

# CNC WEST

Volume 38 - Issue 6

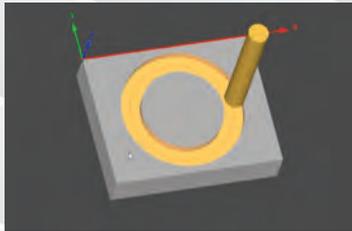
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## EDM ISSUE

- **COMPLETE DESIGN AND MANUFACTURING AT TRUE PRECISION MACHINING**
  - **ANSONIA MANUFACTURING - PRECISION MACHINED PARTS IN WINE COUNTRY**
  - **HOW USNR RESTRUCTURED ITS PLANTS FOR MAXIMUM EFFICIENCY**
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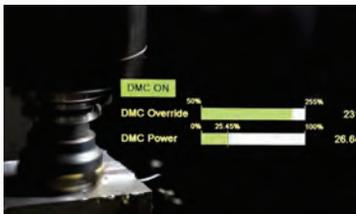
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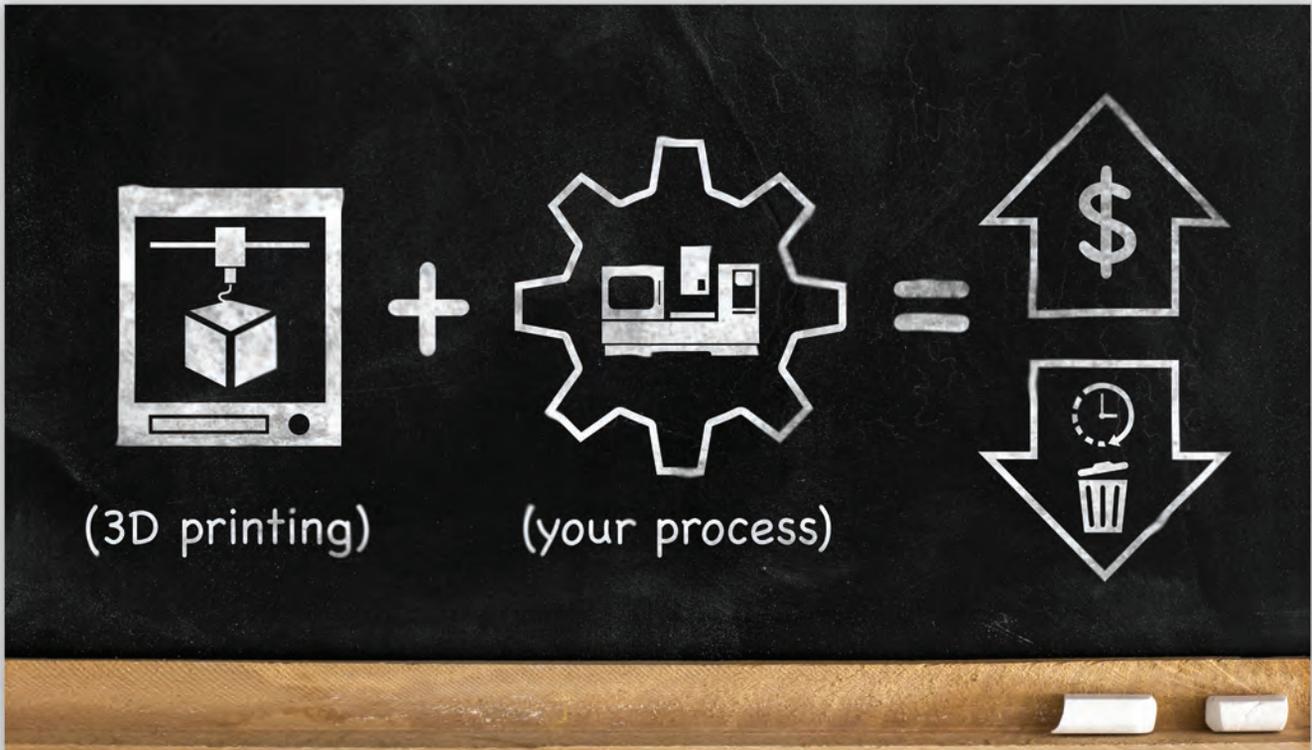
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# CNC West

August/September 2020 • Volume XXXVIII No 6

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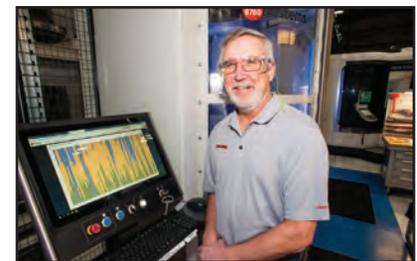
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**Coming in Oct/Nov 2020**  
**Cutting Tools & Workholding** — Looking for innovative developments offering better, faster, more accurate cutting tools and material? This is the issue to search. Also look here for workholding, fixtures, sensors and tool management ideas.

*Editorial: Sept. 20, 2020*  
*Ad Space: Sept. 26, 2020*  
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**VOL. XXXVIII NO.6**

**August/September 2020**

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.

(714) 840-1300 FAX: 657-231-9307  
Email: sarnold@cnc-west.com

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**PRESIDENT/PUBLISHER:**

Shawn Arnold

**EDITOR:** Sean Buur

**CIRC. MNGR:** Charlene Strawbridge

**PROD. MNGR:** Linda Arnold

**PROD. ASST:** Jennifer Hallman

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# The Show Must Go On

I must admit that I love trade shows. Some people in the industry dread working them but they light a fire under me. I have been in this business since 1980 and as you can imagine I have made some good friendships along the way. These tradeshow enable me to see many of these people I don't visit with often. Also it has been a great way to meet new potential advertisers and or clients. So as you can imagine, I was pretty bummed when I heard that they canceled IMTS. Not as bummed as the people at AMT who put on the show and who spent two years planning it and selling it and promoting it but bummed none the less.

Lets face it though, If 2020 was a sundae, IMTS being canceled was just the moldy cherry on top.

The next machine tool trade show up for CNC WEST will be the Northwest Machine Tool show held every other year in Portland in April or May. Fingers crossed that we will be further along in our fight against Covid and will be able to hold an event with thousands of people. Not only do I hope this for selfish reasons I mentioned above but trade shows are a valuable way for companies to sell machine tools and machine tool accessories and for potential customers to see them in action or at least gather information.

Another way to garner information about machine tools is via trade magazines like CNC WEST. There are certainly many in the industry and all have their strengths. Our strength is our western region articles that makes our readers feel like they have something in common with the shop that they are reading about. Heck they might even know them.

This issue of CNC WEST has a wide array of articles on western region shops. Two of our stories including our cover story come from different wine regions in California. The stories explain that more is being made in these regions other than a cabernet or chardonnay. Our cover story shop has really increased productivity with a robot on their EDM. It allows them to run the machines round the clock. As you can imagine, production was greatly increased.

Another story is about a Woodland, Washington company that upgraded to a FMS system and are incredibly happy with the results so far. There is also a story about a shop in Montana that has found that Esprit software is the perfect match for their line up of Mazak machines. The article about the Best Little Machine Shop in Texas is said tongue in cheek as they have 600 employees and do parts for Bell Helicopters among others. Our story on page 20 was from a company that sent us a few paragraphs and photos after we offered to do this for FREE to western region shops to help them through this tough time. This offer STILL stands. Contact us for more information.

