citizen CNC Swiss machines and a full-time staff of 9 people. Medical part manufacturing makes up a large portion of their business, but other industries include: test and measurement, dental, aerospace, electronics, automotive and linear & motion control to name a few. "We work a lot in stainless," tells Greg. "Stain-



**Top - This is Jacob Sims, Customer Service & Logistics Manager. Jacob has been with PS&M 13 years. He is seen here prepping parts for shipping. PS&M has customers all over the world.**

**Right - This sandwich size bag holds 50,000 parts. Part dimensions are .040" dia x .090" long with a .018 diameter hole drilled .080" deep.**



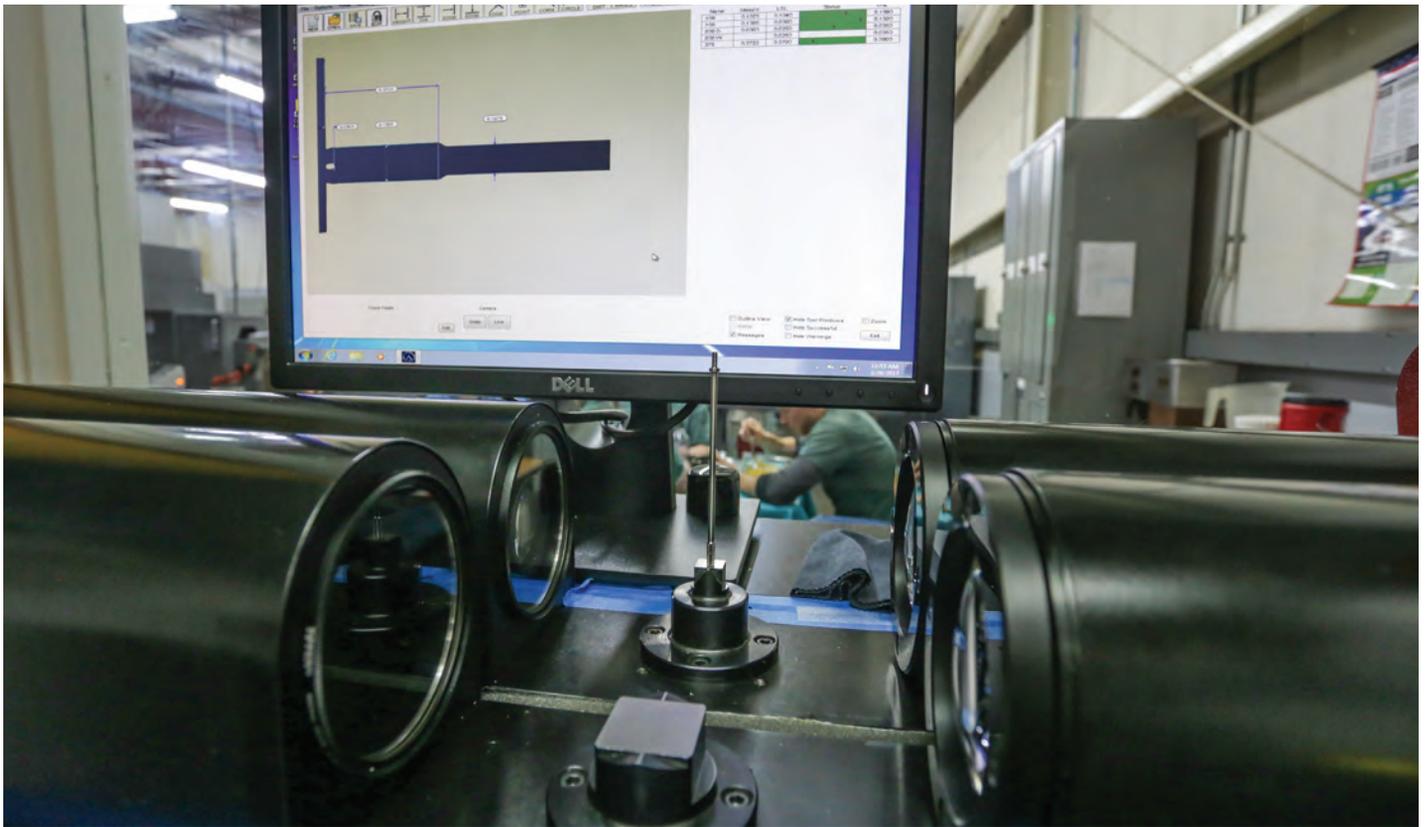
less, aluminum, brass make up most our parts, but we also excel in medical grade plastics and standard steel." Since phasing out the traditional machine tools, Pacific Swiss & Manufacturing has seen steady growth and expansion. They added three new Citizen CNC Swiss machines last summer and are expected to need more next year. "We are up 75% in the first quarter compared to last year," touts Greg. "A lot of that comes from the three new machines we purchased from Spinetti Machinery. Product familiarity is very important to us so we keep buying the Citizen machines. Parts are here in the US and easy to get. Spinetti 's staff is great, when and if we need service they are just a phone call away. Since they are Citizen machines we don't have a lot of need for service, but I consider product knowledge a big part of service. It is nice to know when we are adding a machine that the sales people know enough about what we do to lead us towards machines that will benefit us the most." Pacific Swiss & Manufacturing produced more than 9 million parts last year and by 2018 Greg expects to have another two or three machines online to meet their growing demand.

Greg and his team maximize every foot of space, so deciding on the right machine is paramount. "Our newest machines are a Citizen L32 Type VIII and a pair of Citizen L12 Type VII with the 16mm upgrade," details Greg. "We got the L32 be-

cause L25 was showing its age and needed to be replaced. The L12s we added to support a specific job run. Each L12 machine runs a single part 24/7." Pacific Swiss & Manufacturing have been running that part all day, every day since 2013 and churn out 1000+ each and every day. It is one of a handful of medical parts that has PS&M written in to the customers manufacturing program. Pacific Swiss & Manufacturing helps customers design parts predicated on their capabilities and areas of expertise. Greg explains how the complex features are not always easy to machine. "We have for example a part with a miniature, modified reverse buttress double lead thread made out of 304L stainless steel. It requires custom ground tooling with specific geometry to do correctly. If you run to print you will be fine, but it is beyond the capabilities of most shops. We like it like

What started out as a 10'x30' rented space in his dad's shop has grown to 5000sq.ft. of CNC Swiss manufacturing. Pacific Swiss & Manufacturing has nine Citizen CNC Swiss machines. They added three last summer and expect to need a few more by 2018. Greg has been a Citizen supporter since 1995 when he purchased his first B12. The latest additions are two Citizen L16 VII CNC Swiss Screw Machines, 5/8" Dia. capacity, 23 tools, 7 axis, HP Coolant, Mist collection and one Citizen L32 VIII, CNC Swiss Screw Machine, 1-1/4" dia. capacity, 25 tools, 8 axis with angular hole capability, HP Coolant, Mist Collection.





**Pacific Swiss & Manufacturing just added a new Oasis digital non contact inspection system to their QC department. The non contact inspection system increased efficiency and gives customers better data. They were using a standard comparator and manually entering the data. Some parts, depending on the number of features would take 2.5-3.5 minutes to inspect and record. The same part on the Oasis takes 15-30 seconds and gives them better accuracy and delivers a consolidated summary. It has two different camera systems with different field of views to work with their micro machined parts as well as the larger ones.**

that. We like being good at what we do, and our customers love it. Our customers put us in a position of trust and we take that responsibility very seriously.

They know if we made the part it is better than the print." When dealing with Swiss and micro machined parts the tolerances and specifications are very minute. Many times, there is no plus or minus, just the number it has to be.

Micro Machining fits in the machining spectrum right above nano manufacturing. Pacific Swiss & Manufacturing consider micro machining to be anything with a diameter down to .010" and a drilled hole size down to .005. All the Citizens at PS&M can run the micro parts; it comes down to machinist experience, tooling and setup. "We run a lot of the micro parts on our 3/4" machines," explains Greg. "Even though the parts are small they have a lot of features and the 7 axis capabilities on the L12 and L20 Citizens gets the job done." Features might include milled slots, off-center cross holes and broaching. Something as simple as parts delivery becomes more difficult when the parts are so tiny. PS&M has vacuum systems, oil systems, strainers, sieves, strainers, you name it to keep track of all the parts. A single sandwich size bag might have as many as 50,000 parts in it.

Having good suppliers is very important in how Pacific Swiss & Manufacturing. It starts with good bar stock and tooling before letting the Citizens do their job. "We have a tight supply chain when it comes to materials and tooling," describes Greg. "The tools have to be perfect and so do the materials we

machine. We use Western Tool & Supply (Milwaukie, Or) as our primary tool supplier. Schmolz + Bickenbach (Brea, Ca.) is the supplier of most of our stainless, we partner with Earle M. Jorgensen (Portland) to get precision ground aluminum and steel bar from Banner Service Corporation out of Chicago and E. Jordan Brookes (Santa Fe Springs, Ca.) handles most of our "Plastics" Getting quality bar in-house undamaged is the first step in Pacific Swiss & Manufacturing's process. All their bar is OD ground to +/- .0005 and the metallurgy is matched from batch to batch. "Defective bar coming in effects cost, production schedule, and customer service," continues Greg. "Because of the percentage of metal removal and the size of the parts starting with the best possible bar and tooling is key to our precision manufacturing process."

"We are one of the only exclusive CNC Swiss shops doing what we do," concludes Greg. CNC Swiss and micro machining is already a specialty machining process and Pacific Swiss & Manufacturing are specialists in these 2 disciplines of CNC Swiss Turning. Their Quality Control Personnel are specialists, their machinists are specialists and everything they do revolves around making very small parts 24 hours a day. "We think all day, everyday about producing the best possible parts from .010" in diameter to 1.25" diameter. Our team loves the challenge of getting these small parts manufactured. I'm excited to see us grow and expand and look forward to what the future brings for Pacific Swiss & Manufacturing."

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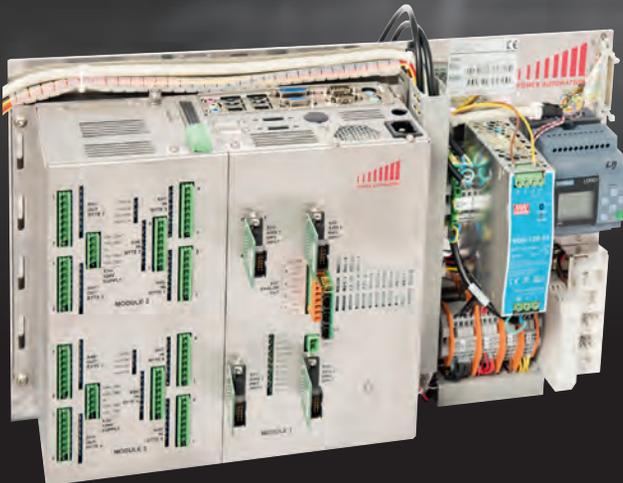
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# YORK MACHINE WORKS

Article by Sean Buur Photos by Sean Buur and Robb McDonoug



Michelle, Theo, Alex Mitchell and dog Diesel of York Machine Works

## TURNING OVER A NEW LEAF WITH CNC

York Machine Works has a history rooted back to 1973 in St. Helena, CA. Nestled in the heart of California's wine country, John York built a business machining and fabricating for the local wineries and vineyards. Alex and Michelle Mitchell purchased York Machine Works in 2010, uncorking a new varietal from a beloved brand.

Alex earned a Masters of Industrial Technologies at Cal Poly San Luis Obispo before taking a job at a local SLO broadband company. "I was the first employee in the new manufacturing division," explains Alex. "We built self deploying satellite dishes that get Internet for high end RV or disaster response vehicles. I hired all the guys and set up the shop with a new Haas VF2. Everything was the way I wanted right down to the tooling." When Alex made the decision to move back home he left a well-paying position for a bit of the unknown.

Alex and Michelle are St. Helena locals in every sense of the word. They grew up here, they went to school here, they fell in love here and now they've started a family and bought

a business here. "I moved back home to marry my wife Michelle," tells Alex Mitchell, owner of York Machine Works. "I came to work for John York in 2004 as a welder with the intention of buying the shop from him when he decided to retire. I've always had a love of fabrication and machining so having someone like John take me under his wing was a great opportunity. At the time, York Machine Works was an all manual shop with old cast iron monsters everywhere. John is a really smart guy and a true artist. He taught me a lot about machining, but he wanted out just a few years after I came on board."

The recession hit York Machine Works pretty hard. A good portion of York's business comes from repair and maintenance of winery equipment. The local wineries were running at a bare minimum and delaying normally scheduled maintenance work. "We took a big risk buying the business when we did," explains Alex. "It was good in the sense that the business wasn't worth much. With no work I got it for a song, but obviously no work is a bad thing." One of the biggest assets of the



**Top & bottom middle - The Romi GL240m has a 12 - station programmable turret with VDI type tool disk, for fixed and driven tools, offering flexibility for drilling, milling and tapping operation. Alex added a bar feeder for longer run times. Bottom left - Alex learned the Fanuc controls with no experience programming CNC lathes. Bottom right - The automated tool setter was an upgrade that Alex had no problems justifying for faster change overs.**

shop was it came with a huge preexisting customer base. Sure, the industry wasn't flourishing, but people drink wine in good and bad times so Alex was confident that the industry would come back. "Having our name known and respected in the industry was worth the most to me when it came time to buy John out," continues Alex. "Drumming up new business while we waited out the lull was key to us still being here."

John York focused most of his efforts on machining, but Alex, fresh with a new business loan took every job that came their way. He focused a lot of his efforts on fabrication. "John was old school, set in his ways and hated the fab work," details Alex. "I literally didn't turn down any job we could get. I like fabrication and there is a huge demand for that here in the Napa area. A lot of the wine makers have these one off custom projects. The fabrication jobs kept the lights on as the machining work slowly came back for us." Growth expectations were realistic, but thanks to a revived economy and his aggressive pursuit of jobs, Alex has exceeded his projections. "There was a fair amount of consolidation because of the recession," describes Alex. "Larger wineries acquired smaller ones not able to weather the storm. Now they are back in expansion mode and

we are expanding with them."

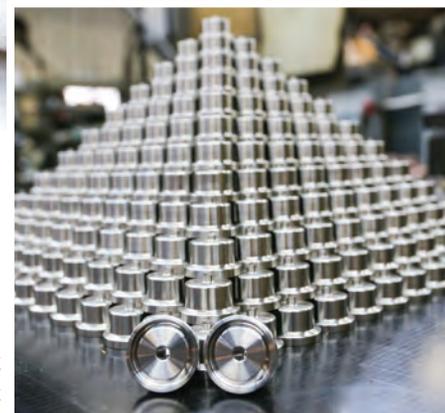
The last seven years has seen York Machine Works hire more employees, foster their fabrication department, and purchase their first CNC mill and CNC lathe. "I added our first CNC mill a few years ago," explains Alex. "It was an old beat up Akira Seiki that was in desperate need of TLC. I got it along with a few other machines that were just sitting in a storage unit. Thankfully I did, because in a round about way that Akira Seiki led me to my new Romi GL240M lathe." York Machine Works is your typical job shop, doing general machining. They do a ton of parts in stainless steel and food grade plastic to support the local wineries. "We don't do a lot of volume here," details Alex. "Along with job shop work we do have our own product line of winery specific widgets. John developed a lot of the products, but I have been adding more and making improvements to the already established designs." Two products in particular inspired Alex to consider the purchase of a CNC lathe.

Two of our York Machine Works most popular products are Venturi bodies machined out of stainless. In certain times during the wine making process you need to add oxygen back into the wine. The Venturi is a passive way to do that without



**Top - York Machine Works design and manufacture their own line of products for the wine making industry. Here we have examples of their stainless steel Standard and Super venturis at different stages of assembly.**

**Right - Though not a large volume job shop the Romi GL240M can turn out a lot of parts when needed. Custom stainless tri-clover caps are an integral part of Alex's patented pumpover device, the LOTUS.**



the need to introduce compressed oxygen into it. "Wineries do what is called a pump over," explains Alex. "You just put our Venturi body in-line. Because it narrows, the fluid speeds up and creates a low-pressure area that brings in oxygen. Super easy and really efficient." John York used to make these all on a manual machine, but they were pretty rough when judged by today's machining standards. When Alex bought the business, he stopped doing them manually and hired a company in Napa to turn them for him. "They could pump them out cheaper and faster than we could do on the manual machine," continues Alex. "They were a way nicer part. This got me thinking about adding a CNC lathe to the shop. Then I came up with a more high performance model called the "Super Venturi". It is a pain in the butt to machine. It has a long taper on it and the shop I was using had a hard time controlling chatter. I had a large order of 100 come in from Rombauer Vineyards and the back of the napkin mathematics said it was enough to buy 1/3 of a new machine and bring it in-house." Because of his relationship with Rick Smith at People Tech Machine Tools which is a machinery distributor in southern and northern California his search began and ended with Rick.