Thanks for reading this issue and no matter how hard it gets, remember the show must go on

Sincerely,

*Shawn Arnold*

Shawn Arnold  
Publisher

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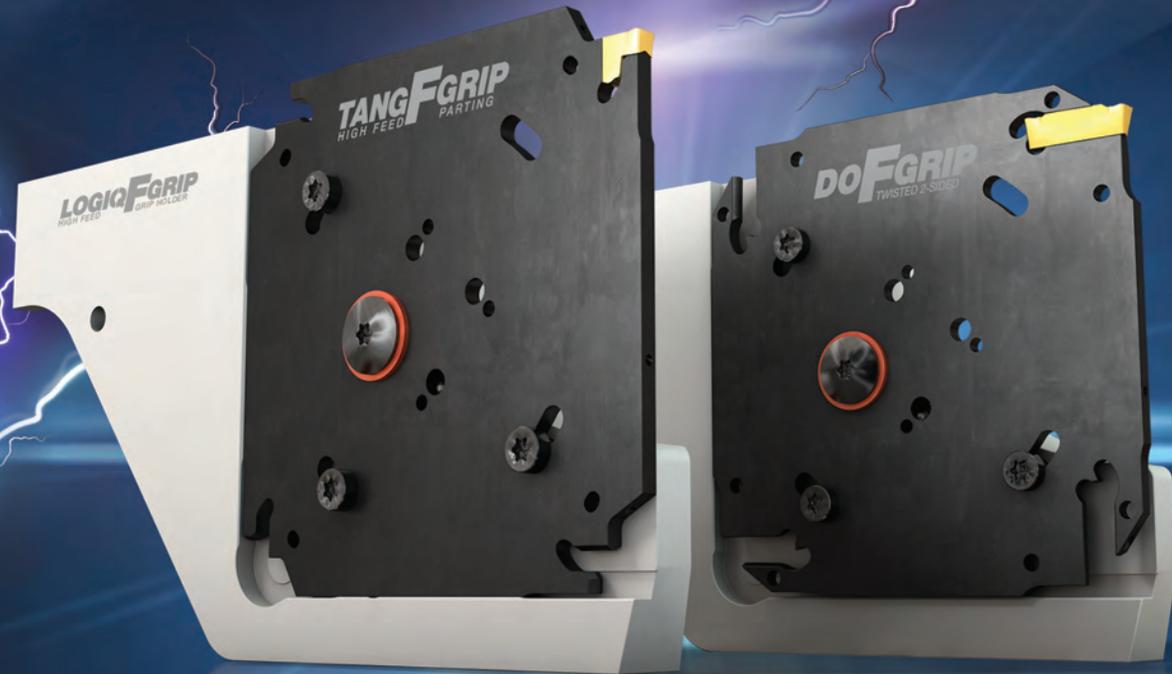
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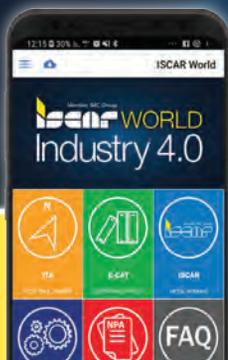
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# EXEC HOTLINE

## **Boeing's Arizona Modification Line Yields First QF-16 Full-Scale Aerial Target**

A team from Boeing and the U.S. Air Force completed the first QF-16 Full-Scale Aerial Target to undergo conversion from a modification line in Arizona. The aircraft was flown last month to Tyndall Air Force Base, Florida, where it will be used autonomously in future weapons training operations.

The 309th Aerospace Maintenance and Regeneration Group (AMARG) located at Davis-Monthan AFB in Tucson teamed with Boeing under a public-private partnership to create a second modification line to supplement ongoing QF-16 work at Boeing's Cecil Field site in Jacksonville, Florida.

Conversion of the F-16 A/C aircraft to the unmanned QF-16 configuration requires modification of the airframe and installation of major components. The QF-16 performs both autonomous maneuvers through autopilot and controlled maneuvers through ground stations.

## **Aerojet Fulfills NASA Engine Contract**

El Segundo, CA. based Aerojet Rocketdyne Holdings Inc. has completed all of its propulsion systems for the first crewed flight of NASA's Space Launch System rocket and Orion spacecraft and for the Artemis II mission to the moon.

Four RS-25 engines will provide 2 million pounds of thrust to power the core stage of the Space Launch System, the most powerful rocket in the world. The company completed upgrades to the RS-25 engines for Artemis II in November 2019 and following testing at Aerojet Rocketdyne's facility at NASA's Stennis Space Center in Mississippi, all four engines are ready to be integrated with the Artemis II core stage.

The El Segundo aerospace company also made the RL10 engines for use on the second stage of the Space Launch System in West Palm Beach, Fla.; as well as the jettison motor for the Orion spacecraft, which generates 40,000 pounds of thrust for the launch abort system; the Orion main engine on the service module that will maneuver the spacecraft; and eight auxiliary engines on the service module and 12 reaction control thrusters on the crew module.

In May, the company won a \$1.8 billion contract from NASA to produce an additional 18 RS-25 rocket engines for future deep space missions. That work will occur at the company's Chatsworth, CA. campus.

## **Sierra Nevada Gets \$700M SOCOM Contract to Build RF Countermeasure Tech**

Sierra Nevada Corp. out of Sparks, Nevada has secured a potential \$700M contract from Special Operations Command to manufacture radio frequency countermeasure systems for protecting aircrews from radar and missile threats.

SNC will develop an RFCM technology for integration onto Air Force Special Operations Command's MC-130J Commando II and AC-130J Ghost Rider aircraft platforms, the Department of Defense said.

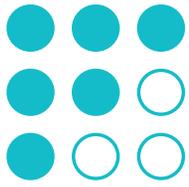
The company will also engineer the system, supply spare parts and perform logistics support. SOCOM is obligating \$87.9M at the time of award.

## **Aerojet's Drake Joins National Space Council**

Aerojet Rocketdyne chief executive and president Eileen Drake is the newest member of the National Space Council's Users' Advisory Group, which serves as the voice of industry and nonfederal stakeholders on matters related to U.S. space policy.

Nominated by Vice President Mike Pence, the 28-member group includes Mandy Vaughn, president of El Segundo-based VOX Space; Gwynne Shotwell, president and chief operating officer at Hawthorne-based Space Exploration Technologies Corp.; and Tim Ellis, chief executive of Long Beach-headquartered Relativity Space. Drake is among the five-member cohort that just joined the group while Vaughn, Shotwell and Ellis have been part of it since November 2018.