Rick Smith at People Tech Machine Tools has been Alex's go to guy for maintenance and service since he first purchased the old Akira Seiki CNC mill. "The mill was in bad shape and I was going through it and needed some assistance," tells Alex. "I looked up service for Akira Seiki and People Tech came up. I couldn't be happier that I did." Alex touts Rick as being a truly valuable resource and an asset in every sense of the word.

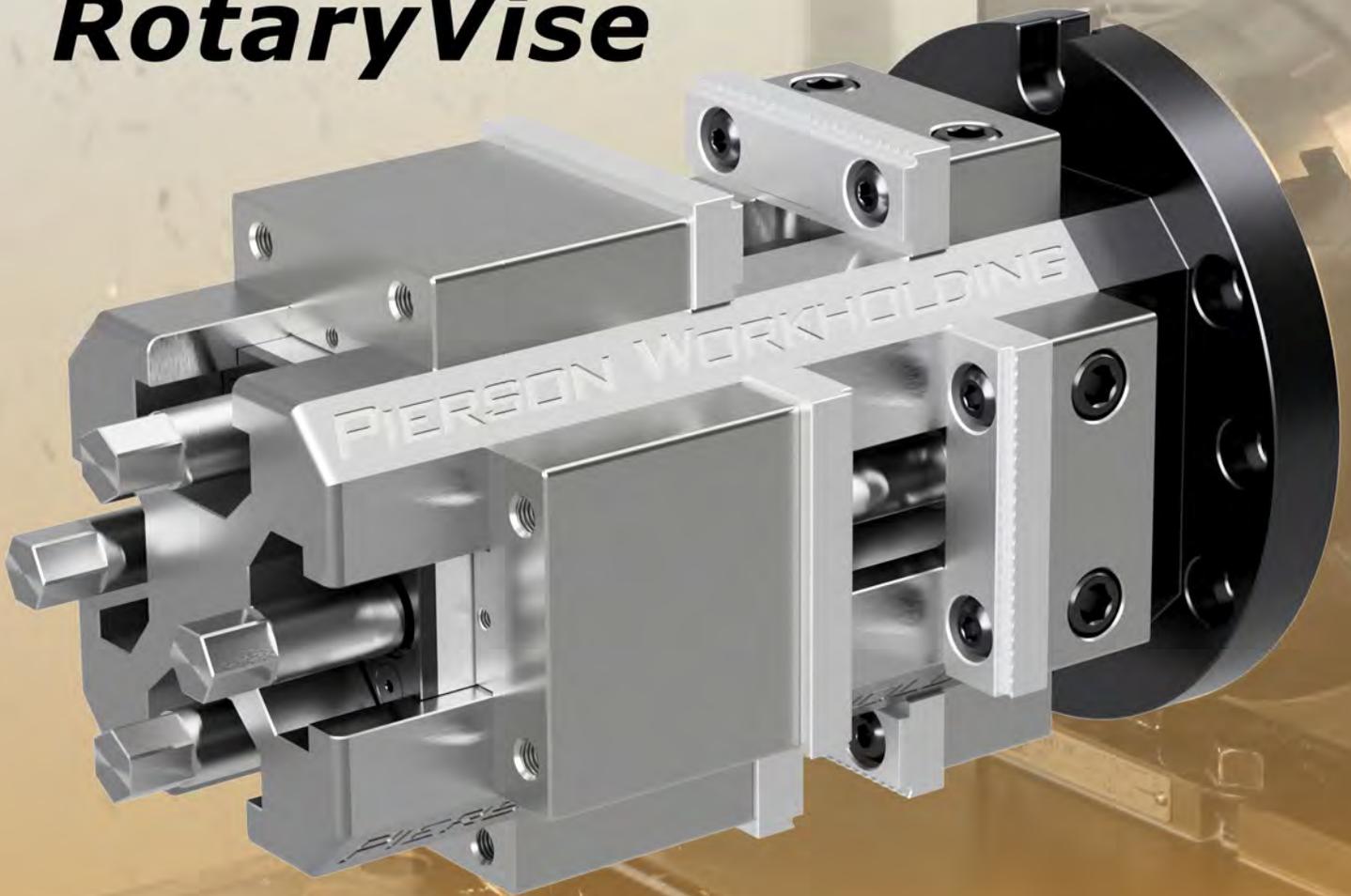
Response time is quick and Alex never has to wait more than a day before Rick makes the healthy jaunt up from the South Bay. "Rick really knows his stuff," continues Alex. "So when I began my search for a lathe he was my first and only call. I gave him a list of the criteria I needed and asked for a recommendation. People Tech is a Romi dealer, but I wasn't familiar with the brand. After a little bit of research and trusting Rick that parts and service were no problem I pulled the trigger on a Romi GL240M." The Romi was installed last spring, turning out parts nearly from day one.

As a small shop Alex didn't need a giant machine tool, but after finding the base model he wanted he added a few more bells and whistles onto the already capable platform. "As a job shop it was important to me to have versatility and quick change overs," details Alex. "So, I up sold myself on the need to have an automated tool setter to speed up the setup process. The Romi GL240M is a single turret machine with 12 tools. I did get the M version, which has live tooling. I haven't set up any tooling for the milling yet but I wanted it for the expanded capabilities. I also purchased a bar feeder to give me the ability to expand my run times." Alex had CNC programming experience from his previous job, but never programmed a lathe. He found the controls on the Romi well thought out and easy to use with a little practice. "The machine is great. It does everything I need it to do and more. It was a great investment for today and the future."

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**Top - A long time employee of York Machine Works machines a replacement shaft for a grape conveyor that was destroyed during the recent harvest. Not a lot left to go by on the old shaft but it is enough.**

**Right - Working with their long time customer, Brad Warner of Rutherford Equipment Rentals, Alex did some impressive stuff trouble shooting and modifying a malfunctioning portable bottle corking machine for magnum sized bottles. Rutherford Equipment Rentals, rents a full line of wine making tools and machines like this to the wineries and the home winemaker.**



Alex was quick to give credit to his wife Michelle as the reason York Machine Works has seen the success it has. “Michelle supported us financially all along the way,” tells Alex. “What a life saver she has been. Her good paying lab job made up for the weeks or months when I brought home nearly nothing. So it was a bold move to give up that security and have her come run the business.” An influx of work had Alex bogged down and he was in need of more people to help with running the shop, designing new products, and servicing customers. After the birth of their son Theo, priorities shifted and the concept of Michelle running the business made more sense. “It has allowed us to be together as a family,” describes Alex. “I get to see my family throughout the day and that is amazing. I can’t say enough about Michelle. The business is succeeding largely because of her.” She took Alex’s unorganized clutter and streamlined it into an efficient way of doing business. They now have clear and concise job sheets, and are way more productive because of it. York Machine Works is now able to do more without unnecessary expenses of greater expansion. Alex is free to work on new product design and implementation without the worry of paying vendors and collecting money.

Future expansion is aimed at growing their own product line and gaining recognition outside of Napa Valley. Until recently, the shop had never placed a single ad anywhere, but as more of their own products come on line Alex and Michelle need to get the word out. “It is great that word of mouth from satisfied customers has done so well for us since 1973,” tells Alex. “But as we continue to expand our in-house products I need to reach other wine areas outside of our own.” York Machine Works has a few new products almost ready to reach the market, all aimed at wineries and growing plants. “I’m working on an irrigation system for another local company that takes the drip emitter style water system to new levels,” explains Alex. “I made a plunging

spike system for them and now we are implementing it to be more automated and on a larger scale for customers who want it for a million plants.” Alex has a desk full of design ideas that he and one of his buddies dream up. They have a side company doing R & D but to hear him talk of it you know it is just as much fun as it is work.

York Machine Works is in the final stages of testing before launching a replacement valve that could save older wineries thousands of dollars. Wineries are linked by a system of piping to connect and move wine from place to place. Turn a valve here and it diverts wine to there. It is a simple concept and essential to every winery. The older wineries utilize a must valve from the 50’s. It is a patented 1937 product from a company that is long out of business. “These old valves were ahead of their time, but now they are old and need to be upgraded,” explains Alex. “There are plenty of ball valves out there to replace them, but they are a different size and required heavy modification of the existing piping. So I reverse engineered a drop in stainless replacement that meets all the requirements of today.” Of-course he added a few extras for easy cleaning and servicing that the original was lacking.

Products like these are opening up new doors for Alex and Michelle. York Machine Works may have started as a small local business in California’s wine country, but they are gaining recognition everywhere because of new and innovative products that can be used anywhere people grow grapes and make wine.



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# Aerojet Rocketdyne Completes Critical Design Review for AR1 Engine



California based Aerojet Rocketdyne, a subsidiary of Aerojet Rocketdyne Holdings, Inc. successfully completed its Critical Design Review (CDR) for AR1, a 500,000 lbf thrust-class, liquid-fueled rocket engine.

The milestone keeps the AR1 on track for certification for flight in 2019 as a replacement for the Russian RD-180 engine that is used today to launch most U.S. national security payloads. The U.S. Congress has mandated that the Defense Department discontinue using Russian engines to launch its satellites into space. Aerojet Rocketdyne reports the AR1 is the lowest-risk, lowest-cost-to-the-taxpayer and fastest path to eliminating U.S. dependence on foreign suppliers.

“This important milestone keeps AR1 squarely on track for flight readiness in 2019,” said Aerojet Rocketdyne CEO and President Eileen Drake. “AR1 ends foreign depen-

dence, fits on existing launch vehicles with the least amount of changes to the system or on new launch vehicles in development, and is compatible with current ground and launch infrastructure.”

The CDR not only focused on the AR1’s detailed design to ensure that it meets the rigorous performance requirements of a booster engine prior to full-scale manufacturing, it also validated the production processes that will be used to produce the flight engines. The comprehensive review was attended by government and industry experts who are independent of the program. These experts viewed and assessed the program’s readiness and confirmed the technical effort is on track.

“Completing the CDR is a significant milestone for the AR1 program. It means that we have finalized our design and confirmed that it meets the diverse set of operational requirements necessary for national security missions,” added Drake. “Leading up to CDR, we manufactured major components at subscale and full-scale dimensions and completed hundreds of tests to confirm that we are ready to build our first engine for qualification and certification.”

The system-level CDR is the culmination of 22 incremental CDRs and critical subsystem testing, such as full-scale performance testing of the preburner and staged combustion system. Additionally, more than 200 engine system-level design requirements have now been established and verifications are in place.

“Using our proven development methodology that has been honed during decades of designing booster engines such as the RS-68 and RS-25, Aerojet Rocketdyne will have an engine certified and ready for production in 2019,” said Julie Van Kleeck, vice president of Advanced Space and Launch Programs and Strategy. “Aerojet Rocketdyne understands the exacting engine development and launch vehicle integration processes required for National Security Space missions. We have the resources and capabilities in-place to support national security launches using the AR1 as the booster engine starting in 2020.”

Aerojet Rocketdyne is a world-recognized aerospace and defense leader that provides propulsion and energetics to the space, missile defense and strategic systems, tactical systems and armaments areas.

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# MONOGRAM AEROSPACE FASTENERS

Tim Radziwill of Monogram Aerospace Fasteners



Article and Photos by Sean Buur

## ONE AND DONE WITH A SEA OF TSUGAMIS

**M**onogram Aerospace Fasteners has over a century of manufacturing knowhow in a very niche market. Their Phoenix, Arizona plant turns out almost a million parts a month thanks to 21 Tsugami Swiss machining centers and Tim Radziwill's one and done mentality.

Monogram Aerospace Fasteners is a well-respected industry name, and has been for more than 100 years. They started out manufacturing bolts and nuts, and over the years transitioned to a world leader in aerospace fasteners. Monogram's headquarters is in Commerce, California with a staff of well over 300 people. The Phoenix facility came on line in 2012 to support a specific line of products. "The cost of doing business is less here in Phoenix than in Commerce, Ca.," explains Tim Radziwill, plant operations manager at Monogram Aerospace Fasteners' Phoenix manufacturing center. "So corporate set up this 14,000 sq.ft. building to support a new line of fasteners. It was just an empty warehouse, a single Tsugami BE20 machine, and me. I was tasked with getting the first family of parts qualified through Boeing. It was a CT Collar in 3-2.5 titanium." Everything produced in Phoenix is for Boeing and their distribu-

tors, and everything they manufacture holds the composites together on a plane. The 787 literally has millions of their parts on them. Everything has to be approved by Boeing and each family of product needs to qualify to be added to the drawing. "We make only two styles of parts," details Tim. "We have a single component swage fastener and a frangible type fastener. Of those two styles we have 10 families of parts, with 4 or 5 parts per family. In mid 2013 we got our first qualification so we had something to run. It was a life changer. I have never been so happy to see a machine start running production parts in my life. We plucked away at the other families until we got to the 10 families we have now."

Tim's manufacturing career has come full circle. It started nearly twenty years ago in Arizona before heading back to Minnesota and making it a career. "I was jamming in bands when my first son was born," tells Tim. "I needed a trade at that point in my life so I got a job here in Arizona machining parts for the piercing and tattoo industries." Tim moved back to Minnesota and found work at mom and pop type places before landing at larger companies doing complex aerospace parts in super alloys



Tim started with only a single Tsugami B020 machine and now has 21 Tsunami B0205 5 axis machines with 14 tools, live tooling and 10,000 RPM spindles.  
 Bottom left - Most of the machines are equipped with LNS bar feeding system.  
 Bottom right - A handful of the Tsugamis utilize a custom bowl feeder, which vibrates parts down a track before a gripper places them in the chuck.



**Monogram's Phoenix location only produces two type of fasteners. They have 10 families of parts with 4-5 parts per family. Bottom left - Mar Urquiza knows quality is critical at Monogram, a single defect requires sorting of the entire 25,000 piece lot. Bottom right - The lab was installed to perform micros on threads and to look at material under 500 power magnification.**

like Hastelloy, Inconel, and 347. "Some guys just have that thing that suits them for this line of work," adds Tim. "I'm lucky to have a knack and to have learned from talented people. A year into my new career I was writing programs and setting up machines." Tim credits being a drummer for his ability to look at a drawing and see in his head how it needs to be made. "Drummers are unusual and maybe I visualize differently than others. I love seeing a print and bringing that part to life."

Just five years ago Monogram had only one man, and one machine. Now the shop is at capacity running 24 hours a day, six days a week on 21 Tsugami Swiss machining centers. Twenty-two employees run three shifts and more expansion is on the way. "We are maxed out on space, maxed out on power and maxed out on machine capacity," explains Tim. "End of last year I added 6 more Tsugami BO205s and I'm maxed. We have 7,000sq.ft. available next door that can handle 10 more machining centers. We run manned shifts on all our more difficult materials but lights out on the titanium parts. All the machines are equipped with fire suppression systems so there is no worry of catastrophic events happening while we are gone." Tim and his crew produce an impressive 20,000-40,000 parts a day depending on size and material. On average 750,00 parts are manufactured and delivered each and every month.

All of Monogram's Tsugami Swiss machining centers are purchased brand new and are identical to keep things simple. Twenty-one BO205 5 axis machines line the floor. Each is equipped with 14 tools, live tooling, 10,000 RPM spindles and

Fanuc controls. The only difference is some might be configured differently depending on what was available at the time of purchase. The majority of machines have LNS bar feeders, but four utilize a custom bowl feed system. "The bowl feed systems vibrate the forged parts down a track before being grabbed by a gripper and placed in a 3 jaw chuck," describes Tim "The arm moves in front of the spindle and then loads the forging. Our California plant utilizes a similar setup but has a robot doing the loading."

Arizona CNC, which is the Tsugami distributor, has been a key member of the support team since Monogram Aerospace Fasteners opened the Phoenix location in 2012. They are Tim's go to for support and service on the Tsugamis. "We work directly with Tsugami and Arizona CNC," explains Tim. "Originally we were getting machines shipped out of California and having Arizona CNC handle all the service and support. Not long after I came on board we began to buy directly from Arizona CNC. We get great pricing from Arizona CNC and they are just a good core group of people. Jeff Curry is our sales guy and he takes fantastic care of us. Last year we purchased six machines and ten bar feeders from him and felt good about it. They have supported us all the way. Greg Whalen over there is awesome to deal with. Tsugami as a whole is supportive starting with REM Sales and Arizona CNC. You can tell a lot about a company by their support. It doesn't matter if you haven't bought a new machine in five years you hit up one of their application guys and they are happy to help. Other brands I've

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Everyone of the Tsugami Swiss machining centers are the same model, but difference in available stock and product years means slight changes in tool configurations are possible. They use that to their advantage and it gives Tim and his team a lot of options. The Tsugami machines are known for being roomy inside with easy tool access.

dealt with over the years don't have the same level of service."

One and done is the way Tim likes to do things. Loading the bar, machining the part, and dropping the finished piece as quickly as possible is the way Monogram can produce as many fasteners as they do. They've experimented with a few different options, but in the end came back round to one and done on the Tsugamis. "We've bought everything from a million dollar multi spindle to part mark machines and trim presses trying to cut cycle time," explains Tim. "In the end my sea of Tsugamis deliver better results with only a slight increase in cycle time. We were so far behind that I added the latest 6 machines to make up for the missing production. In theory a multi spindle sounds like a great idea, but if it isn't cutting that is six spindles that are not running. If one of my new Tsugamis goes down I still have five other spindles still turning, and I know Arizona CNC will be out immediately to remedy my situation. Mass production means one and done. We live by that here."

To go from a big zero and one machine to 9 million in sales in five years is quite a feat, and one Tim could not have accomplished without his team. When the work began to flow he needed more people to run the machines. Corporate put an ad

out looking for Swiss operators and he got random people that didn't fit the bill, and no one had Swiss experience. I trained everyone in the shop," explains Tim. "I had to educate and build the team I have. No one had run a Swiss machine before. They didn't understand the guide bushing and the Z axis at first, but now we are rolling." When Tim started in the industry he had to beg and plead for knowledge. People were less open about sharing the tricks of the trade. He didn't want that kind of closed off attitude on his shop floor. "My 20 years of experience is there for anyone to absorb and pull from," concludes Tim. "I'm not worried about someone taking my job because I teach what I know. We are productive because we share our information and knowledge. My team is skilled, and it makes for a better work place. If there is a problem we get together as a team to find a solution. It is an open dialog situation here and we are proud of the work we do. Everyone one of us takes pride in knowing that are parts travel all over the globe. Those planes carry us, our families, and your family. We know what's at stake and that motivates us."

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# Shrink Fit Helps Birdwell Machine Soar

Article and photos provided by HAIMER



Birdwell Machine, based in Redmond, Washington, is a family-owned manufacturer that turns out everything from one-off prototypes to large scale production runs for the aerospace and scientific industry segments. Jon Birdwell, son of founder Mike, manages the company along with assistant manager Tyler Jacobson. The company prides itself on providing the highest quality craftsmanship and continually finding the best new technology that keeps them on the leading edge of their industry. Their vast array of CNC machines includes well-known brands like DMG Mori, Hurco and Chevalier to name a few.

Their motto on their website states: When you've been in business as long as we have and faced technology's in-

creasingly rapid developments, you learn a few things. We have simple, ready-to-implement solutions for almost every problem. And, if you bring us something new, our people would love to work with you to find the solution. And while they pride themselves in finding solutions for their customers HAIMER was able to find a solution for them.

After experimenting with toolholders from around the world, the company found out early on that it doesn't pay to skimp on quality. The collets they were using were good but Birdwell is always looking to gain an edge so went looking for some other solutions. While the collets performance was good, the holders did not have the clearance that Birdwell was looking for. Clearance for Birdwell Machine is extremely important when running side jobs on the company's 4 and 5 axis machines.

When buying machines and accessories Birdwell Machine likes to work with people they trust and have a relationship with. Six years ago, HAIMER manufacturing representative Michael Olejniczak introduced Birdwell's operating team to the HAIMER 3D-Sensor. Impressed with its operation, Jon and Tyler decided to see if Michael could help them with their toolholder problems. Michael suggested the HAIMER shrink fit system, so they ordered a few to test.

"The first thing we noticed when we opened the box was the precision ground surfaces on the toolholders," said Tyler. "That immediately showed us the attention to detail that HAIMER puts into every product."

As soon as they tried the toolholders on their 4-axis CNC machines, they saw how much additional clearance they gained. Besides the resolved clearance issues, they were also impressed by Cool Jet, which provides high PSI while delivering coolant all the way to the edge of the cutting tool, significantly increasing tool life. When they added a 5-axis machine to their shop, the HAIMER shrink fit toolholders were immediately put to use on it as well, which allowed them to easily machine deep, hard-to-reach pockets.

Experimenting with the shrink fit holders, Jon and Tyler immediately realized the quality of the work turned



out by HAIMER products was what they had been looking for. And since the holders were more economical, the company could buy three or four HAIMER toolholders for every one of the previous brand. Birdwell Machine was also impressed with the variety of lengths and styles available from the HAIMER holders.

Birdwell Machine reported that in just 18 months, the savings on toolholders paid for the shrink fit machine – not to mention the headaches saved for operators used to juggling many different brands and application specific holders. They also found that cutting tools were typically being loaded in

holders, and actually used until no longer sharp, cutting down on wasted tooling. “We are able to leave commonly used tools loaded in holders, rather than unloading them and having drawers full of half used tooling.” That was and is a huge advantage.

Today, the company uses short and long toolholders as well as heat shrink extensions which gives them better reach when using short tools. In fact, according to Tyler, “There isn’t an end mill holder challenge that we can’t resolve by using a HAIMER product.”

Implementing shrink fit also allowed the company to move the entire

tool changing process into a controlled environment that supports tool management best practices. With the superior hold of the shrink fit, not only was the lifespan of the tool realized, but it was extended as well through enhanced balance properties, concentricity and the addition of Cool Jet.

Summing up their experience with the shrink fit system, Tyler said, “With HAIMER, Birdwell Machine has found a partner that reflects our own mission of seeking and using value-added products that represent the highest quality craftsmanship and leading edge technology.”

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# Organizations Shaping the Made in America Movement

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When you hear about the Made in America movement, it's not always painted as a rosy picture. There are the tales of a looming skills gap needing to be filled, robots taking away jobs, and fighting to keep jobs in our country. How about some promising news regarding our manufacturing sector? Here are three organizations who are contributing in a large way.

### ***Workshops for Warriors:***

Every day, the manufacturing industry furthers its legacy by attracting a younger generation to pick up the mantle. The industry is empowered by the organization Workshops for Warriors, who seeks to obtain these current, and future, crucial jobs for our military veterans.

In June of 2016, Shop Floor Automations attended an NTMA (National Tooling & Machining Association) event, where the organization spoke of the resources it provides to veterans who come home from serving us. Workshops for Warriors also prides itself on helping those soldiers who come home wounded, who often have anxieties about re-joining the workforce due to physical limitations, which may also include suffering from PTSD (post-traumatic stress disorder).

Hernán Luis y Prado, the founder of the program, said "It's great to love our veterans, but love alone doesn't get our vets these jobs as a good machinist, a fabricator, or welder." The current Workshops for Warriors center has a large workstation of computers, \$6 Million worth of equipment donations and various other tools for learning about the nuances of the manufacturing field.

In addition to expanding their current location, Workshops for Warriors will, after a nearly-completed application process of 8 years, become a program that veterans can use their GI Bill for. This means that while the program is already free to veterans, they will soon have funds for housing and other approved costs that will make their lives considerably less stressful while trying to attain these necessary occupational skills and certifications. This is expected to begin in Winter 2018, about ten years after the program first got its start.

If you would like to donate to Workshops for Warriors, please contact Amy at [amy@workshopsforwarriors.org](mailto:amy@workshopsforwarriors.org) or call (619) 550-1620 for more information. You also visit [WorkshopsforWarriors.org](http://WorkshopsforWarriors.org) for more ways to help, including volunteering.

### ***Open Source Maker Labs:***

The future is what you make of it, and when it comes to the people who use Open Source Maker Labs (OSML), "making" is literally their future. Latching on to the recent Maker movement, the digital fabrication lab in Vista CA invited SFA through NTMA to visit in 2016 – we saw some of their focuses there with metalworking, welding, 3D Print-

ing, woodworking, electronics, and much more.

One of the projects they are most proud of is their involvement in the Vulcan1 rocket launch from May of 2016. In collaboration with the Students for the Exploration and Development of Space (SEDS) at UC San Diego, OSML's lab was used to conduct a "cold flow" test of the team's 20-foot-tall liquid-fueled rocket.

OSML, with Dan Hendricks at the helm, is open evenings and weekends for makers of any age, with monthly membership prices varying from \$60 a month to \$140 a month. The lab has tools, equipment, work space, and other resources.

Some of the tools available are CNC machines, 3D printers, laser cutters, a panel saw, soldering tools, a computer lab, and more. Membership includes, among access to tools, free classes, free parts and materials, project kit discounts, meet-ups, free parking, and coffee with snacks. For more information on OSML – call (760) 998-1522 or go to [OpenSourceMakerLabs.com](http://OpenSourceMakerLabs.com).

### ***EdgeFactor:***

The goal of Edge Factor is to make sure that young people realize opportunities they may not have previously considered in the manufacturing sector. It started with a single video, and now, their library has over 40 films with a treasure trove of accompanying videos with interactive resources available. Edge Factor has many new projects on the horizon, such as a reality TV themed program called "Reality Redesigned," as well as a documentary coming soon called "Masters of Resonance."

In an interview with SFA, Edge Factor founder Jeremy Bout spoke about how the first piece he ever built with a machine set him on a path that would change his life, as well as the lives of others. For Disney, it was all started by a mouse, and for Jeremy, it was all started by an end mill.

"A standard, four-flute end mill, which looks so simple, really became a catalyst for just recognizing that everything is made in using that one tool. Boy oh boy, you can make an awful lot of different parts [with it]. The diversity of things that an end mill can create is shocking and astounding. So for me, the end mill was a gateway to a much, much bigger journey in life."

Edge Factor can be broken down into three types of content. There is EduFACTOR – an educational platform for career pathways, technology and for teachers to talk to students and parents. There is Edge Factor Live – with over 700 live events covered so far with manufacturing resources. Finally, there is EF Agency – it takes a regional approach with organizations, communities and economic development groups for local manufacturing industries.

Visit Edge Factor's main site at [EdgeFactor.com](http://EdgeFactor.com) and follow them on Twitter at [@EdgeFactorShow](https://twitter.com/EdgeFactorShow). The Facebook page for their film "Masters of Resonance" is located at <https://www.facebook.com/MastersofRez/>.

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# CAD/CAM Perspective

By: Tim Paul

Customer Success Manager Fusion360 CAM

[Tim.Paul@Autodesk.com](mailto:Tim.Paul@Autodesk.com)

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## The Hard Way...

I have grown to take the position that when most people are given the choice of the easy way or the hard way they will choose the easy way. Over the past month I realized that the Machining trade is full of the rare person that most often chooses the hard way over the easy way. A quick browse through the #instamachinist hash tag on Instagram makes it clear that the Machinist trade is full of “hard way” personalities.

**“There is one kind of person who makes it through BUD/S”.** I was recently listening to a Biography of a former Navy SEAL when I started to think, “What kind of person typically makes a good machinist and programmer?”. The former Navy SEAL was discussing how much research the Department of Defense (DOD) has done to understand the general characteristics and profile of the SEAL candidates that successfully complete the grueling six-month BUD/S (Basic Underwater Demolition/SEAL) training. A small percentage of the candidates pass BUD/S. The former Navy SEAL summed up his opinion of the one thing it takes, “There is one kind of person who makes it through BUD/S. The one that doesn’t quit.”. The second I heard that is when I thought to myself, “What is the common trait of a good machinist and programmer?”.

The DOD studied a long list of things like body type, social and economic upbringing, ethnicity, previous sports accomplishments, age and many other things without finding any quantifiable traits that allowed them to more accurately predict who will pass BUD/S.

**Is there one dominant trait in a good machinist / programmer?**

I guess the definition of “good” needs to be defined first. Setting the bar low by defining good as, “The ability to efficiently make parts to print.” Isn’t a bad place to start. Beyond that I think a truly good machinist and programmer is often the person who raises their hand when the hard job comes into the shop. They are typically the person who looks at every job and thinks more about the things they should do better next time than they do about what they did well.



Figure 1- Mitee-Bite fixture pallet. Quick change 1<sup>st</sup> and 2<sup>nd</sup> ops can be changed in seconds

### Push a broom:

There are a lot of great machinists that started in our industry pushing a broom. Some literally pushed a broom and others (like myself) started off doing simple machining tasks. Whether pushing a broom or de-burring a huge pile of parts, how the job is done says a lot of the person doing it. I think the people who move up through the shop positions are the people who take the simple task and try to do it better than anyone else in the shop. A statement I heard early in my career, "Everything is a test." Has stuck with me. The person who gives a half effort at pushing a broom is often the same person that gives a half effort making parts.

I asked my buddy Rob, "What makes a good machinist or programmer?" After a couple, funny back and forth comments he replied with an answer that I strongly agree with, "The sole quality I look for is the ability to accomplish a task to the degree that I'm glad I had that person do it instead of myself. I don't think it matters what the task is, it's fairly universal, and useful people are capable of doing it with virtually anything.



I've had an amazing opportunity over the last two years to meet some top shelf machinists from around the world. They have been as diverse a group of people as I've ever met. Whether special military forces, professional sports, or the top people in our trade it's almost impossible to fit them into a specific profile.

I think the one common trait of anyone at the top of their trade is that they will always choose the hard way over the easy way if there is a possible benefit or opportunity to grow.



Figure 2- Bottle opener that was run at a local Machinist Geek Meetup



# Industry News

## Methods Machine Tools Announces Organizational Changes

Methods Machine Tools, Inc. has announced that Jerry Rex, former Chief Operating Officer (COO), has been named company President. Bryon Deysher, long-time company president, has accepted a new position as executive director of the board. Rex has assumed all operating functions of Methods Machine Tools.

“Although Bryon’s work over many years in developing constant and sustainable growth cannot be overstated, Methods



is excited to have Jerry’s experience and new perspective leading our dedicated team into the future,” said Scott McIver, Methods’ chairman and third generation owner. “Jerry brings with him a profound skill set that is needed in our ever-changing manufacturing markets. We could not be happier to have Jerry and Bryon working together for the future of Methods and our machine tool partner/suppliers and customers.”

This transition has been planned for some time. Rex, who has spent the last year at Methods as COO, was personally selected by Deysher as his successor.

Deysher stated, “Jerry brings an energetic and passionate approach to leadership and relationship building. He shares the vision for the future of Methods Machine Tools, that all of us have worked towards. I have witnessed his style and business acumen over the years, and I see him as a very positive influence on both our business and on the industry.”

Rex brings not only years of industry and leadership experience, but also a passion for assessing, strategizing and forecasting using the very latest in technology, data and market intelligence. With a background that includes hands-on manufacturing, engineering, sales and executive management, Rex is a perfect fit for leading the company forward.

“I am both honored and excited to lead this dynamic and talent-filled organization into new and progressive directions, while building on the solid foundation that the McIver family and Bryon (Deysher) have built,” said Rex.

## Matsuura Machinery USA Announces the Promotion of David Hudson To V.P. of Sales and Marketing

Matsuura Machinery USA announces the promotion of David Hudson to vice president of sales and marketing. Hudson has served as Matsuura Machinery USA Inc.’s western regional sales manager since 2013.

“With over four years of successfully representing Matsuura Machinery USA Inc., David brings a wide range of proven results to this important role,” said Matsuura Machinery USA Inc. president, Craig St. John.