**Continued on page 96....**



# Introducing a **NEW** dimension to machining complex parts.

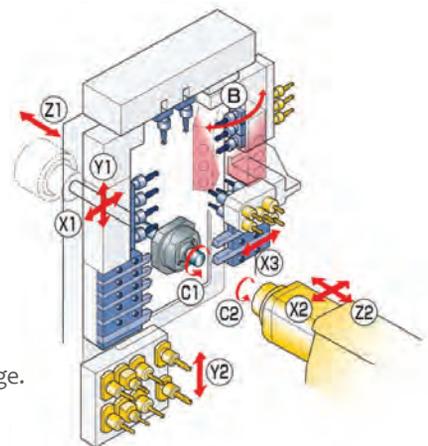
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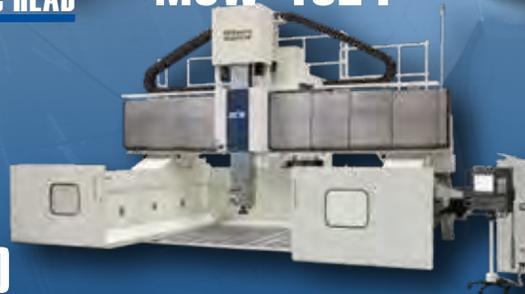
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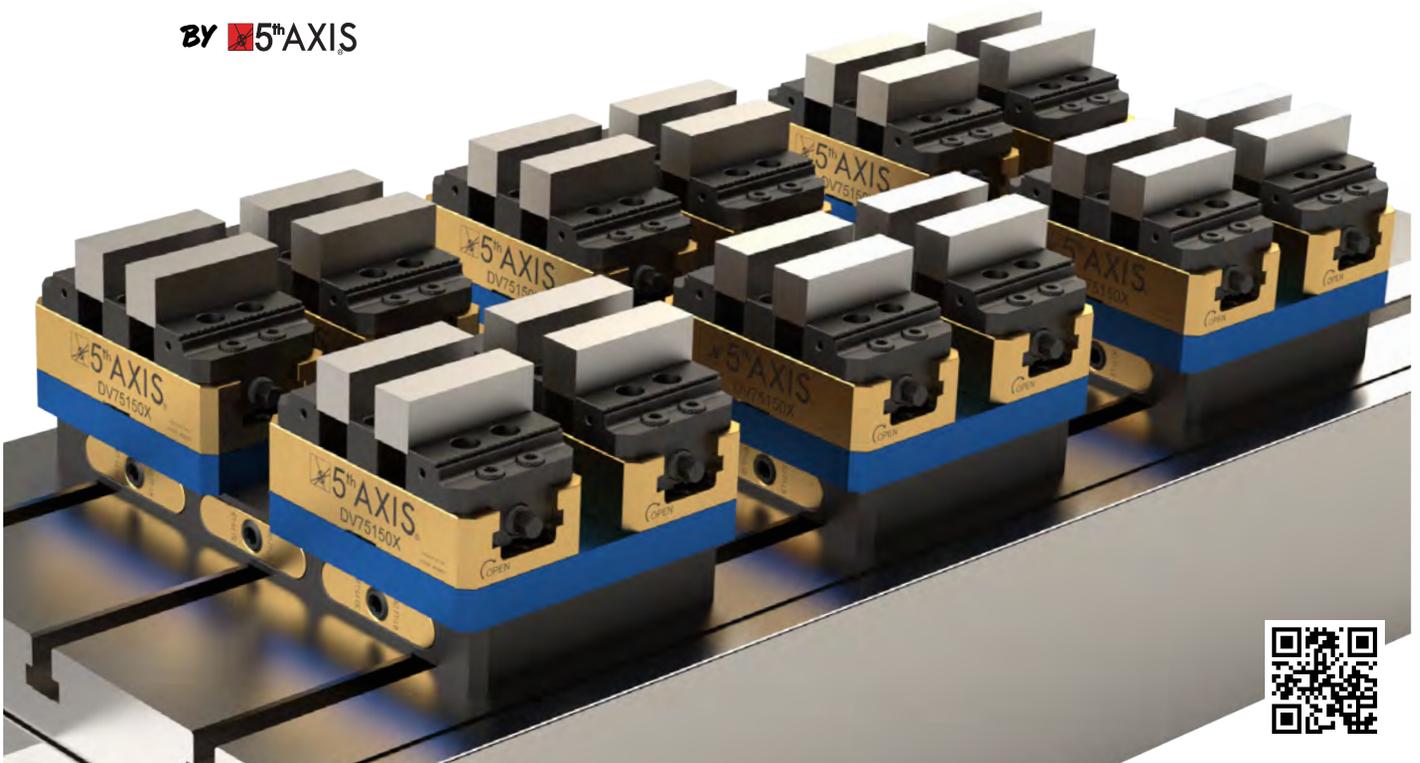
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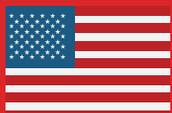
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6"	.312	.499	3/8	1.500	2	TG-6200F	\$ 41.64	6"	RTG-6200A	\$ 76.66
					4	TG-6400F	\$ 71.66	8"	8-RTG-6400A	\$ 158.83
8"	.312	.499	3/8	1.750	2	TG-8200F	\$ 22.15	8"	RTG-8200A	\$ 103.80
					3	TG-8300F	\$ 64.44	10"	10-RTG-8300A	\$ 240.33
10"	.501	.749	1/2	2.125	2	TG-10200F	\$ 23.83	12"	12-RTG-10200A	\$ 184.94
					4	TG-10400F	\$ 75.33	15"	15-RTG-10400A	\$ 607.05
12"	.501	.749	1/2	2.500	2.5	TG-12250F	\$ 72.22	15"	15-RTG-12250A	\$ 494.11
					4	TG-12400F	\$ 102.35	18"	18-RTG-12400A	\$ 851.69
15"	.501	.749	5/8	3.000	2.5	TG-15250F	\$ 87.22	21"	21-RTG-15250A	\$ 908.09
					4	TG-15400F	\$ 113.74	24"	24-RTG-15400A	\$ 1,550.55

\*For Pointed Soft Jaws, replace the "F" with "P" & add \$4.00 (6"-10")/\$7.00 (12" & above) per set.



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Model	Chuck Size	Groove Width	Screw Size	Hole Space	Hgt Inch	ALUMINUM	
						Part Number	Set Price
Kit B206 N206 HS-06	6"	0.472	10MM	0.787	2	RKT-6200A	\$ 72.61
					3	RKT-6300A	\$ 104.86
					4	RKT-6400A	\$ 118.88
Kit B208 N208 HS-08	8"	0.551	12MM	0.984	2	RKT-8200A	\$ 85.36
					3	RKT-8300A	\$ 134.30
					4	RKT-8400A	\$ 159.83
Kit B210 HS-10	10"	0.630	12MM	1.181	2	RKT-10200A	\$ 126.28
					4	RKT-10400A	\$ 193.60
Kit B12 HS-12	12"	0.709	14MM	1.181	2	RKT-12200A	\$ 184.71
					3	RKT-12300A	\$ 245.72
					2	RKT-12208A	\$ 184.71
Kit B212 BBM 315	12"	0.827	16MM	1.181	3	RKT-12308A	\$ 278.56

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						Part Number	Set Price	Part Number	Set Price
Kit B206 HO27M6 HS-06	6"	0.472	10MM	0.787	2	KT-6200F	\$ 34.37	KT-6200AF	\$ 31.59
					3	KT-6300F	\$ 44.99	KT-6300AF	\$ 41.12
					4	KT-6400F	\$ 95.71	KT-6400AF	\$ 86.08
Kit B208 ZA6-8 HS-08	8"	0.551	12MM	0.984	2	KT-8200F	\$ 40.70	KT-8200AF	\$ 38.56
					3	KT-8300F	\$ 46.82	KT-8300AF	\$ 50.90
					4	KT-8400F	\$ 61.00	KT-8400AF	\$ 62.11
Kit B210 HS-10	10"	0.630	12MM	1.181	2	KT-10200F	\$ 45.84	KT-10200AF	\$ 46.66
					4	KT-10400F	\$ 76.14	KT-10400AF	\$ 67.46
					2	KT-12200F	\$ 72.00	KT-12200AF	\$ 74.05
Kit B12 HS-12	12"	0.709	14MM	1.181	3	KT-12300F	\$ 107.96	KT-12300AF	\$ 90.10
					2	KT-12208F	\$ 72.00	KT-12208AF	\$ 74.05
					3	KT-12308F	\$ 107.96	KT-12308AF	\$ 90.10

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Chuck Model	Chuck Dia	Part Number	Price Per Set
B-206, HS06	6"	KT-60HJ2	\$355.56
B-208, HS08	8"	KT-80HJ2	\$420.66
B-210, HS10	10"	KT-100HJ2	\$500.80
B-12, HCH12	12"	KT-120HJ2	\$540.84
B-212, HS12	12"	KT-128HJ2	\$540.84



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XTRA BITE

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		Part Number	Price Per Set	Part Number	Price Per Set
B206, HS06	6"	KT-60HJ2-U	\$245.75	KT-60HJ2-X	\$256.55
B208, HS08	8"	KT-80HJ2-U	\$294.53	KT-80HJ2-X	\$312.71
B210, HS10	10"	KT-100HJ2-U	\$336.60	KT-100HJ2-X	\$370.44
B-12	12"	KT-120HJ2-U	\$391.99	KT-120HJ2-X	\$415.42
B-212, HS12	12"	KT-128HJ2-U	\$390.92	KT-128HJ2-X	\$416.29
B-15	15"	KT-150HJ2-U	\$504.90	KT-150HJ2-X	\$554.85

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Machine	Thread	Head Dia	Angle	Coolant	Part Number	Price EA
Fadal BT40	M16-2.0	.740	90°	No	B40-4501S	\$ 17.72
HAAS BT40	M16-2.0	.590	45°	Yes	B40-4500H	\$ 22.80
HAAS CAT40	5/8-11	.589	45°	No	C40-4501S	\$ 17.72
Fadal CAT40	5/8-11	.740	45°	No	C40-4500S	\$ 15.20
Okuma CAT40	5/8-11	.589	60°	No	C40-6000S	\$ 17.72
Mazak CAT40	5/8-11	.740	45°	Yes	C40-4500H	\$ 15.75
Mori Seiki CAT50	1-8	.905	90°	No	C50-9000S	\$ 21.85



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Dia	Proj	BALANCED TO 15,000 RPM		BALANCED TO 20,000 RPM	
		KINGSTON Part Number	Price Each	SPIN TRU Part Number	Price Each
1/8"	1.75"	C40-01EM175-K	\$ 49.95	C40-01EM175-KB	\$ 69.99
3/16"	1.38"	C40-18EM138-K	\$ 49.95	C40-18EM138-KB	\$ 69.99
1/4"	1.38"	C40-25EM138-K	\$ 49.95	C40-25EM138-KB	\$ 69.99
	1.75"	C40-25EM175-K	\$ 53.85	C40-25EM175-KB	\$ 69.99
5/16"	1.38"	C40-31EM138-K	\$ 53.85	C40-31EM138-KB	\$ 69.99
	1.38"	C40-37EM138-K	\$ 49.95	C40-37EM138-KB	\$ 69.99
3/8"	1.38"	C40-37EM250-K	\$ 53.85	C40-37EM250-KB	\$ 69.99
	2.50"	C40-50EM175-K	\$ 53.85	C40-50EM175-KB	\$ 69.99
1/2"	1.75"	C40-50EM400-K	\$ 53.85	C40-50EM400-KB	\$ 69.46
	4.00"	C40-62EM175-K	\$ 53.85	C40-62EM175-KB	\$ 69.99
5/8"	1.75"	C40-62EM300-K	\$ 53.85	C40-62EM400-KB	\$ 73.02
	3.00"	C40-75EM175-K	\$ 53.85	C40-75EM175-KB	\$ 69.99
3/4"	1.75"	C40-75EM300-K	\$ 53.85	C40-75EM300-KB	\$ 69.99
	3.00"	C40-10EM175-K	\$ 53.85	C40-10EM175-KB	\$ 69.99
1"	1.75"	C40-10EM600-K	\$ 60.45	C40-10EM600-KB	\$ 74.47
	6.00"	C40-12EM200-K	\$ 53.85	C40-12EM200-KB	\$ 69.99



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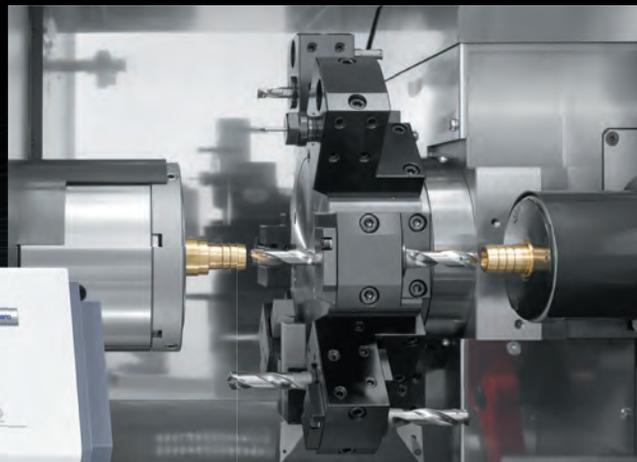
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Standard machining length	3.9"
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Back spindle speed	50 ~ 5,000

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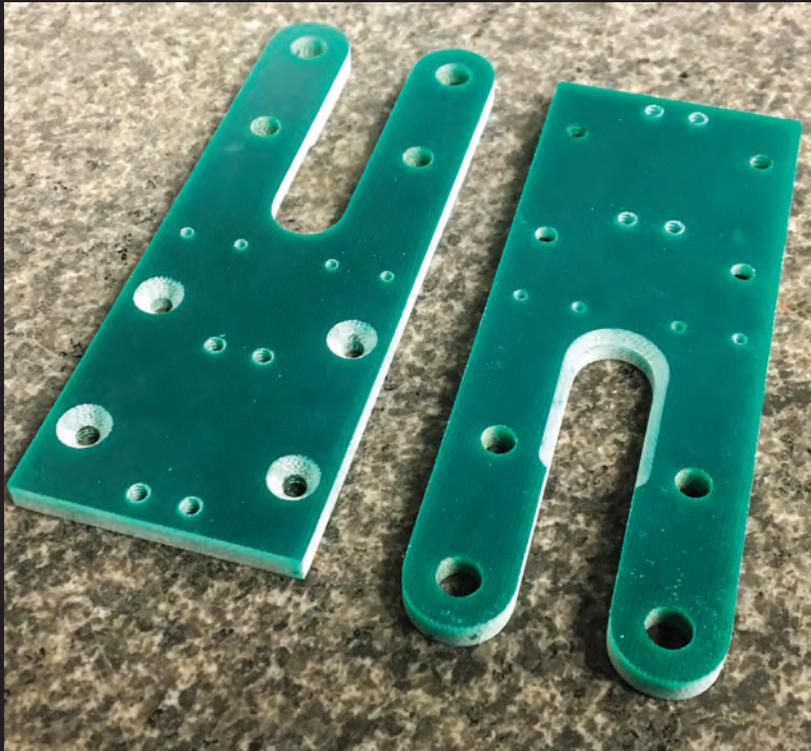
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# CNC WEST Pandemic PROFILE

# Mayfly Manufacturing

**M**ayfly Manufacturing is a design, fabrication, and machine shop located in Silicon Valley. They specialize in designing, engineering, and manufacturing for clients ranging from small start-ups to established companies. Mayfly Mfg. collaboratively support customers on prototype development all the way through to production. Each step of the way they apply their knowledge of manufacturing efficiency to reduce component cost, reduce lengthy lead times, and return value to our clients.

Founder, Andrew Nosé, has worked in manufacturing since graduating Santa Clara University with a BS in Mechanical Engineering. He works closely with both engineers and machinists to develop expertise on both technical and operational aspects of manufacturing efficiency. He noticed that lack of communication between engineers and machinists often led to inefficient processes, suboptimal design, and lengthy lead times. Andrew started Mayfly Manufacturing with the goal of greater integration between engineering and manufacturing. He prides himself in



partnering with customers to develop ideas and turning them into marketable products in the most efficient way. These partnerships have provided real value for our clients -- quick turnaround, reliable quality, and consistent results. Customers include: KLA-Tencor, Hewlett Packard Enterprise, Zume, A1 Jays Sheetmetal Shop, Xandex Inc., and Santa Clara University

Mayfly Manufacturing is proud to manufacture our products in-house in Northern California. This allows us to have the highest controls over quality and precision. Local manufacturing also reflects our priority for engaging with, and supporting, the local community. Services include: engineering design, CNC milling, Swiss turning, 3rd party quality control, and assembly.

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# TRUE PRECISION MACHINING

Article & by Photos Supplied to *CNC West Magazine*

If you like wine or you like movies you have probably seen the movie *Sideways*. The movie was set in Buellton, California in the Santa Ynez Valley. This region is known for wineries, antique shops and Andersons split pea soup. Who would have thought that there was a full-service machine shop, True Precision Machining, which provides a complete design and manufacturing facility with an in-house engineering, design and quality assurance team. This unique situation positions them to provide outstanding communication, efficient utilization of manufacturing time and a complete understanding of a customer's manufacturing requirements. True Precision Machining in Buellton, California promises quality control, quick turnaround time and innovative solutions to meet their customers' challenges and requirements. However, even with their highly trained and skilled team, it was challenging to meet certain deadlines.