Hudson will provide leadership to the Matsuura USA sales and marketing teams, deepen distributor relationships, cultivate new business opportunities and assist in providing customized manufacturing solutions for Matsuura customers.



“After a comprehensive search for vice president of sales and marketing, we recognized the preeminent candidate was presently a part of our team. David has a clear understanding of the information and support Matsuura distributors and customers need from Matsuura to be successful,” St. John added.

Hudson previously served as senior sales consultant for Selway Machine Tool, Inc. and as president of Mil-O-Matic Inc., a Southern California aerospace machine shop which his father, Milo Hudson, founded in 1972.

Hudson has an in-depth knowledge of the Matsuura product line and over 24 years of experience working with major customers in the aerospace, defense, automotive, medical and commercial industries. He will also be responsible for strategic development to meet the sales, market share and profitability objectives.

## MC Machinery Systems, Inc. Completes Move To New Headquarters in Elk Grove Village, IL

MC Machinery Systems has officially moved into its new headquarters located at 85 Northwest Point Blvd. in Elk Grove Village, Illinois. The new



175,000-square-foot facility honors the history and stability of MC Machinery while supporting the growing future. The new facility is a 76 percent increase in square footage from the previous facility located in Wood Dale, Illinois.

“When deciding on a location for

# Industry News

our new facility, we wanted to stay close to Chicago's interstate 90 due to the numerous partners in the area as well as the proximity to O'Hare International Airport," says Patrick Simon, senior marketing and corporate planning manager, MC Machinery. "But our main concern was our employees and customers. We wanted to provide them a new state-of-the-art place to come to work to everyday with updated technological resources that enable us to better serve our customers."

## Techniks Industries Announces Acquisition of the Tooling Assets of Parlec, Inc.

Techniks Industries, announced the acquisition of the tooling assets of Parlec, Inc., located in Rochester, NY. The acquisition expands Techniks Industries' broad product offering of aftermarket machine tool accessories and greatly enhances its manufacturing and distribution capabilities to distributors and OEMs located throughout North America.

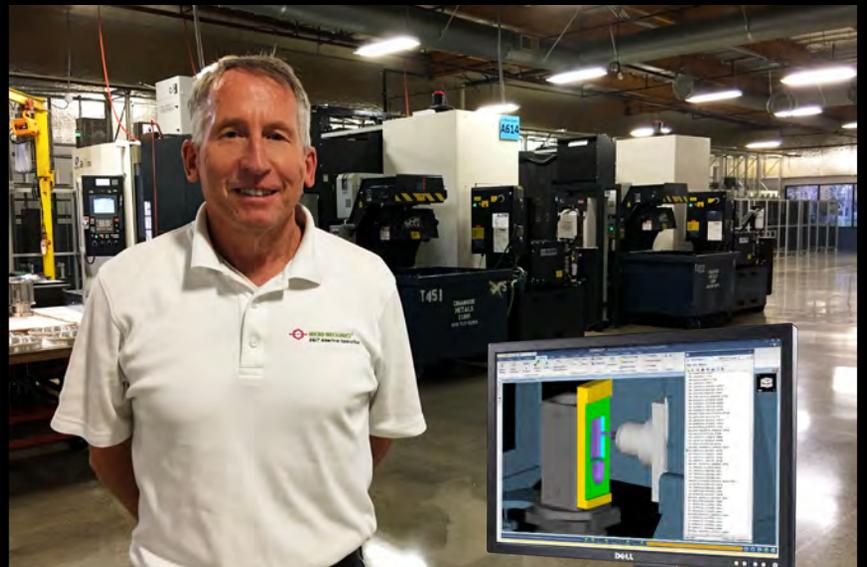
Mike Nuccitelli, president and CEO of Parlec, said, "After almost 70 years in business, Parlec has transformed into one of the largest toolholding, tapping and boring businesses in North America. I'm excited to partner with Techniks Industries, as I know Techniks shares our vision to become the premier provider of aftermarket tooling solutions across the globe. We look forward to working alongside the Techniks Industries team, whose industry reach and dedication to strong customer and supplier relationships provide an ideal platform to support Parlec's continued growth."

Vernon Cameron, president and CEO of Techniks Industries, stated, "With the addition of Parlec's complimentary arsenal of innovative products

and unparalleled service, Techniks Industries will continue to provide superior machine tooling products,

performance and value for all our customers."

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# Industry News

## The Launch of Harvey Performance Company

Harvey Performance Company, the new parent company of the Harvey Tool Company and Helical Solutions brands, was launched in May in an effort to streamline communications and better support its customers and business partners.

Harvey Tool Company is known for its highly specialized hard-to-find micro cutting tools. Helical Solutions has built a reputation for its high performance custom and standard end mills. Both brands now exist under the umbrella of Harvey Performance Company.

Like the two brands it represents, Harvey Performance Company will

maintain a dedication to providing world class products, services, and solutions.

“The launch of Harvey Performance Company is a necessary step in the natural growth and evolution of our company,” said Peter Jenkins, chief executive officer of Harvey Performance Company. “Since Harvey Tool acquired Helical Solutions about a year and a half ago, we have worked hard to come together as one team while also maintaining each brands’ unique character and identity, established business relationships, and earned reputation,” said Garth Ely, Harvey Performance Company vice president of marketing.

## Markforged Establish Partnership

Methods 3D, Inc., announced that it has established a partnership with Markforged. Methods 3D will provide sales, service and support for the Markforged line of 3D printers including the Onyx series, Mark Two and Mark X. The partnership will expand access to both companies’ advanced additive manufacturing solutions to manufacturers across North America.

Markforged is an innovative 3D printing company that delivers same-day strong, working parts made of carbon fiber composites. Markforged invented a proprietary continuous carbon fiber filament printing method and its products are used in the industrial,

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# Industry News

automation, automotive, aerospace and medical industries in over 50 countries worldwide.



“Markforged printers are an ideal complement to our extensive suite of additive manufacturing solutions,” said Jamie Hanson, COO, Methods 3D. “With Markforged, we will significantly enhance our customers’ production efficiencies by enabling them to quickly create tools, jigs and fixtures for myriad industrial applications. Our deep experience in metalworking manufacturing combined with Markforged’s expertise in high strength parts is a perfect match for meeting today’s demanding manufacturing challenges.”

The Markforged partnership will also enable Methods Machine Tools’ Automation Group to design, integrate and provide numerous solutions for its CNC machining automation systems with the ability to print unique end of arm tooling components for robots, jigs, fixtures and more.

## Royal Machine & Tool Corporation Celebrates 65 Years

Since its founding in 1952 in a backyard barn with five employees, the company has expanded to nearly 50 employees with modern administrative and manufacturing facilities in Berlin, CT, representing 30,000 sq. ft. and featuring over 35 state-of-the-art CNC machine tools.

In making the announcement, Richard J. Ruscio, Royal Machine & Tool president and son of its late founder John L. Ruscio, said, “In the future,

the combination of our recently added new services and equipment and our 65 years of experience in designing and building custom and standard

workholding devices will make us even stronger in providing our customers with quality finished products and time-sensitive deliveries.”

## Delcam on board

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# Industry News

## United Grinding North America, Inc. to Consolidate Offices

United Grinding North America, Inc. announced that on July 1st, 2017, its Fredericksburg, Virginia, office will close and operations currently there will move to Miamisburg, Ohio.

“This tactical move is part of an overall strategy designed with the customer at the forefront,” said Theodore Neckel, director of corporate marketing for United Grinding North America. “We pay very close attention to the voice of our customers, and they’ve expressed a need for a faster response time and complete turnkey, life-cycle solutions.”

Currently, United Grinding has two locations, its headquarters in Miamisburg and the other in Fredericksburg,

Virginia. While the Ohio facility houses surface, cylindrical and profile grinding business units, the Virginia facility serves the tool and cutter grinding machines and measurement systems sectors. Field service representatives are based out of both locations.

## New Acu-Rite Website is Now Live Resource

Those interested in precision measurement in the form of quality digital readout systems, premium glass scales and CNC milling controls now have a strong online resource in the new website now live by Acu-Rite ([www.acu-rite.com](http://www.acu-rite.com)). As part of the HEIDENHAIN family of companies, Acu-Rite’s new user-friendly site not only showcases the latest products, but

is also an important source for software uploads, training information, instructional videos and more.

Serving the machining industry for nearly 50 years, Acu-Rite has unveiled a new website that is easier to navigate than past site allowing visitors to quickly locate information in various categories. Besides offering a modern look at current products and specs, the site showcases helpful videos, user training dates, actual in-field applications, and FAQs.

New software uploads for product such as for the popular MILLPWRG2 CNC control are now easily found, and free to customers. Also details about Acu-Rite’s popular school discount program are now clearly available online.

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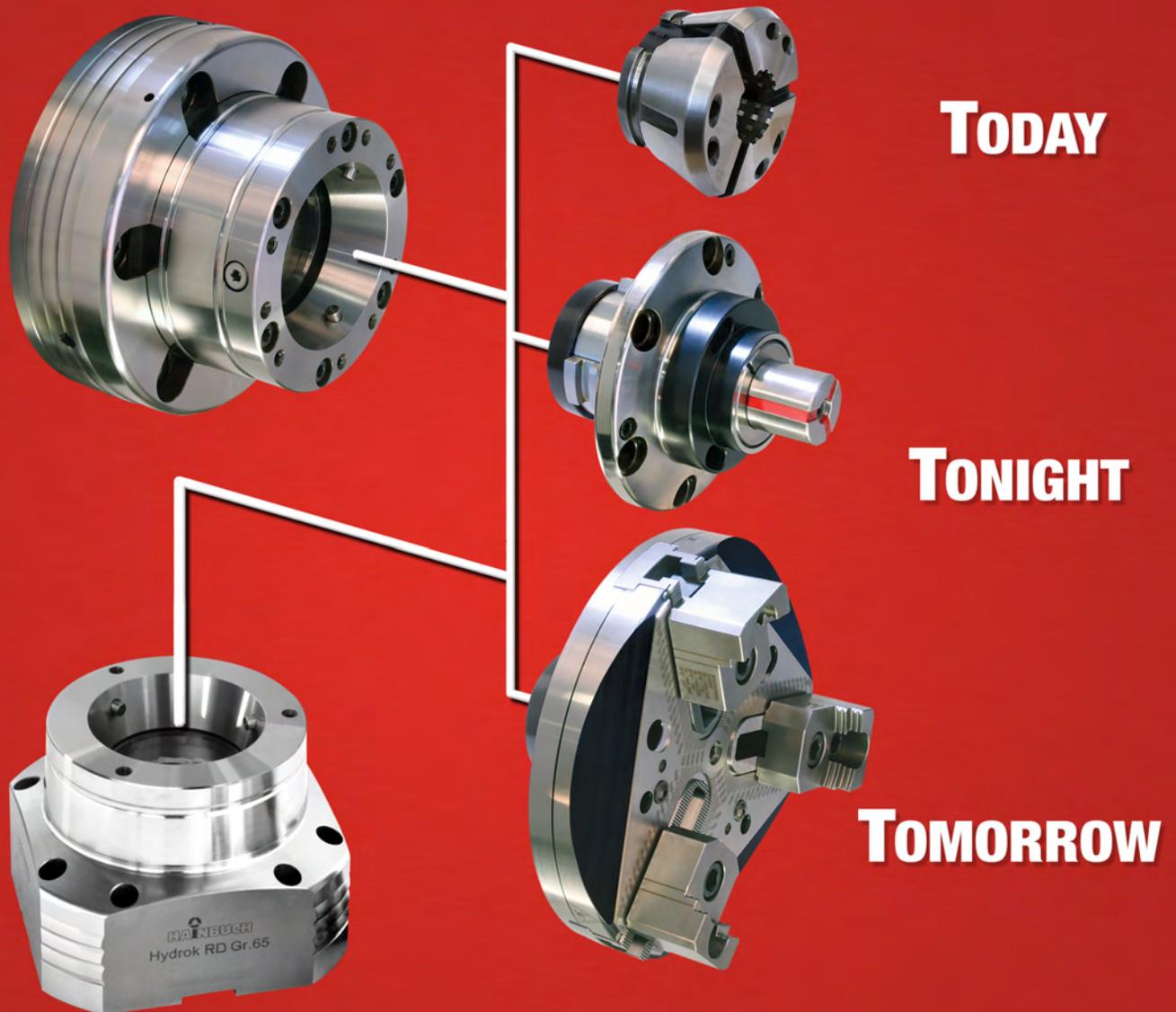
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# Industry News

## The Reshoring Initiative and PMA Launch First National Reshoring Award

The Reshoring Initiative, in conjunction with the Precision Metalforming Association (PMA), invites companies that have successfully reshored parts or tooling made primarily by metal forming, fabricating or machining to apply for the first National Reshoring Award. There will be one award for buyers and one award for suppliers.

To be eligible for the award, the reshoring work must have occurred between January 1, 2012, and August 1, 2017, and the work must have come back from outside North America to North America. Applications must be submitted by August 1, 2017. To

view award details and enter to win, visit [www.pma.org/sourcingsolutions/reshoring.asp](http://www.pma.org/sourcingsolutions/reshoring.asp).

“In 2016 about 27,000 more manufacturing jobs were brought back to the U.S. than were offshored,” said Harry Moser, founder and president of The Reshoring Initiative. “We anticipate that this award will motivate more companies to reevaluate their offshoring and see that it is often more profitable to produce or source domestically. We also hope that other associations will choose to support similar awards to show that their industries are now successfully reshoring.”

The awards will be presented in Milwaukee, WI, on September 28, 2017, at Sourcing Solutions™, a popular procurement program hosted by PMA. The event is designed to

enable buyers and suppliers of metal stampings, tooling and dies, assemblies and other fabricated metal parts to have numerous in-person meetings all in one day, in one location.

## CGTech Proctors Skills USA/NIMS Contest Submissions with VERICUT

CGTech technical support engineers was on hand at the National Leadership and Skills Conference (NLSC) in Louisville, KY, June 20-22. Each year, CGTech staff proctor multiple SkillsUSA/NIMS events related to CNC machining. In addition to grading events, CGTech ran its latest version of VERICUT CNC simulation



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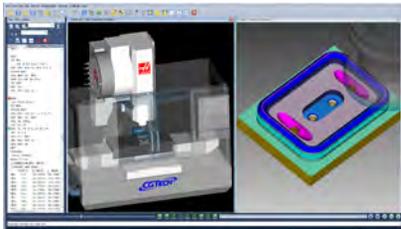
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# Industry News



software.

The weeklong event is expected to draw more than 16,000 participants including students, teachers, and business partners. The event is designed to help prepare students for the workforce.

“This is a great opportunity for students to see where their skill level is compared to their peers,” said Mike McDonald, CGTech technical support engineer.

Participants will be graded by CGTech in two categories: CNC Milling and CNC Lathe machine operations. Each category will be evaluated to

measure the contestant’s level of understanding and preparation of CNC programming. The contest assesses real world scenarios such as writing CNC programs, interpret prints, and measure/gage parts. Participants will also demonstrate theoretical knowledge of CNC machine configuration, setup, and operations.

VERICUT software is used by CGTech technical support engineers to evaluate the accuracy of the participant’s NC programs created, while ensuring their programs run without violating safety standards or damaging machines. After each student’s NC program has been simulated, the virtual workpiece will be compared to the original design model.

CGTech’s VERICUT machine simulation software detects collisions and near-misses between all machine tool components.

## Toyota Wins 2017 Automotive News PACE Award

JTEKT Toyota Americas Corporation was named a 2017 Automotive News PACE Award winner at an awards ceremony in April. The prestigious award recognizes automotive suppliers for superior innovation, technological advancement and business performance.

Toyota was recognized for its high-speed synchronization technology found on the GS300 & GS700 multitasking horizontal machining centers. Toyota’s innovation takes five processes traditionally spread across five separate machines, and integrates them into one machine while utilizing high-speed synchronization to produce parts with what Toyota reports is more accuracy, less time, less cost, and less risk to the manufacturer.

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# Industry News

## Protek Pleased with Lunch and Learn Event

Protek CNC Sales Corp (Simi Valley, CA) recently invited customers for a Lunch and Learn featuring Renishaw probing systems. Protek who is the southern California Samsung distributor highlighted four Samsung machines: MCV 400 with probe ready and the Renishaw integrated prompting, the SL2000BSY a small box way 8" chuck sub-spindle and Y Axis, SL25E (Titanium Demo), and the SL1500 with a 6" chuck box way. Protek also showed the other lines they carry including the Toyoda Stealth 965 VMC, and the Tornos GT26.

Protek owner Angelo Ariondo began the seminar telling attendees to ask questions and interact with Dana (Dana Cox was the featured speaker). With this advice, the customers made



the seminar into a very interactive discussion and everyone responded to Dana's probing experience. Protek's goal was to make sure the attendees learned something which they feel they did which made the seminar a successful day.

## Absolute Machine Tools Names Alex Churbock Regional Sales Manager

Absolute Machine Tools has named Alex Churbock as regional sales manager for the Western and Southern

United States. Churbock joined the machine tool business in 2013 as an intern at Cage & Gear Machine in Canton, Ohio. In 2104,DS he was hired by Chinese machine tool OEM Neway CNC-USA, Stafford, Texas, as a sales engineer, and was promoted to national sales manager in 2015. There, he quickly increased machine tool unit sales from 12 machines to nearly 90 machines and grew the distribution organization from five distributors to 25 nationwide.

Absolute Machine Tools president Steve Ortner said, "We are delighted to have Alex join our team. His wide experience, from machining on the shop floor to interacting with customers in sales and then managing national machine tool sales efforts, will be a great advantage to our customers as well as to our company."



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# Industry News

## Fullerton Tool Partners with Haimer USA as Safe-Lock™ Licensee

Fullerton Tool Company Inc. and Haimer USA recently signed a U.S. licensing agreement. The Fullerton Tool Company is now offering their end mills to the U.S. market with the Haimer Safe-Lock™ System.

The unique Safe-Lock™ design in cutting tools and tool holders combines high precision shrink fit clamping with a positive form locking mechanism. This prevents round cutting tools from being rotated or completely pulled out from tool holders during heavy machining. The combination of a symmetrical locking tool design with high concentricity and excellent

balance of the Safe-Lock™ system, results in a vibration-free machining process. This leads to more efficient metal removal rates.

## Simulator Brings Design-to-Production Training to the Classroom

“Fanuc America has developed a new machining simulator that encompasses the complete manufacturing process from part design and engineering to CNC programming to virtual production simulation,” said a company spokesperson. “The Fanuc Machining Simulator features Autodesk Fusion 360 CAD/CAM/CAE software and a custom machining simulation program designed by ModuleWorks.”

The Fanuc Machining Simulator

comes with Fusion 360, a cloud-based 3-D CAD, CAM and CAE software platform that helps bridge the gap between design and machining and works on both Mac and PC. Students can use Fusion 360 to perform CAD/CAM work and the included post processors will convert the designs into G-code suitable for the included CNC. The CNC will use this G-code to command the machine tool. The simulation system also includes a simple G-code editor for making modifications before the program is sent to the CNC.

The core of the system is a Fanuc CNC Simulator which provides users with the experience of working with the real look and feel of a true hardware-based Fanuc control. Based on

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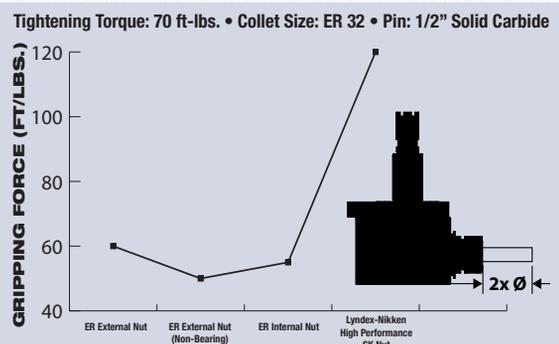
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# Industry News

the Fanuc series 0i-Model F, the CNC Simulator can be operated as either a 3-axis mill or a 2-axis lathe. Users can run programs, manage tooling and make any modifications on the control.

The simulator includes Fanuc Manual Guide i conversational programming software. An integrated PC is embedded in the simulator to run the Fusion 360 and ModuleWorks simulation software.

Users can virtually manufacture parts in milling or turning environments with realistic kinematics and structure. The simulation is based on actual CNC position data, not on the G-code program. Manual machine functions like jog, hand-wheel and reference cycles also work exactly like a real machine. The software also uses color-coded toolpaths, back-plot and cut locations. Real-time collision detection uses visual and audio signals to notify users of collisions. The milling simulation includes a 21-tool changer and the turning simulation includes a 12-tool turret.

Milling tool data can be freely assigned or imported from the CNC Simulator, while turning uses a pre-defined set of turning tools that cover a wide range of applications.

Fusion 360 is free for students, startups, educators and hobbyists once they create an Autodesk account. Commercial users can sign up for a free one-year subscription through a special promotion with Fanuc.

## Kitamura Announces Partnership with CAMplete Solutions, Inc. Truepath Software

Kitamura Machinery announces its partnership with CAMplete Solutions, Inc. worldwide for its TruePath software on Kitamura vertical and horizontal 5-axis machining centers.

An integrated suite of post processing, verification and optimization tools dedicated to 5-axis machining centers, CAMplete's versatile and flexible TruePath software package offers the end user everything needed to

analyze, modify, optimize and simulate multi-axis tool paths in an integrated environment.

CAMplete TruePath offers full G-Code verification (Real machine motion not CAM CL Data) along with



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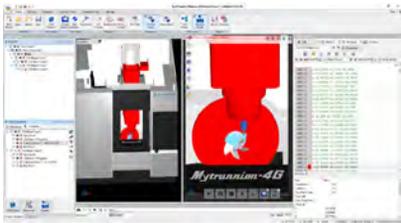
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# Industry News



accurate models provided directly by Kitamura. It prevents crashes, near-crashes, over-travels and setup errors and it verifies the entire setup. It also evaluates multiple machining strategies, optimize toolpaths to run more efficiently, minimize tool lengths and fixture heights. It also offers direct Integration with most CAM Software (Already established technical partnerships with over 90% of the CAM market)

It is ready to go “out of the box” and it has factory approved posts developed together with Kitamura. The verification is available on all machine options, offers true machine motion and full collision detection and detects collisions early. The software will shorten set-up time and identify and remove 5-axis errors.

“Kitamura’s line of machining centers are handcrafted in Japan and offer the end user superior accuracy and reliability necessary for machining in today’s competitive market. In working together with CAMplete in the development of the TruePath software, we have made the challenges and complexity of 5-axis machining easier and worry free for our end users.” said Mr. Ted Asano, director/general sales manager at Kitamura Machinery Co., LTD.

## Lyndex-Nikken Adds Personnel

Lyndex-Nikken, Inc. has hired Arnold Latzke and Don Stiebohr as product managers, Tom Latourette as a sales manager and Randy Peacock as a CMfg senior engineering specialist. They will provide product support to Lyndex-Nikken’s sales staff consisting of over 25 people. Both Arnold and Don will provide their expertise, help train new sales personnel joining the company as well as provide the team culture needed. Tom will expand the sales skills and professionalism of Lyndex-Nikken’s sales team, both inside and outside, while Randy Peacock will provide service and support to the engineering department.

Arnold has over 30 years of ex-



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# Industry News

perience in the machine tool industry, such as a national sales manager and marketing director. Arnold will be responsible for: product support for the inside and outside sales staff, meeting and presenting to distribution, MTD and end users direct, introducing/reintroducing Lyndex-Nikken to distribution, supporting the team to find new innovative products Lyndex-Nikken can bring to the market as well as working to support Lyndex-Nikken growth in all regions.



*Arnold Latzke*



*Randy Peacock*



*Don Stiebohr*



*Tom Latourette*

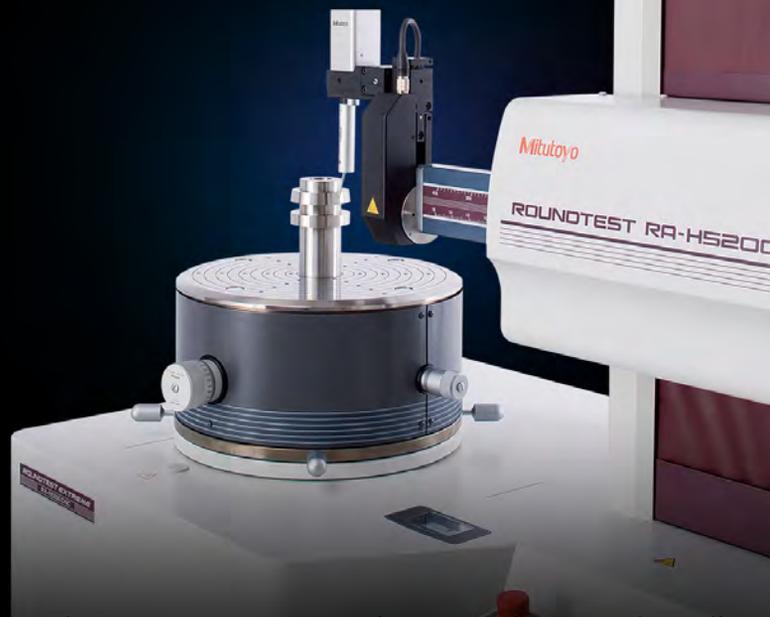
Don also has almost 30 years of experience such as product design and development. Don will be responsible for: product support for the inside and outside sales staff, training new sales personnel joining Lyndex-Nikken, helping provide team culture to reach goals and objectives, support the efforts of distribution and provide technical assistance to end users.

Tom has 32 years of sales, marketing and sales Leadership experience, consisting of 24 years in the building products industry. Tom will be responsible for expanding the sales

skills and professionalism of the Lyndex-Nikken inside and outside sales team, amplifying and heightening the Lyndex-Nikken customer value-driven

metrics and measurements, utilizing hiring and training skills to bolster the sales force in key growth areas, increasing value of the solution selling

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# Industry News

program and lastly support the efforts of distribution.

Randy has over 27 years experience in the machine tool industry as a service/applications engineer, appli-

cations engineering manager, product specialist and demonstration team leader. Randy will be responsible for robotic automation & integration, 4 & 5-axis rotary table management sys-

tems, and extensive work and involvement with all of the Lyndex-Nikken product line.

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## Cal Poly Excels in 3rd Season of SAE Baja Competition

The California Polytechnic Institute in Pomona, CA competed in the Collegiate Baja Off-road Competition in Pittsburg, Kansas on May 25-28 and finished in 4th Place. The event sponsored by the Society of Automotive Engineers (SAE) saw over 100 teams competing from Universities all over the world. Students from the United States, Canada, Mexico, India, China, South Korea all participated in the competition. In addition to the Baja Off road Competition the SAE also holds Collegiate Design Events for Formula Cars, Aircraft, Super mileage vehicles, and Autonomous Driving vehicles.

To compete in the SAE Competition, students must design and build an off-road vehicle and then take part in



a variety of events with scoring based on overall design, cost, acceleration, and maneuverability and endurance. The event was won by the University of Michigan who finished first in 5 of the individual competitions. Cal Poly finished 4th with a new vehicle designed and built in their Engineering Lab. Parts on the Cal Poly Pomona vehicle were machined on the SMTCL VMC1000B and VivaTurn lathe.

# Industry News

These machines were provided by SMTCL-Americas to the Cal Poly Pomona Mechanical Engineering Lab.

Clifford Stover MSE PE, Professor, Engineering Director of California State Polytechnic University – Pomona said, “Through the state-of-the-art CNC machines and the ingenuity of our students, we put a great car on the track, but more importantly we are preparing our students for the real world of manufacturing.”

## Kitagawa NorthTech Hires Senior Manager of Engineering & Manufacturing

Kitagawa NorthTech, Inc. announced Shaun Thomas has joined

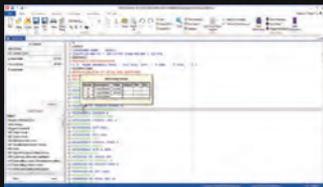
the company as senior manager of engineering & manufacturing. In his position, Thomas will be instrumental in managing all design, engineering and manufacturing processes.

Thomas comes to Kitagawa NorthTech with over 13 years of direct workholding industry experience. Prior to joining Kitagawa NorthTech, he spent over a decade at workholding manufacturer SMW Autoblok, serving in various manufacturing and engineering capacities as well as estimating custom engineered projects. He began his career as design engineer for the company. Upon graduate studies and earning his Master’s in Business Administration (MBA), Thomas was then promoted to engineering supervisor at SMW Autoblok.

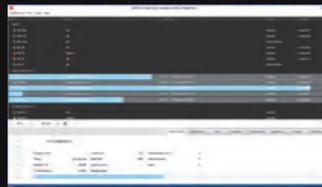
“Kitagawa has one of the most respected names in the workholding business with superior engineering, workmanship and quality. I look forward to being an integral part of the company’s future,” said Thomas.

In his role, Thomas will also support Kitagawa NorthTech’s in-house Productivity Team, which is responsible for designing, engineering and manufacturing custom workholding and other integrated products and solutions. Their ranges of custom workholding services include engineered workholding for turning, prismatic milling applications, automation solutions and steady rests.

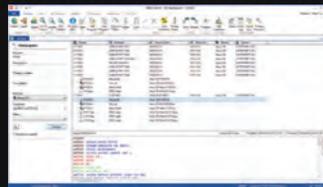
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HMC-204	541-4636	Marv	03:52	03:50	Running
HMC-518	543-6460	Wallace	00:07	03:40	Running
VMC-3Axis	Ingen	Patrick	00:00	00:00	Running
HMC-48	1404	Roark Jr	03:21	03:50	Running
HMC-48	507-5420	Stan	06:24	06:20	Running
HMC-48	509-0159	Dwight	00:08	02:45	Running
HMC-48	VRX-S	Ingen	00:00	00:00	Running

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# New Products

## Expanded Feeler Line with 5-Axis Machining Center —Methods Machine Tools

Methods Machine Tools, Inc. has

expanded its Feeler line to include the gantry style Feeler U-800 5-axis machining center, designed for versatile high precision machining of large and heavy parts.

The Feeler U-800 5-axis machining center is designed with a gantry-type structure that allows large work-pieces to be loaded and unloaded with ease either through the front or overhead with an automatically retractable roof. The gantry structure, together with an advanced U-shaped base and cross rail, increases structural rigidity, ensures high machining accuracy and exceptional surface finishes.

The U-800, equipped with a 27 HP, 12,000 rpm (15,000 optional) DDS spindle for fast, efficient high-speed machining, features the Heidenhain TNC-640 Control and glass scale feedback on all 5-axes. The trunnion is solidly built, utilizing direct drive motors with a 31.5" dia. by 24" work envelope and a weight capacity of 2,600 pounds. The tilting A axis has a full +/- 120 degrees of motion.

A servo-driven, 32 (optional 64) tool ATC carousel provides fast, reliable tool changing. Additional features include twin ball screws on the Y axis, roller guideways on the X, Y and Z axis and 5-axis kinematic software for high accuracy and repeatability. These features, in addition to the direct drive spindle, spindle chiller and auto lubrication are all furnished standard on the Feeler U-800.

"The U-800's gantry type structure, together with the U-shaped base and stepped cross rail, brings structural stability to a new level in the high precision 5-axis machining of heavy parts," said Dale Hedberg, Feeler product manager at Methods Machine Tools, Inc.

## New Circle-Segment End Mills —Emurge

"Emurge Corp. has introduced circle-segment cutters, an innovative class of end mills designed to enable substantially more material removal with fewer passes in 5-axis machining, over 80% cycle time reductions and up to 50% smoother surface fin-



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# New Products

ishes,” said an Emuge spokesperson. “Circle-segment tools are a totally new end mill design, exclusive to Emuge.”

These high-performance tools, suited for machining turbine blades, impellers, blisks and in moldmaking applications, feature unique forms with large radii in the cutting area of the mills, allowing a larger axial depth of cut during pre-finishing and finishing operations.

Emuge circle-segment solid-carbide end mills are offered in four geometries: barrel-shaped, oval form, taper form and lens shape. Oval and taper form mills are ideal for curved shapes such as blades or straight-walled pockets, freely engaging more of the cutting edge. Barrel design mills provide highly effective flank milling to the sides of spiral grooves and similar applications, while lens shape mills excel in narrow channels or in lands on molds.