Producing parts fast enough on their wire EDM machine is just one example of this challenge.

"We typically run two shifts per day for five days, totaling 80 production hours per week," explained Marvin Rodriguez, vice president of True Precision Machining. "A 500-part job would take at least a week to finish working at that pace—and that's not accounting for downtime or breaks. To stay competitive and meet our customers' high demands, we need to be faster than that."

Rodriguez recognized that the existing production schedule took advantage of only 80 of the 168 hours in a week. What if True Precision could operate at a higher capacity, taking advantage of all available hours, unhindered by machine downtime?

During their extensive research of collaborative robotics, True Precision discovered Productive Robotics' OB7 at a tradeshow and taught it a task on the spot.

"We were impressed by the no-programming user interface and how simple it was to teach the cobot tasks. This would be a solution that we could develop on our own without hiring outside integration," stated Rodriguez.



True Precision was also drawn to OB7's seven axes, which provide greater flexibility and the ability to work in confined spaces.

"We saw how well OB7's 7th axis worked during the CNC demo, and we wanted that in our shop," emphasized Rodriguez.



**With their skilled staff, True Precision set up the automation work cell entirely on their own, pairing the OB7 Alpha and Fanuc Wire EDM**

The 7th axis is an especially desirable feature for machine shops because it allows operators to place OB7 to the side of a machine door, rather than directly in front of it. The OB7 can reach around into the machine, freeing up space for machine operators to work.

It was clear that OB7 is an easily teachable robot and

one with the flexibility to fit the physical needs of True Precision's shop—and what's more, it would allow them to expand their hours of production through working "lights out" or around-the-clock even when employees are not at the facility.

Now on the road to faster production, it was time to



**Round the clock operations meant production improved on the wire EDM by 200%.**

install the OB7 Alpha Wire EDM 5 axis machine. With their skilled staff, True Precision set up the automation work cell entirely on their own. “We did not have any prior experience with cobots, but we were able to create the necessary tooling and configure our environment to work with OB7,” stated Todd Ackert, president of True Machining. After the few days spent planning the work cell, the team turned to assembling the OB7 and had it up and running in a matter of hours.

“OB7’s intuitive user interface made the process simple. We physically moved the robot control handle to introduce a task and customized our waypoints on the tablet interface for more precision,” stated Rodriguez.

The simple teaching platform is a key benefit to working with OB7 for many teams—it enables fast job teaching and requires absolutely no programming.

The 500-part job on the wire EDM machine was soon working 200% faster and could continue to operate round-the-clock.

“We finished a job in 3.5 days that would have taken a week to complete” said Rodriguez. “Working ‘lights out’ with OB7 allows us to go home and return the next morning with a job completed, ready to start the next. OB7 has saved us significant time and money, while increasing quality and precision.”

True Precision also recognized the valuable and reassuring role

of Productive Robotics’ dedicated support team.

“If we had a question, we called Productive Robotics’ support team. They would help us over the phone or come out to our facility,” added Ackert.

True Precision attributes its success over the years to effectively introducing modern machinery and state-of-the-art equipment to deliver quality results. Implementing OB7 is a prime example.

“People think that robots take away jobs, but it has actually helped grow our business, become more

competitive and better utilize the talents of our team,” stated Ackert.

OB7 allowed True Precision to bring in more work, meet deadlines faster, and simultaneously allow their workers to focus on other highly valuable tasks. The success of OB7 was so immediate, simple, and effective, that looking forward, True Precision plans to implement OB7 on multiple other machines in their facility.

“Working with OB7 has been a highly rewarding experience,” emphasized Ackert. “And in the process, we learned to strategize more efficient, creative, and innovative methods for automating future jobs with collaborative robots.”



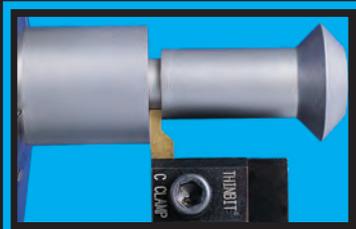
**The simple teaching platform is a key benefit to working with OB7 for many teams—it enables fast job teaching and requires absolutely no programming.**

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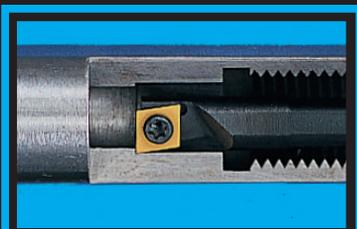
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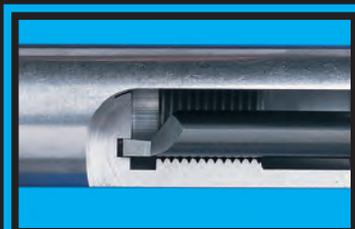
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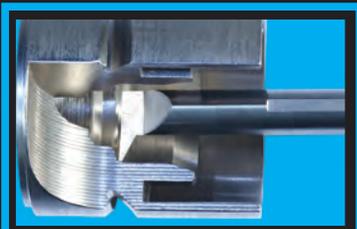
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# ANSONIA MANUFACTURING

Article by Sean Buur  
Photos Contributed by Ansonia Manufacturing



## DELIVERING QUALITY PRECISION MACHINED PARTS IN CALIFORNIA'S WINE COUNTRY

Ansonia Manufacturing, located in Sonoma, California, is a woman-owned CNC job shop serving a wide variety of industries. They pride themselves on working cooperatively and creatively with their customers to provide a quick turnaround on quality parts. For more than 25 years Andrew and Jamie Storck have manufactured in Northern California's wine country. Jamie took over operations 7 years ago, freeing up Andrew to handle estimating and programming. As a job shop, they run anything that comes their way, but Ansonia is known mostly as a turning house with 4 axis milling capabilities. CFO Jamie Storck half-jokingly claims "Sonoma makes wine, Napa makes auto parts, and we make great parts."

Located in a rural area of Sonoma, Ca. Ansonia Manufacturing is not the typical home-based mom and pop operation. Situated on 2 acres, the 3000sq.ft. manufacturing facility houses state-of-the-art precision turning and milling machines to produce specialty machined parts for the military, medical, aerospace, agriculture, and electronics industries. "We really are a mom and pop job shop," tells Ansonia's CFO Jamie Storck. "We live in a rural area with lots of space and have a separate manufacturing building from our home. We

have four employees and produce parts for a variety of local customers. We routinely manufacture production line parts for companies like Labcon North America in Petaluma, or Thermal Technology and IDEX that are also locals in Sonoma County."

As a 100% job shop with no outside salesperson, Ansonia Manufacturing rely totally on word of mouth and their reputation to earn and keep business. "Run quantities vary," tells Andrew Storck. "We take on everything from single piece prototype work to jobs that need 500-1000 parts. It all depends, but the larger the better when we can get it." Ansonia just completed a complex 5 - part order that they earned not by being the cheapest, but by having the best turnaround time. "We got this job by knocking it out in only two weeks," adds Jamie. "Others were estimating 6 weeks, but we were able to shift a job off one of our Okuma lathes to the other and make space without sacrificing quality."