“Specific CAM system software, such as HyperMill (Open Mind) or Mastercam Version 2017 is required to support and compute the geometries of Emuge circle-segment end mills to achieve the performance levels the tools were designed for,” said the spokesperson.

“Our all-new circle-segment end mills, only available from Emuge, provide unprecedented levels of machining performance in complex 5-axis applications, allowing precision manufacturers to attain dramatic time and cost savings, while increasing part quality,” said Bob Hellinger, president of Emuge Corp.

## Wohlhaupter MVS Modular Connection System —Allied Machine & Engineering

Allied Machine & Engineering offers Wohlhaupter’s MVS modular connection system. Part of the Multibore collection, the MVS connection is a flexible system designed primarily for drilling and boring, with application possibilities in tapping, end milling and light shell milling.

The MVS connection is a modular connection that enables the use of extended lengths or reduced diameters by using a series of components engineered for flexible adaptation. Four

sizes are available to accommodate the diameter range of the boring required: MVS 50-28, 63-36, 80-36 and 100-56. The company says that operators can easily build and change tooling components.

The MVS connection offers a mating and clamping draw force of approximately 1,900 psi provided by a three-point triangular system. The pressure points are an equal 120 degrees apart, providing high rigidity, high performance capability and a total system accuracy of 3 microns. The system holds tolerances of 0.002 microns ID to OD and a consistent 0.002 microns of parallelism between mating surfaces.

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# New Products

## New Surface Finish Measurement Probe

### —Renishaw

Renishaw announces the launch of a new, improved surface finish measurement probe (SFP2) for use with its REVO 5-axis measurement system on CMMs.

SFP2 increases the surface finish measurement ability of the REVO system, which offers a multi-sensor capability providing touch-trigger, high-speed tactile scanning and non-contact vision measurement on a single CMM.

Combining surface finish measurement and dimensional inspection on the CMM presents numerous advantages. Powered by 5-axis measurement technology, Renishaw reports

the SFP2's automated surface finish inspection offers significant time savings, reduced part handling and greater return on CMM investment.

The SFP2 system consists of a probe and a range of modules and is automatically interchangeable with all other probe options available for REVO, providing the flexibility to easily select the optimum tool to inspect a wide range of features, all on one CMM platform. Data from multiple sensors is automatically referenced to a common datum.

The surface finish system is managed by the same I++ DME compliant interface as the REVO system, and full user functionality is provided by Renishaw's MODUSTM metrology software.

## Kiwa Compact HMC with Column Traverse Structure

### —Methods Machine Tools, Inc

Methods Machine Tools, Inc. has added the Kiwa-Japan Triple H40 horizontal machining center (HMC) with a column traverse structure to its current KIWA line.

“One of the most unique design features of the Triple H40 is its ability to support flexible mounting of various fixtures and rotary tables based on the application,” said a company spokesperson. “The stationary table design enables long workpieces to be clamped firmly to the table, eliminating the back and forth action of moving parts



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# New Products

with special guarding and allowing machining access to either end of long workpieces.”

The Triple H40 has a compact machining area of 43.3” x 23.6” x 31.5”. The work table stays stationary and the XYZ-axis ball screws and roller guides are behind the XY-axis way covers.

“The Z-axis moves back and forth on the column, which assures higher rigidity of the spindle than quill type spindles,” said the spokesperson.

The long-nosed spindle has six bearings for increased stability. Pallet size is 32.3” x 17.7” with a maximum work height of 31.1” and a maximum workload of 2,200 lbs. Efficient chip evacuation is possible as a result of the minimized machining area due to the moving column structure and a large opening in the bed.

The Triple H40 features a new armless automatic tool changer (ATC) mounted on the top of the machine to save space, which allows the spindle to directly change tools with the magazine, eliminating the need for a tool change arm. This is available in a 20 or 40 tool system.

## New Generation CNC Lathe

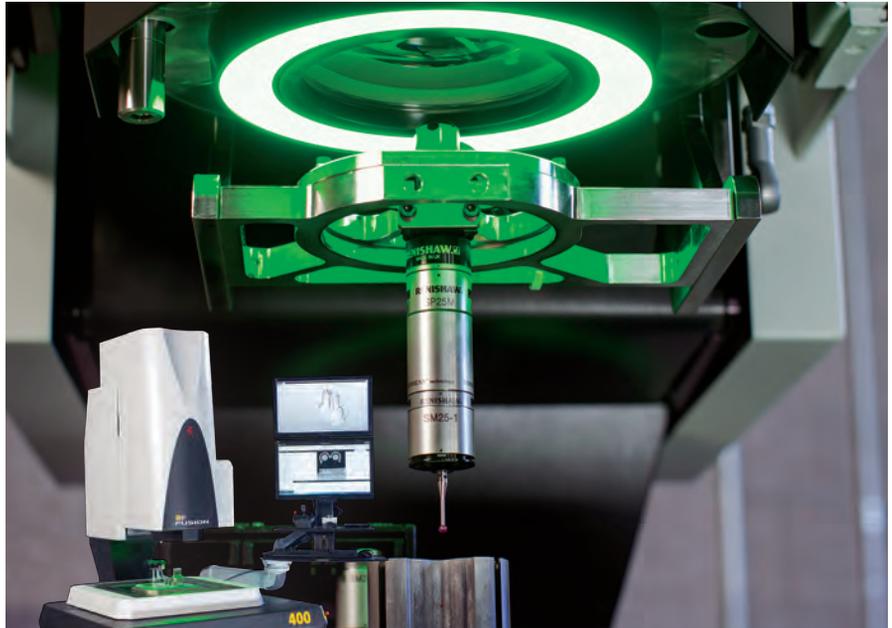
### —Takisawa Taiwan

The LA 250YS turning center from Takisawa Taiwan has many upgrades over the previous version. The machine has precisely aligned spindles with speed synchronization to automate rapid parts transfer between spindles for complex machining. Every turret position can be fitted with a driven tool for machining flexibility.

The turning center also features a 15-station turret, 4.8” travels on the Y axis, 3” bar diameter and a direct drive spindle with no vibration for what a company spokesman said provides a better finish.

The LA 250YS has a fast index time of 0.9 seconds. At 17,600 it is a powerful and rugged machine. It also

has unique machine features for bar production.



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# New Products



## High Precision Probing Line with Multichannel Radio Transmission —Marposs

Marposs has announced the availability of its new WRP60P and WRP45P high accuracy touch probes with multichannel radio transmission. These probes are designed for high accuracy 5-axes machining centers and

milling machines. Through automatic detection of machine axes position, the WRP45P and WRP60P achieve part positioning, work piece orientation and origin identification as well as accurate part measurement. Based on piezo-electric technology, these probes provide excellent measurement performance on 3D surfaces with repeatability within 0,25  $\mu\text{m}$ .

These high precision probes, which operate with the WRI receiver, have a range of 15 meters, making them well-suited for large machines. And, since the line of sight between the touch probe transmitter and receiver is not required, complex surfaces and deep cavity parts can be inspected. Measurements may be performed at depths as

great as one meters due to the modular structure and extensions of the probe.

There are several types of applications available. The multi-channel transmission and option to choose the proper channel enables each application to support up to four probes, all managed by the same WRI receiver. Additionally, the probes used in conjunction with the WRTS tool setting system can be used for twin applications allowing users to check the part and the tool using the same WRI receiver. Multi-spindle applications can also be achieved by installing two applications on the same machine, enabling two probes to be used simultaneously.

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# New Products

## New HMC Series for 5-axis Production

### —Heller Machine Tools

Heller Machine Tools introduces its versatile HF Series 5-axis horizontal machining centers to North America for machining complex prismatic parts from lighter, smaller workpieces to heavier workpieces up to 800 kg table load. In the series of two machines, the fifth axis is provided by the workpiece on a swiveling trunnion with rotary table or a pallet changer for higher volume production. Users can specify from a range of four spindle packages based on the material they are to process. Spindle speeds up to 18000 rpm and torque up to 354 Nm are available.

The two new machine models are Heller's entry into a popular size range for some industries. The HF 5500 of-



fers a work area of 900x950x900mm (X/Y/Z), and the smaller HF 3500 has a work envelope of 710/750/710mm (X/Y/Z).

With three linear axes in X, Y and Z and two rotary axes in A and B integrated into a rotary table on a trunnion, the HF machines are designed for 5-sided machining and simultaneous 5-axis machining. The HF machines may alternatively be equipped with a lift-and-rotate pallet changer for series 5-sided production.

Heller's concept is not only based on single-part clamping but provides the possibility of multiple clamping or the clamping of very large components (transmission cases using 'window-type' fixtures).

The NC toolchanger is equipped with two NC axes for short idle times and consistent operation. The chain-type tool magazines capacities are: HSK63: 54, 80, 160 or HSK100: 50, 100,150.

As standard, Heller offers the SC63 Speed Cutting unit (18,000rpm, 100Nm) equipped with an HSK-A 63 spindle taper. The HF machines provide a rugged 8000 (HF3500) and 10,000Nm (HF5500) of feed force.

HF series machines are equipped with a Siemens control and a double pivoting main operator panel with a 24" touchscreen .

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# New Products



## Cronus 5 Axis Moving Bridge CNC —CMS North America

The CMS Cronus moving bridge 5-axis CNC machining center and mill was designed for ultra-high precision, high power, and high speed. Cronus is ideal for high volume production of advanced materials and features—dual motor linear axes, direct drive rotating

axes, top-of-the-range speed and acceleration, high level of precision and repeatability, high rigidity and a large workable cube.

A structurally strong bridge, bolstered by thick steel structures, double-opposing servo-drives for each axis, special thermic expansion joints, and more, helps nullify deformation cause by weight, stress, and work, which can affect precision.

The company reports the CMS Cronus features roller sliding blocks that enable the best possible movement without compromising the machine itself. Pneumatic brakes on each rotating axis automatically engage when not interpolating, further increasing the rigidity of the system's unique Torque 5-axis machining head.

Cronus moving bridge provides

precision performance for advanced materials production thanks to a standard torque 5 direct-drive working head system, providing speed, rigidity, and control. Also, linear and rotary axes scales for increased accuracy and a double-opposing AC servo motor system on linear axes. The machine offers single or dual work zones for pendular work cycles along with side panels and doors, as well as optional total enclosures, to protect from dust and debris.

Cronus machines are available dry, mist, or full-flood cutting versions and with an array of available options for work envelope size, work tables, custom fixtures, and more.

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# New Products

## New PCM Swiss Made High Speed Spindles for Citizen Swiss Machines —GenSwiss

GenSwiss, a source for tools, accessories and assistance for Swiss machining, now offers the new PCM Swiss-made 4X high speed spindles for select Citizen Swiss machines, allowing users more productive performance from existing micro drills, end mills and high speed thread milling tooling.

The spindles feature a new planetary style gear system with a low-profile configuration. “The 4X Models GSC510 and GSC110 are a direct fit for many Citizen A, L, M and the new L32 series machines, providing easy installation and operation,” said a

company spokesperson.

In addition, the unique housing design seals out cutting oil. “From application to application whatever the user programs allows the use of higher rotational output speeds to minimize burrs, provide improved surface finishes and eliminate secondary operations,” said the spokesperson.

The Rego Fix ER8 collet is standard for the full range of micro toolholding.

## Quicktech High-Production CNC Turning Centers —Absolute Machine Tools

Absolute Machine Tools announce that they are the exclusive North American distributor of the Quicktech line of CNC turning centers. “We car-



ried the line in the late 90s and are happy to have it once again as another quality choice for our customers,” said Steve Ortner, president of Absolute Machine Tools. “The manufacturer has significantly improved the design and construction of the products.”

The i-42 Ultimate and i-60 Ultimate high-production CNC turning centers permit complete machining, including complex milling operations, of

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# CNC WEST

# New Products

medium-diameter bar stock. With two turning spindles, two milling spindles and two B-axes, these machines provide a total of 10 axes and capacity for up to 49 tools. Bar capacity for the 15 HP main spindle is 42mm for the i-42 model (60mm for the i-60), and 30mm for the 7.5 HP sub-spindle on both models. Both main- and sub-spindles feature full continuous C-axes and are synchronized.

The machines' tooling system provides outstanding part-making flexibility. A 4-axis (linear X, Y, Z and rotating B axes) gang-type vertical tool post serves each spindle. The main tool post has 6 O.D. turning tools, 5 I.D. turning tools, and 12 live tools. The sub tool post features 5 O.D. turning tools, 9 I.D. turning tools, and 12 live

tools. Each tool post has a Y-axis for off-center milling operations. Live tools are mounted in a continuous 360° B-axis and powered by a 2 HP spindle motor.

A matched Mitsubishi CNC system combines a Mitsubishi M830S control with a 15" LCD, Mitsubishi servomotors and amplifiers. A Fancu OiT-F, 15" LCD system, also with matched motors and drives, is available.



## QUAD 7 Carbide Tipped Band Saw Blades —Simonds Saw

Simonds Saw introduces QUAD 7™ carbide tipped band saw blades for demanding production cutting op-

erations such as steel service centers, foundries and aerospace sawing applications. QUAD 7 blades are ideal for alloy; high chrome alloy; Inconel and other nickel-based alloys; titanium block and plate; stainless steels; and mold, tool and bearing steels.

QUAD 7 blades feature a posi-

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# New Products

tive rake angle four-tooth pattern that produces seven distinct chips. This provides exceptionally high material penetration for faster cutting in production sawing alloy applications.

“With today’s increased use of exotic alloys in production sawing, the need for more aggressive cutting solutions is pronounced. Our innovative QUAD 7 tooth pattern was developed to address this and customers have responded very positively to initial testing,” said Dale Petts, Simonds Saw’s global product manager.

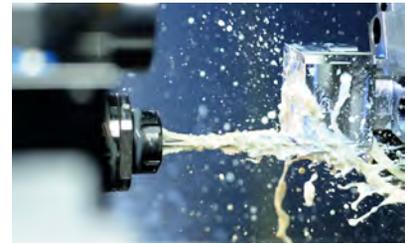
Simonds QUAD 7™ carbide tipped blades are available in five widths: 3/4” x .050, 1-1/2” x .050, 2” x .062, 2-5/8” x .062 and 3-1/8” x .062 and are shipped in 150’ coils. Variable tooth pitch (TPI) options include 2.5 – 3.5, 2-3, 1.9-2.1,

1.4-1.8, 1.1-1.4, and .9-1.1 teeth per inch. Blades are furnished with plastic capping to protect teeth against damage in transit and handling.

## Coolant-Thru Tooling —Heimatec

Heimatec, a world leader in live tools, angle and multi-spindle drill heads, announced immediate availability of its newest development, a coolant-thru feature on all the company’s current line items.

Coolant-thru technology is often the answer for faster, cleaner cutting on larger and deeper parts, where the chips and excess heat build-up are significant challenges. Heimatec



now offers high-pressure coolant-thru designs up to 1000 psi on straight and 2000 psi on angle head tools.

Company president Preben Hansen comments, “Production drilling should almost always be done with internal coolant tools and this development means we’ll be able to satisfy more customer needs in that area.”

A full range of styles and pressures is available immediately, according to

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# New Products

the company.

## CNC for Auxiliary Axes Now Offered —Heidenhain

Heidenhain now offers the PNC 610 control system for auxiliary axes for modular expansion of the TNC hardware. The independently working PNC 610 enables machine tool builders to realize modular and scalable automation solutions for handling workpieces and tools in order to respond to the end users' respective requirements in an optimum manner.

Auxiliary axes and principal axes can be interpolated with the PNC

610, and are usually used to perform movements on the periphery, such as in tool magazines or workpiece handling systems.

The PNC 610 can be connected to other machine system parts or to CNC controls via standard automation interfaces (TCP/IP, PROFIBUS-DP and PROFINET-IO).

It is used to program axis movements in the integrated PLC. Established common PLC functions and Heidenhain software tools from the TNC controls are also available for the PNC 610, for example, Teleservice or VNC can be utilized during setup via one of two Ethernet interfaces.

A recommendation for machine builders is to use the PNC 610 in

combination with the UEC or UMC compact inverters as a very compact way for integration. If visualization is required, an ITC 755 industrial screen can be used with ASCII keyboard. Customized graphics can be written with the Python OEM option, for which 10MB of memory is provided.