Purchasing a machine tool with flexibility is key at any job shop, but even more so when you are limited on space. Known mostly as a turning shop, the Okuma lathes are the star of the show while their Haas VF4 mill plays a big supporting role. Okuma #1 is a twin spindle LB3000MYW and Okuma #2 is brand new LB3000MY



**Salt & Pepper shakers.**

with a tail stock. Ansonia took delivery of Okuma 2 right as the country shut down for Covid19, not the best time, but as an essential business it meant they needed to play the hand they were dealt and keep running. “Admittedly it wasn’t great timing,” explains Jamie. “Fortunately, we have another Okuma that is also an LB3000 with the same controls, so we were able to start running parts without much training. That being said training is always helpful, especially from Charlie Gilmore at Gosiger the local Okuma distributor. He is super smart, an amazing teacher and a wonderful person to have in the shop. He has an ability to take something very complex and make it easy. We have learned so much from him over the years. A lot of times people forgo the training, especially if they are already familiar with the machine tool, but we look at it as a valuable opportunity to expand our knowledge by having direct access to a specialist. Zoom meetings, calls and lots of emails helped us to get more dialed in while we waited for a little more normalcy. Once the restrictions eased up, we were able to get Gosiger in for extra fine tuning. Support from Gosiger has been great as we all had to adapt to a pandemic work environment.”



**Aluminum bulkhead.**



**Parts for a glass sculpture at the SLC airport.**

Ansonia took delivery of their first Okuma, a twin spindle LB3000MYW six years ago when Gosiger rep Paul Missimer sold them on the capabilities and value of Okuma. “Accuracy and precision are what drew us originally to Okuma, and accuracy and precision is why we just got our second Okuma,” touts Andrew. “All day long they run, and run, and run, with very little change. First thing in the morning, to well into the afternoon they still hold the same tolerances. Our new Okuma replaced a similar tail-stock lathe we had from a different manufacturer and the difference is evident. We were expecting the purchase to be an upgrade, but even with it only on the floor for a few weeks the difference is noticeable. We can run faster, and take bigger cuts, all without giving up quality. The combination of the two Okuma turning centers gives us the versatility we need. One machine we can now dedicate to production type runs while having the other open for smaller quantities or quick turnarounds. It is always a juggling act as a job shop, but similar machines make on the fly adaptability a lot easier. We run parts made from plastic, stainless, bronze, aluminum, to Inconel and other difficult to machine/high wear super alloys and the Okumas handle it all.”



**Copper power feed through.**



Two Okuma LB3000 lathes outnumber the lone Haas VF4 at Ansonia Manufacturing.

With 25 years of success in this industry the ups and downs come and go, but Ansonia Manufacturing had high hopes coming into 2020 like everyone else. “We are used to the cyclical nature of the industry,” explains Jamie. “We were not expecting a worldwide pandemic, but our expectations for a positive year have not been dashed.” Since the COVID-19 outbreak, and as an essential supplier shop, they’ve been helping meet medical supply and laboratory equipment market needs “We have always relied on word of mouth to feed us business and that is even more important when we are all facing the unknown. For us, pounding on new doors is less of a priority than touching base with past and current customers. It is easier

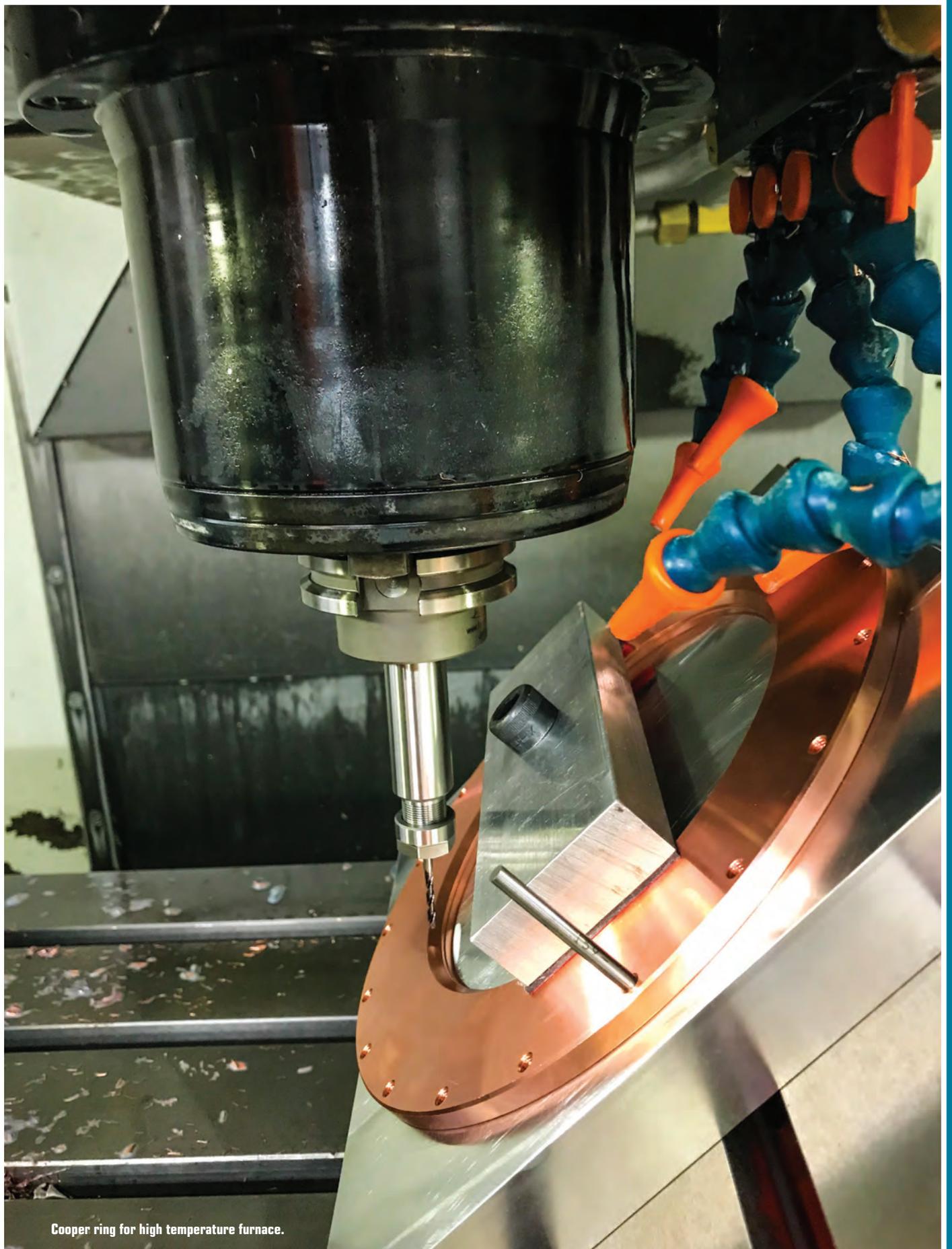


Steve Rodriguez and Jamie Storck reviewing a print and a part from Okuma two.

to keep a customer than to find a new one, and customer service is a priority here. We are in constant contact with our customers, especially in these crazy times. Sometimes it is working directly with the engineers on a new prototype and other times it is making suggestions as a way to cut production costs or reduce manufacturing time. I’ve called all our medical customers to see if we can help in any way with their added supply demands. It has earned us work, helped out our customers and I hope contributes to making a difference in these difficult and unpredictable times.”



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# HOW USNR RESTRUCTURED ITS PLANTS FOR MAXIMUM EFFICIENCY

Article & Photos Supplied by Mary Ellen Klukow, Editorial Associate – Lynn Gorman Communications LLC



USNR's Woodland, Washington FMS team and supporting members

**USNR** is the world leader in producing equipment for the sawmill and wood processing industries, supplying parts to North America, South America, Europe, Asia, Australia, and New Zealand. Mike Smothers, operations manager, calls USNR's shop in Woodland, Washington, a "high mix, low volume" facility. The 100,000 square foot shop fills orders for edgers, profilers, chippers, gang saws, and other specialized parts for the sawmill and panel industries, with a few items produced at much higher volumes.

When Smothers was hired one of the first changes he made was to install a Fastems Flexible Manufacturing System (FMS). The FMS includes three DMG/MORI NHX 6300 horizontal machining centers and organizes and schedules projects to maximize productivity. Previously, most parts were made on vertical machining centers, which meant that the spindles were idle while operators were changing workpieces, fixtures and tooling. Along with this slow process, there was no resident tooling in

any of the machines to help minimize set up. The new method keeps USNR's spindles as active as possible. Set up is done offline, and each machine has resident and identical tooling to eliminate bottlenecks.

The four USNR plants (Woodland, WA, Jacksonville, FL, Plessisville, QC, and Söderhamn, Sweden) are also adopting a UPS [USNR Production System] system. The premise of this system is to allow the shop to build velocity and lower WIP (Work in Process) levels to allow the company to move material through the shops rapidly. One of its goals with this system is to cut USNR's average delivery time to five days. "Woodland was at 25 days and now we are down to an average of 9 days, and we're working toward 5 days," explains Smothers. "Hitting 10 days was a big accomplishment for our shop and the UPS system, now we are working on a 5-day average."

The UPS system extends beyond scheduling to accomplish physical organization. Two Kardex Remstar vertical lift modules keep USNR's materials, parts, and fixtures ordered. "My warehouse is in those two Kardex



USNR's shop is divided into production cells, in which the entire manufacturing process for one part can take place.



Using three load stations in the FMS maximizes time spent machining in the three NHX6300 Horizontal Machining centers as opposed to tearing down and setting up parts in vertical oriented machines, such as the Vertical Machining Centers.

the job through completely. We're emphasizing quality and speed – getting orders in and out quickly and correctly.”

To accomplish this, Smothers brought in CNC machines such as mill-turns. “The whole idea of machines like this is ‘done in one’. We want to put raw material into the machine and have a finished part come out. With standalone machines the material would go to a lathe, then

into a mill, and so on. Now parts are completely processed on this one machine.”

machines. It keeps everything in trays and records where everything is. Rather than having a person walking around to each of the shelves in the supply areas, going upstairs and downstairs, the operator stands near its garage door-like opening, and the system delivers the items right to that opening.” The modules reorganize their trays weekly so that the most frequently used parts are closest to the openings, further streamlining the process. Best of all, they can be integrated with the FMS system and positioned in the cellular configuration.

Smothers also restructured the rest of the factory into production cells. “Our shop was originally set up as groups: all mills here, all drills there, all drill presses on the other side, and so on. We're tearing that down and making cells as part of our UPS system,” says Smothers. These production cells are set up so that almost everything for one part can be done in one location. As jobs are received and processed, shop floor coordinators stage material and move parts to different cells so that operators can focus on their designated parts. “One person follows

into a mill, and so on. Now parts are completely processed on this one machine.”

Smothers has also found that one of the best ways to boost efficiency is for the operators to run their machines unattended. Many USNR operators were concerned with this prospect at first; some of their parts have tolerances within two or three ten thousandths of an inch. That's why Smothers emphasized proving out models first.

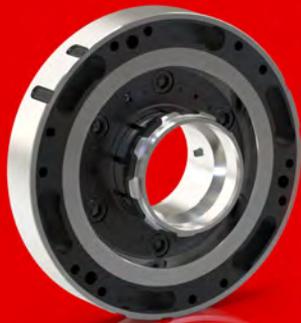
CNC programmer Adam Corson does this by bringing a 3D model into Mastercam CAD/CAM software to program. Corson has been programming with this software since 2007. He explained, “It has many options that make my job easier, whether it's a dynamic toolpath that allows us to achieve full flute length cutting using higher spindle speeds and faster feed rates, to surfacing odd shaped parts that allows us to use our CNC machining centers to their highest capacities.” USNR finds the most value in how the software inspires confidence in operators.

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**Mike Smothers, operations manager, monitors Fastems readouts regularly to keep track of each machine's productivity.**



**CNC programmer Adam Corson proves parts in Mastercam so that operators can confidently run machines lights out.**

Corson can check for errors and possible machining issues on an intuitive screen that models the actual machining process. He then shares this information with the operators. "We manipulate our model to represent exactly what the operator will be seeing in the machine. Our operators have the capabilities to view the model at their workstation, which provides them the best understanding of what to expect in the program." Between having had the code proven and seeing the model on their own screens, operators feel comfortable running their machines lights-out.

Corson explained that finding the right software is crucial to the efficiency of a shop, whether it be for programming or for scheduling and organization. "The Fastems system has been a game changer for helping us get parts in and out of the machines with the shortest time handling the material. Raw material, once loaded onto a fixture, will automatically go into one of the three HMCs that are linked into the Fastems system. Being able to manage tool life on 990 tool pots and all 54 pallets from a single load station has made our processes much more predictable and safer for all our operators." Fastems' Manufacturing Management Software (MMS) comes as part of the FMS ONE package and is designed to keep a shop flowing smoothly. Once the operators are set up with the part and the fixture, they tell Fastems that it's loaded. Fastems will schedule it and tell us on the big board, for example, that machine number MC1 tool 35 needs to be changed. It makes sure everything's fresh and kept running. Fastems takes care of everything to do with the operating of the cell." Smothers explains that even though this shop uses a standard package, the crew at Fastems was more than happy to help him find custom solutions at other shops he has worked with in the past.

Smothers knew to expect increased savings when he incorporated the FMS, reorganized the cell layout, and made lights-out production possible. What he didn't expect was just how much USNR would save. "We even



**Cutting tool management in the HMCs plays a significant role in an efficient production process. All three machines have identical tooling, which eliminates bottlenecks in the system.**



**USNR's Mike Smothers and Chris O'Flynn, CNC Department Lead, discuss workpieces in the Fastems loading station.**



USNR's Woodland, Washington shop relies on a Fastems FMS to improve part production speed, accuracy and delivery times.

ran out of work for what we had programmed. I warned everybody: 'it's going to chew through the work. Especially things that are already proven.'"

As USNR ramps up its productivity, Smothers maintains his goal to reduce average delivery time to five

days or less. "We'd like to get to the point where when a customer calls I have the raw material ready, I put it in the machine and run it, and I ship it that same day." So much of the process is automated now that he thinks achieving this goal will be possible in the very near future.



Kasi Larson, machine shop coordinator, uses Kardex Remstar units to store parts, fixtures, and tools.

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# FORBIDN MANUFACTURING

Article & Photos Supplied by  
DP Technology Corp.



## ESPRIT CAM AND MAZAK INTEGREX COMBO HELPS PRODUCE COMPLEX PARTS 4X FASTER

When Graydon Udelhoven founded Forbidn Manufacturing (Billings, Montana) in 2012, he chose its name to signify a company that could develop and machine products so outstanding, and of such seemingly unattainable quality, they would be considered virtually “forbidden” to be received by anyone. Udelhoven had earlier spent two years studying for his mechanical engineering degree but dropped out because he couldn’t wait to put the newest technological advancements to work. He designed a high-performance turbo engine for his pickup and raced a diesel truck on the Diesel TV network. Later, he decided to put his unique talents in design, modeling, and manufacturing to work by founding Forbidn Manufacturing. He purchased a Mazak VTC300 vertical machining center that he uses to produce a wide range of parts for the oil field, mining and automotive industries.

A few years after Forbidn’s establishment, a producer of pavement marking solutions asked Udelhoven to assist in designing a part for a spray gun. Udelhoven



ESPRIT ProfitMilling optimizes cycle time and tool life.