## New CUT P Series Makes First Appearance at Event —GF Machining Solutions

GF Machining Solutions unveiled its all new CUT P Series machines at its Solutions Days event June 6 – 7 at the company's U.S. Headquarters in Lincolnshire, Illinois

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# New Products

The CUT P series of wire EDMs handles large, heavy part production for job shops, moldmakers and manufacturers in the stamping, aerospace and medical industries. The machines provide ample axis travels and cut large, steep tapers and thread wire quickly and efficiently. They also come standard with the GF Machining Solutions' Intelligent Collision Protection and the company's user-friendly AC CUT Human Machine Interface (HMI) for ease of programming and operation.

GF Machining Solutions highlighted several other new solutions in a special area dedicated to the GF New Technologies Group. The group displayed a Microlution ML-5 ultra-

fast micro-laser drilling system, the AM 290 S Additive Manufacturing tooling solution and the LASER P 400 and LASER P 1000 laser texturing systems.

Another Solutions Days technology spotlight was the Mikron MILL P 900. The company reports the new Mikron high-speed vertical mill features a polymer concrete machine base that delivers high dynamic stiffness, while its symmetrical portal design, thermal management, contour accuracy and precise positioning contribute to superior part surface finishes. The machine sports an aggressive high-speed 20,000-rpm StepTec spindle.



## LU3000 EX-M 4-Axis Lathe Offers High Production and Reliability —Okuma

Okuma's LU3000 EX-M turning center is known for excellence in manufacturing precision parts in




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# New Products

high production environments and is designed for reliability, longevity and maximized up-time.

The LU3000 EX-M is built as an integrated production system with one goal in mind - to provide the customer with a machine that makes precision parts with the highest level of efficiency. This machine features a compact design, heavy duty, cast iron base, in addition to optimized CNC control, motors and drive systems.

With a powerful main spindle and dual servo turrets capable of simultaneous, synchronized control, the LU3000 EX-M has the power and flexibility to produce parts with the highest level of efficiency - two tools in the cut maximize production. Additionally, Okuma

offers a series of functions specifically designed to enhance and simplify simultaneous 4-axis turning – including a single programming file for both turrets, and the ability to program both turrets as if they were the upper turret operating on the left spindle.

The LU3000 EX-M, designed and built around Okuma's Thermal Friendly Concept, is capable of producing high quality parts across multiple shifts despite changing environmental temperatures. With its box-slant bed design Okuma reports the LU3000 EX-M experiences minimal thermal growth over time.



## New FNL-220LSY CNC Multi-Axis Lathe —Chevalier

The newly designed, multi-functional FNL-220LSY series multi-axis lathe from Chevalier incorporates many innovative features. Turning and milling with first and second opera-

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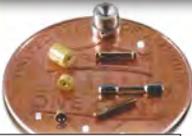
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# New Products

tions are in one machine. Y-axis travel ( $\pm 2.2''$  from the centerline) for off-center milling is the largest range in its class, reports Chevalier. The series features high-torque live tooling, with full C-axis for the main and sub-spindle. The ability to turn and mill complex parts and perform multiple operations on one machine increases throughput and reduces handling.

The bar capacity is 2.0"; for main spindle; maximum cutting diameters is 12.6" with a turning length of 20.1". The swing over bed is 24.4"; chuck size is 8" for main and 6" for the sub-spindle. The travel distance on X, Z, Y and C1-C2-axes are 8.7" by 22.0" by 4.3" ( $\pm 2.2$ ) by 360-degrees with a rapid traverse rate of 1,181ipm.

The lathe has a sixty-degree, compound Y-axis, slant bed design with

roller linear ways. Linear roller guide ways ensure the highest accuracy during high-speed machining. Chevalier reports that these guide ways provide 30% stronger rigidity than regular ball ways.

A German Sauter 12-station BMT-45 live turret with maximum 4,000 RPM live tooling speed with all stations live is standard for this series. An oversized clamping curved coupling enhances rigidity and accuracy of cutting tools during machining. A hydraulic clamping cylinder with a disk break to ensure the rigidity for heavy-duty milling and full C-axis in both spindles with a minimum interpolation of 0.001 degrees.

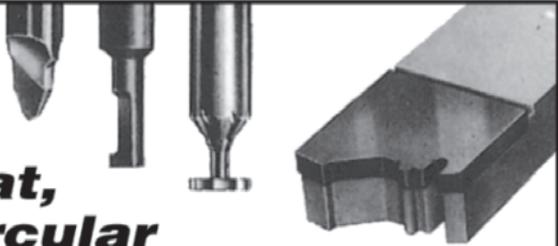
The machine is equipped with a Fanuc Oi-TF control with Fanuc drives and motors plus 10.4" color LCD with

a fully conversational manual guide i program and 3D simulation. Standard accessories include a chip conveyor, parts catcher, oil skimmer, tool pre-setter, turning holder package, rotary holders package and more.

## A New Range of ISOTURN Cermet Inserts —ISCAR

ISCAR is introducing new ISO turning inserts made from cermet grades featuring new chipformers specially designed for semi-finishing and finishing applications. All the new inserts are available in IC20N and IC520N cermet grades to be used mainly for machining steel.

Isicar reports the cermet grades,



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# New Products



when compared to regular cemented carbide, are characterized by a greater hardness that enables machining at higher cutting speeds, improved wear resistance and the ability to prevent built-up edge.

The main advantages of cermet grades are for applications that require high surface quality, dimensional

stability and tight tolerances. ISCAR reports that cermet grades usually guarantee longer tool life at small to medium chip load and uniform workpiece dimensions. They are ideal for fine and semi-finishing of steel, sintered metal, ductile cast iron and stainless steel.

ISCAR offers a wide range of chipformers and geometries for indexable negative and positive inserts including wiper corner configurations. These chipformers were designed to ensure reliable chipbreaking in automated machining applications.

These cermet families include chipformers for a specific geometry which should help in selecting the most suitable chipformer according to the specified application range for each chipformer type.



## New Back Working Spindle For Star Swiss Type Machines

—Ibag North America

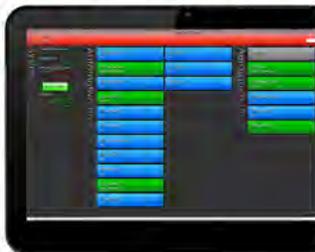
Ibag North America announces the new 25mm back working spindle specially designed for Star Swiss type machines that features 60,000 rpm with grease packed lubrication and 80,000 rpm with oil mist lubrication.

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# New Products

This new HSC (High Speed Cutting) motor spindle is designed for machining applications involving micro milling and drilling tools as well as engraving and fine milling. The spindle features rigid precision bearings near the spindle nose to dramatically enhance true running, assuring better surface quality and greater machining accuracy.

In addition, Ibag offers a ready-to-install kit for Micro Line spindles that includes the supply unit, all electrical and pneumatic lines to permit precision radial drilling, milling and tapping, expanding overall turning center capability.

## NEW XD32/38II —Hanwha Machinery America

Hanwha Machinery America has introduced the XD32/38II Swiss-type lathe with bar capacity up to 1.50" diameter at the main and sub spindle. More tool positions and additional machining capabilities are the highlight.

Six leveling pads under the base of the single piece casting equally support the load under the headstock, the guide bushing housing and the full casting supporting the sub spindle at its fully retracted position. A centrally located oversized guide bushing housing ensures process stability in heavy



cutting conditions for tough materials. Two sets of angular contact bearings provide support and accuracy. The machine weighs 9,500 lbs.

The main spindle is powered by a 10

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# New Products

HP, 8,000 RPM Fanuc integral spindle motor. Wye-delta technology is utilized to produce high torque over a wide RPM range. The XD38II is equipped with five .625" square O.D. turning tool stations and five ER-16 cross mill/drill units on the main cross slide. The five cross milling units have an 8,000 RPM capacity. There are five front / back facing ER-20M I.D. tool positions on the main tool stand. Two off-center front facing ER-16 mill/drill units are mounted next to the sub-spindle.

The eight position back working station includes four ER-16 mill/drill units and four static I.D. positions. Y2-Axis control provides a 2.835" stroke to position the eight tools. Sub spindle off-center machining, eccentric milling and cross drilling/milling with

an optional attachment are possible. All mill/drill stations are gear driven and 1.5 HP. All stations are equipped with rigid tapping with a total of 30 tool positions. An optional B-axis tool post allows for angular milling and drilling. Four-axis synchronous machining is standard for contour milling. Both the main and sub spindle have C-axis control and rigid tapping. Simultaneous turning and machining on the main and sub spindle can be performed by utilizing the Hanwha/Fanuc 32i-B Two-Path Control.

The user- friendly Hanwha Custom Pages and Graphics in the CNC control assist in the machine set-up process, programming and work eject routines. A tool load monitoring system is standard.

The 11 mill/drill units, parts conveyor, 3-color tower light, coolant flow sensor, power driven back working station, set of ER-20M tool holders, ER collet set and crash protection are all standard. Parts in the .500" to 1.500" diameter range can be machined complete.

## GEN3SYS® XT Pro Line of Inserts and Holders —Allied Machine

Allied Machine & Engineering announces its new GEN3SYS® XT Pro line of high penetration drilling products. The product line features enhanced holders and inserts with three unique geometries, and two ad-

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# New Products



vanced coatings. It combines specific geometries and coatings to create an optimal solution for different machining materials.

GEN3SYS XT Pro inserts have been designed specifically for ISO material classes, making tool selection easy. They are offered for steels (class P), cast irons (class K), and non-ferrous

materials (class N). The drill inserts come in diameters ranging from .4331 inches to 1.378 inches and are available in .004 inch increments. The inserts designed specifically for steel and cast iron have new AM400 series coatings, which provides increased wear resistance and tool life. Inserts for non-ferrous materials are coated with titanium nitride (TiN).

Holders for the GEN3SYS XT Pro line are offered in depth-to-diameter ratios of 3xD, 5xD, 7xD, and a new 10xD. These newly designed holders feature an enhanced flute design that improves chip evacuation and an updated coolant configuration that the company says increases flow and directs additional coolant to the cutting

zone. The GEN3SYS XT Pro holders are available in both imperial and metric shank diameters.

## Swiss-Style Tooling with New Polygon Inserts and Holder

### —Carmex

Carmex Precision Tools LLC has announced the latest addition to its family of tooling for Swiss-style applications. The Swiss-Line combines a new type of polygon insert and holder for external turning, grooving, parting, and threading. The high precision ground inserts are constructed of solid carbide with specialty coating for lon-

  
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# New Products



The polygon shape, combined with Carmex's special clamping system, allows for fast changeover, and the carbide/coating combination is engineered to withstand the stresses of hard machining in a small parts environment."

ger tool life and increased productivity.

Developed for machining a wide range of materials, a selection of inserts can be used with the same toolholders. Holders are coated to resist abrasion for a long service life.

According to Jim White, national sales manager for Carmex USA, "Our new polygon inserts have been specially designed and constructed to deliver high precision performance, excellent finish and greater production in Swiss-style machining applications.

## New Offset Angle Heads —Koma Precision

Koma Precision has introduced a new series of offset angle heads from Alberti. The new series of offset heads feature a combination of high pressure coolant through the main spindle up to 100 bar with increased RPM and a high-speed option. "Another big advantage is the possibility of dry running during machining, something that was

not available in the past," said a Koma spokesperson. "The new TOP LINE range heads are a result of Alberti's research and development and attempt to deliver continuous improvement."

The company reports that all Alberti angle head spindles are manufactured from one solid piece of hardened steel that increases resistance to bending stress by 25%. "This also enables the tools to reach higher RPM without vibrations, thus resulting in higher speed and precision," said the spokesperson. "The unique angular contact bearings ensure perfect concentricity and stability required to achieve higher performance of machining operations. The mechanical seals and gears are researched and developed at the Alberti Engineering and Technology Center."

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# New Products

## New Surface Finish Measurement Probe

### —Renishaw

Renishaw announced the launch of a new, improved surface finish measurement probe (SFP2) for use with its REVO 5-axis measurement system on CMMs.

SFP2 increases the surface finish measurement ability of the REVO system, which offers a multi-sensor capability providing touch-trigger, high-speed tactile scanning and non-contact vision measurement on a single CMM.

Powered by 5-axis measurement technology, SFP2's automated surface finish inspection offers significant time savings, reduced part handling and

greater return on CMM investment, according to Renishaw.

The SFP2 system consists of a probe and a range of modules and is automatically interchangeable with all other probe options available for REVO, providing the flexibility to easily select the optimum tool to inspect a wide range of features, all on one CMM platform. Data from multiple sensors is automatically referenced to a common datum.

The surface finish system is managed by the same I++ DME compliant interface as the REVO system, and full user functionality is provided by Renishaw's MODUSTM metrology software.

## T-Micro System for Small Internal Diameters

### —Ingersoll Cutting Tools

Ingersoll Cutting Tools introduces the T-Micro system specifically designed for the machining of very small internal diameters. The T-Micro system is a 2-piece design, consisting of a sleeve and replaceable carbide inserts. Applications include grooving, profiling, chamfering, face grooving/deep face grooving, threading, and back turning starting at .024". The inserts feature coolant thru capabilities and are available in grade TT9030, a submicron substrate with PVD-TiAlN coating.

Inside the new T-Micro sleeve design is a locating pin to ensure repeatability when indexing the inserts. This

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# New Products

allows operators to return to machining without resetting the tool. The locating pin also allows operators to replace inserts without removing the sleeve from the tool post.

The T-Micro sleeve also features an angular clamping design to avoid interference when replacing the insert allowing simplified tool change on Swiss-type and other multi-spindle lathes. Ingersoll offers this sleeve in many shank sizes .500", .625", .750", and 1.00" also 12mm, 14mm, 16mm, 20mm, 22mm, and 25mm to accommodate all machines.

## Mastercam 2017 Lathe —CNC Software

From accepting and programming any CAD file to dynamic roughing and precision finishing, CNC Software states Mastercam 2017 Lathe gives you a variety of techniques to turn all of your parts exactly as you need them. Mastercam 2017 Lathe features a new chip break option, TNRC control, stock model enhancements, and so much more.

The Align solid body function simplifies the process of aligning solid models for turning. You can define the center of the rotation for the part and select the appropriate geometry. Mas-

tercam will then rotate to an isometric view where you can use the dynamic gnomon to adjust the origin.

A new option and dialog box has been added to the Lathe Rough and Lathe Contour Rough toolpaths to establish when chip breaks occur. This is valuable when working with stringy materials such as aluminum or plastic, and allows you to set length and time conditions, retract, and dwell options.

The Tool Angle dialog box contains new options which were previously only available for Mill-Turn operations. These options tell Mastercam which quadrant you used to touch off your tool. If you are creating a toolpath and the tool's control point is not where



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### Skills Required:

Strong pattern recognition in CNC set up process in order to improve and streamline productivity  
Strong experience setting up high precision CNC equipment with complex systems (multi axis)  
Motivated by challenges and thriving under pressure of deadlines in a high performance environment  
Experience utilizing CMM equipment in measuring, including optics and probes, to verify dimensions  
Strong self starting attitude and an extremely pro-active approach and communication  
Strong ability to get along with others and be a team player  
Strong bias for common sense and recognition of overall picture in setting and achieving goals  
Extreme attention to detail and strength in performing repeat work with high precision  
Background in Electrical Connector/Fluid Transfer manufacturing a plus

### Qualities and Characteristics:

Self starter, motivated, take-charge, independent, honest, integrity, loyal, articulate, communicative, sense of humor, organized, efficient, punctual, confident, firm, decisive, non-judgmental, polite, pleasant, conscientious, practical, spontaneous, thorough, diligent, witty, intelligent, mature, problem solver, compassionate, good listener, attentive, patient, disciplined, thoughtful.

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# New Products

you want it, you can use these options to swap it.

Also, available in the Mastercam 2017 Lathe is a simplified process for selecting the tool plane, origin, and display mode in the lathe operations. Also, the new axis combination / spindle

origin dialog box filters available tool planes, displaying only those planes with the correct orientation for the selected axis combination. Lathe Stock Model operations now allows users to manipulate the lathe stock boundary using mill operations.



## HD2200 High Speed Rigid Turning Center —Hyundai WIA

Hyundai WIA's HD2200 next generation turning center is designed using the latest technology maximizing performance and increasing productivity. With an 8- inch chuck and X/Z travel of 8.3"/22.8" respectively, the HD2200 is ideal for many tight tolerance applications including automotive components such as; pulleys, drive gears, and input shafts. According to a company spokesman the HD2200 is rigid, powerful, precise, and compact. Key features include a 45° slanted one-piece bed structure for high rigidity. It has a stabilized unit structure to minimize thermal displacement. The machine has a large spindle bore: 3.1" with a bar capacity of 2.6" along with excellent rapid traverse rate of 30m/min [1,181ipm] (Z-axis). The machine has a reliable, high speed servo turret: 0.12sec/step, box guideways for heavy duty cutting. And a max turning length/diameter: 22.2"/14.6"



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# New Products

## Quicktech i-42 ROBO/ i-60 ROBO 4-Axis Mill/Turn Centers

### —Absolute Machine Tools

Quicktech i-42 ROBO and i-60 ROBO 4-axis mill/turn centers feature integrated 6-axis Mitsubishi robots for fast, automated loading and unloading of medium-diameter (i42:1.68", i60: 2.36") bar stock. In addition to carrying out highly productive turning, the machines can perform complex milling with standard live tools. An optional 360° B-axis further extends milling capabilities.

The Mitsubishi S-series 6-axis high-speed robot automatically loads, unloads, or turns over parts weighing up to 13 lbs. An optional multi-tray pallet handling system enables untended operation.

The i-42 ROBO and i-60 ROBO machines operate in 4 axes (5 with the optional B-axis), with a 15-hp high-torque turning spindle that features C-axis capability, a 2-hp live tool milling spindle, and capacity for 17 tools (23 with B-axis). A standard DIN-173-42B collet chuck provides capacity for 42mm bar.

The machines' innovative tooling arrangement provides partmaking flexibility and efficiency. A 3-axis (4-axis with optional B-axis) gang-type vertical tool post serves the main spindle with 6 O.D. turning tools, 5 I.D. turning tools, and 3 radial and 3 axial live tool heads. The tool post also provides Y-axis motion for off-center milling operations. Rigid tapping is standard, as is the Kennametal KM-25 quick-change system.

A matched CNC system combines a Mitsubishi M80A control, featuring a 10.4" LCD, with Mitsubishi servomotors and amplifiers.

## Live Tooling for Many Models Now Available —Heimatec

Heimatec now offers live tooling for all popular models in the Hyundai, Miyano and Nakamura turning center

lines. Standard and custom styles are available for all tapers, including HSK and BT30, as well as fixed and adjustable models.

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# ...Hotline Continued From Page 8

The super-cheap operator is expected to start with an initial fleet of 10 high-density Boeing 737-800s equipped with interiors will be designed by WestJet, the first major airline that brought low-cost air travel to Canada in 1996.

---

## **Kansas City Honeywell Expansion Means More Jobs in NM**

By the end of this year, Honeywell expects to add hundreds of jobs to serve its Kansas City Operations, according to the Kansas City Business Journal. And some of those jobs will be in New Mexico, officials with the company said.

Shaunda Parks, a spokeswoman with Honeywell, confirmed with Albuquerque Business First that Honeywell is looking to fill 50 jobs in New Mexico through calendar year 2018.

"These positions will support the Kansas City National Security Campus contract and would be half engineering and half technicians," Parks said.

The Kansas City National Security Campus employs the majority of Honeywell workers with more than 2,600 engineers. Honeywell employs around 200 people at its Alamo Facility in Albuquerque, and a small group of people in Los Alamos.

---

## **Tucson's Vector Successfully Launches Rocket**

Vector, a Tucson-based startup that plans to launch micro-satellites in space, successfully launched a prototype of its Vector-R rocket for the first time in May from a site near Mohave, California.

The flight makes Vector the first of a cadre of emerging small-launch companies to successfully test a launch vehicle.

An engineering model of the 42-foot-long rocket lifted off at just after noon, after engineers addressed a minor liquid-oxygen leak, according to Vector's Twitter feed.

The flight test is the first of several upcoming launches to evaluate key technologies and functions of the family of Vector launch vehicles, which includes plans for a heavier rocket. Vector previously had tested a scaled-down 12-foot version of the Vector-R.

## **Elite Aviation Products Announces Corporate Roll-Up into Elite Aerospace Group**

Dustin Tillman CEO of Irvine, CA based Elite Aviation Products (EAP) has formally announced that Elite Aviation Products, along with its sister company Elite Engineering Services (EES), have completed their corporate roll-up into their new parent company Elite Aerospace Group.

"From day one it has been our primary mission as a company to provide a service experience unlike any other supplier in the aerospace industry," Tillman stated. "Part of that mission is providing auxiliary services in addition to our manufacturing business, including engineering services, logistics and integration and financial services to name a few."

This is the pathway to truly becoming the integrator our customers need now more than ever."

In addition to EAP and EES, three new entities have also been created under the Elite Aerospace Group umbrella. These entities include: Elite Logistics & Integration, Elite 360 Technologies and Elite Financial Services.

---

## **Taiwan Arms Trade Deals Boosting Arizona Companies**

Trade deals with Taiwan calling for that country to buy more weapons is boosting jobs and work at U.S. manufacturers, including ones in Arizona.

Reuters reported the Taiwanese government of items from attack helicopters to missile defense systems were a boost to work being done by Arizona firms such as Raytheon Co and Boeing Co.

Raytheon makes missile systems in Tucson while Boeing makes helicopters, such as that AH-64 Apache, in Mesa.

According to a study, between 2006 and 2015, Taiwan accounted for about \$2 billion in annual spending to U.S. defense manufacturers.

**Continued on page 98.....**

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# ...Hotline Continued From Page 96

## Oregon Based Vigor Works Gets Big Order

Vigor Works LLC, Clackamas, Oregon, was awarded a contract for the design, construction, testing and support of a third Sea, Air, and Land Insertion, Observation, and Neutralization craft in support of Special Operations Command. This contract is necessary in support of Special Operations Forces core tasks of counter-proliferation, counter terrorism, direct action, special reconnaissance, and irregular warfare. The work will be performed in Clackamas, Oregon, and is expected to have a period of performance of 24 months.

## Utah Company Gets Air Force Contract

Automotive & Industrial Supply Co., Ogden, Utah, has been awarded a contract for aircraft coatings and sealants. Contractor will provide just-in-time delivery of aerospace sealants, coatings, and technical assistance. Work will be performed at Hill Air Force Base, Utah, and is expected to be complete by July 1, 2022.

## Fresno Company Sold

Fresno-based Tempest Technology, which manufactures ventilation systems for the fire service sector, has been sold to a French company.

Leader Group of France, which has sold equipment used in firefighting and search and rescue operations for more than 32 years, is the new owner in a deal whose terms were not disclosed.

Tempest was founded in 1987 by Don Hamman as a company that specialized in making small fans for inflating hot air balloons.

The family-owned business soon found its true calling in promoting a new ventilation technique called "positive pressure ventilation" (PPV), where firefighters use small gas fans, or "blowers," as Tempest named them, to force air into a burning structure to remove all the heat, gas and smoke.

The Tempest manufacturing facility in Fresno will continue to operate as normal, and will eventually be expanded to accommodate appropriate stocking levels of both Tempest and Leader products to service dealer networks and end users, according to a news release.

In addition, this facility will serve as a manufacturing location for select Leader products.

## Boeing Wins \$58.6 Million Contract for Missile Interception Technology

Boeing recently received a \$58.6 million, 35-month contract from the U.S. Missile Defense Agency to demonstrate its evolved Multi-Object Kill Vehicle (MOKV) technology, which increases interceptors' ability to locate and destroy missiles headed toward the United States.

The U.S. Department of Defense awarded this contract on May 12.

"Our MOKV concept gives the Missile Defense Agency flexibility in eliminating threats more efficiently and affordably," said Paul Geery, vice president, Mission Solutions, Phantom Works.

## International Aerospace Firm Building new Headquarters in Chandler AZ., Doubling Workforce

Turbo Resources – which provides aeronautical and aerospace parts to international airlines and other customers – is breaking ground on a new global headquarters in Chandler, Arizona.

Turbo already is based in Chandler but is building a new 247,000-square-foot corporate base including offices and warehouse space.

"We currently have 47 employees and will be growing to around 100 in the next three to five years," said Turbo CFO Rick Willden.

The East Valley and Phoenix have a significant aerospace sector that includes Honeywell Aerospace Boeing Co. and Textron Inc. owned Able Aerospace Services Inc.

## Colorado Springs Air Force Contract

Lockheed Martin Services Inc., Colorado Springs, Colorado, has been awarded a contract to provide engineering, installation, and test resources to deploy the ground antenna/Air Force Satellite Control Network interface technology refresh. Work will be performed at Colorado Springs, Colorado, and is expected to be complete by Dec. 31, 2018



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5th Axis.....12	Hanwha Machinery.....17	Pacific Swiss.....85
Acu-Rite Co. .... BackCover	Hartwig .....19	Performance Mach Tools.....29
All American Sls & Service ....1	Heidenhain. .... Back Cover	Phase-A-Matic.....86
AME.....77	Heimatec .....81	Pierson Workholding .....33
Arizona CNC.....19	Helfer Tool Co.....86	Power Automation America .27
Autodesk.....59	Hennig .....77	Precision Tool .....65
Barton Intl .....83	Henning Software.....84	Q-Mark Mfg Inc.....90
Bison USA Corp.....84	Hogue Precision Machy.....14	QPlus.....88
Bucci Industries .....92	HS&S.....79	Refresh Your Memory.....87
Cecor .....94	Hurco .....97	Renishaw.....63
CG Tech.....57	Ingersoll Cutting Tools .....43	Rosco Precision Machinery .97
Ceratizit Metal Cutting .....35	Intech Funding.....39,85	Royal Products .....83,95
Chevalier Machinery.....46	Iscar.....7	R-Tec Machine Sales.....29
Cimco .....71	Int'l Search Consultants.....91	Selway Machine Tool.....2
CME.....88	Jergens.....67	Setco USA.....70
CNC Matters.....16	K D Capital Equipment .....92	Smart Skim .....68
CNC Solutions .....39,97	King Machine.....65	SME/Westec.....52,92
Cobra Carbide .....74	Kitamura .....14	Southwestern Industries.....
Comex .....90	Koma Precision Inc.....58	..... Inside Back Cover
CyTek.....11,94	Loutech.....93	Spinetti Machinery .....36
D & R Machinery .....97	Lyndex Nikken .....66	Star CNC .....9
Darmak.....95	Lyon Group Holdings.....53	Takisawa Tech .....29
DIL .....89	Machine Control Tech.....76	Titanium Coating Services...82
Doosan Infracore.....21	Machinery Sales.....14,97	Thinbit.....73
Dynatect .....62	Machine Toolworks .....10	Tornquist Machinery .....29
Edel Machines .....11,94	Marubeni Citizen Cincom ...37	Toyoda Macinery .....45
EDM Network .....47	Mastercam CNC Software....6	TQS .....65
Ellison Technologies .....21	Methods Machine Tools.....5	Tsugami Rem Sales.....51
Fadal .....1	Mini Mover Conveyors.....82	US Shop Tools.....15
Fagor ..... Inside Front Cover	Mitutoyo America .....69	Vac U Lok .....87,91
Femco.....13	Miyano .....37	Webb Precision Mach.....64
Foothills Machinery Sls.....97	North South Machinery.....60	Western Metrology Sales ...65
Ganesh Machinery .....39	OGP.....75	Whipple Enterprises .....82
GenSwiss .....81	Okuma .....19	X Centric Solutions.....82
Gosiger .....18,19	Pacific Inspection.....65	Zeiss,Carl IMT .....28,65
Hainbuch America .....61	Pacific Machine&Engrg .....90	Zoller.....72

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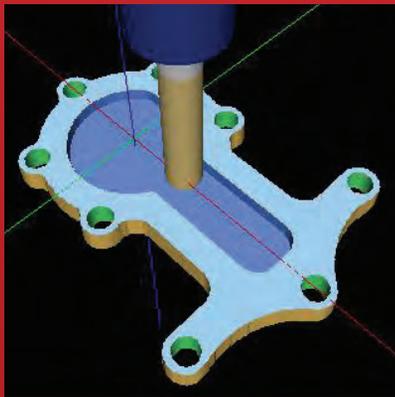
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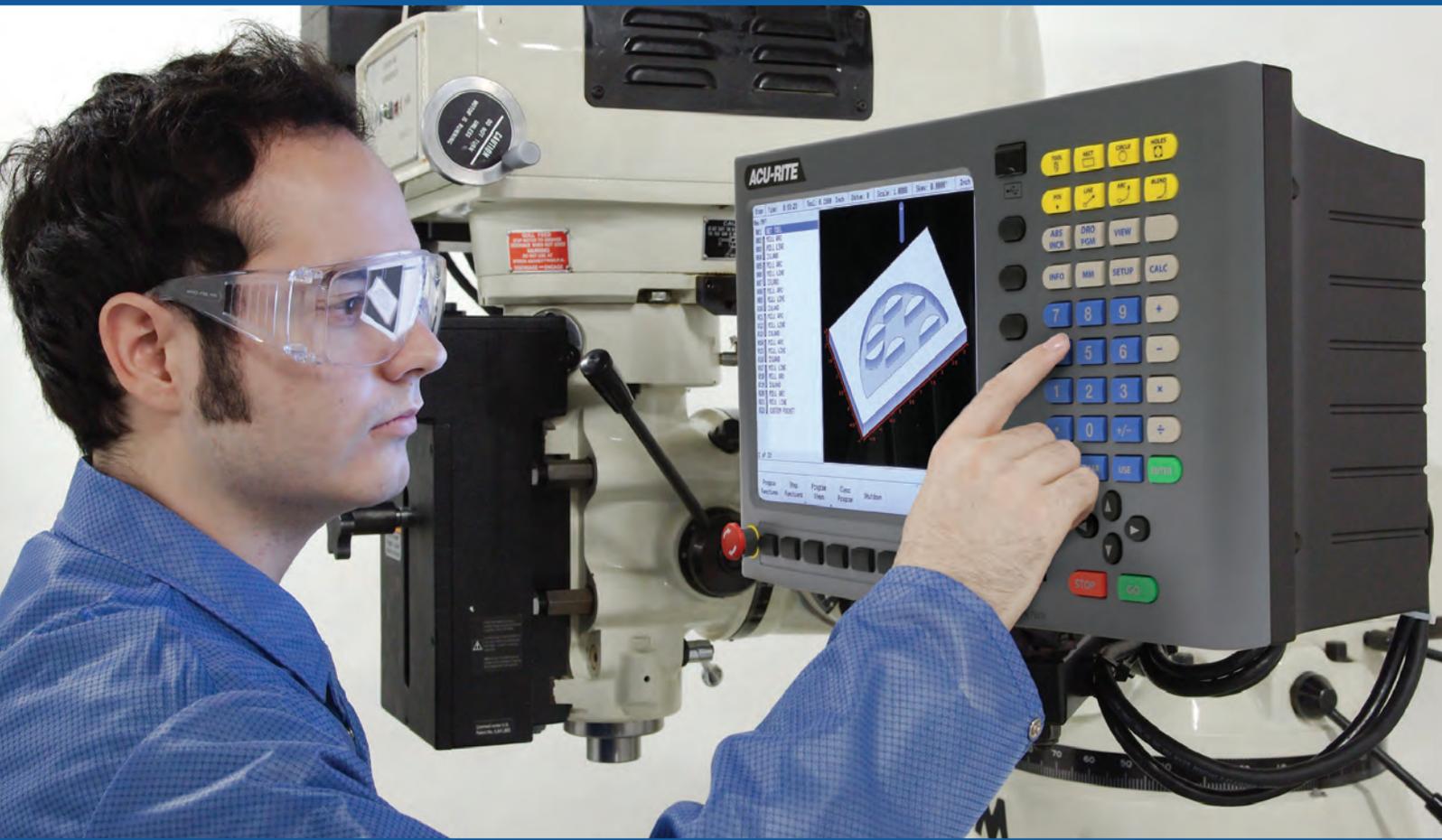
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