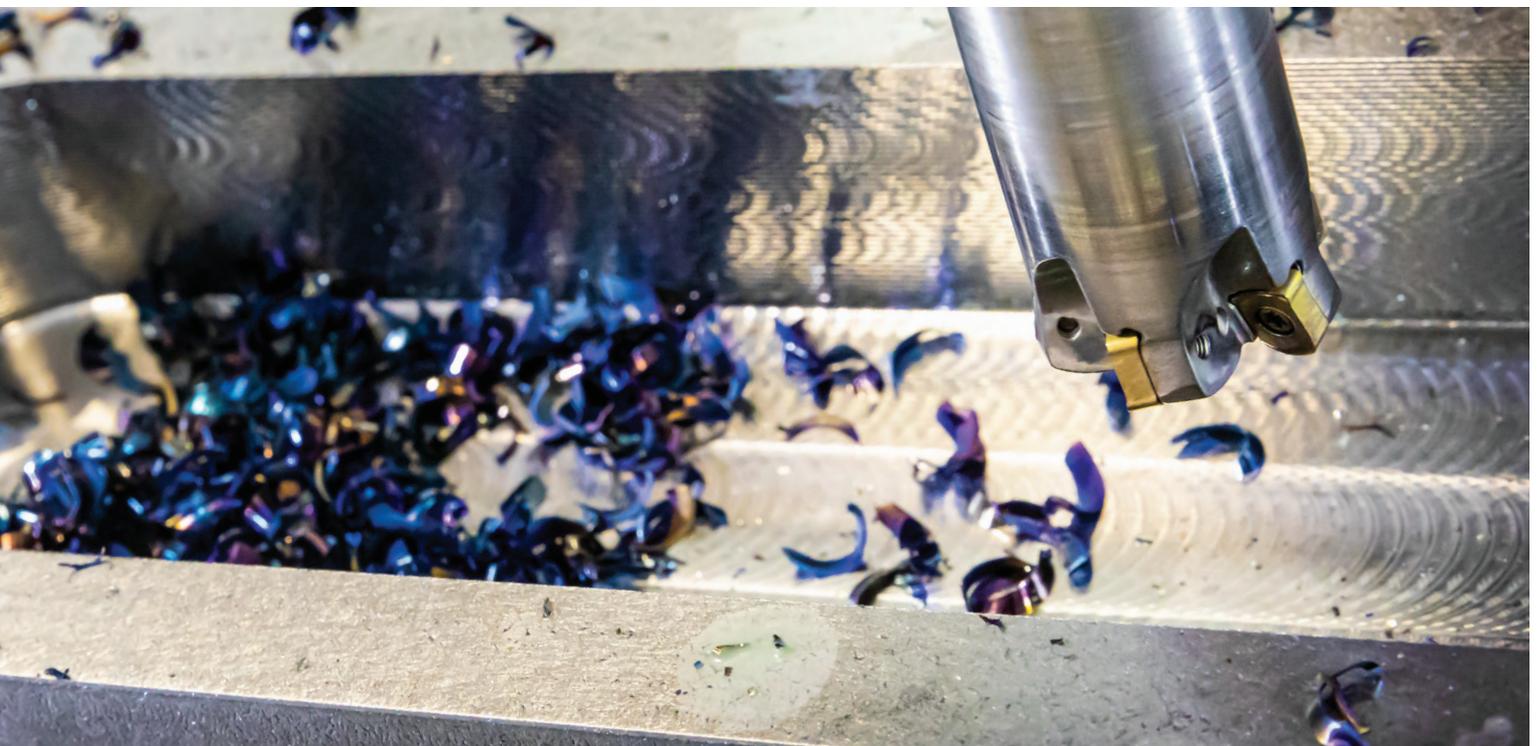


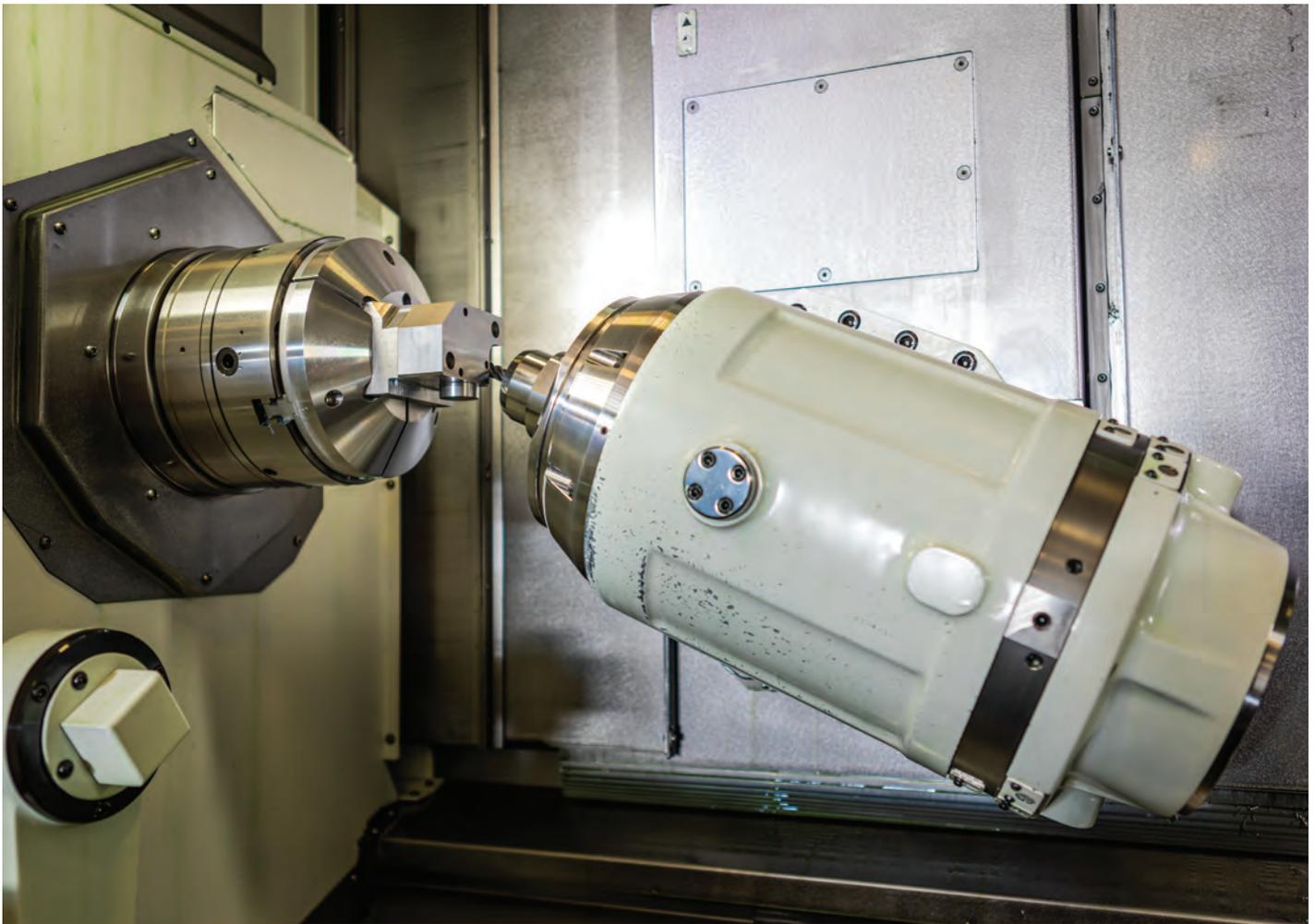
Graydon Udelhoven, founder of Forbidn Manufacturing, stands next to his Mazak VTC300 vertical machining center.

built a prototype that featured significant performance improvements. The company asked Udelhoven to quickly ramp up production of the part so it could be incorporated into a new product. The part is prismatic, with complex features on all six sides that must be held to close tolerances. Producing the part on the VTC300 would have required setting up the part six times to sequentially expose each side for machining. It would have taken about seven hours of setup and machining, plus one hour of deburring, to produce just a single part.

Udelhoven decided to invest in a Mazak Integrex i200s 7-axis multi-tasking machine, which is capable of producing the part in a single setup. It does this by clamping the part in the spindle, rotating it to expose different sides to the milling head, then transferring the part to the sub-spindle so the side that was originally clamped could be machined. Udelhoven purchased the machine from Smith Machinery Co., which also provided training and other assistance in getting the new machine up and running. Then Udelhoven was presented with the challenge of programming the new machine.

“With ESPRIT, I was immediately able to access all seven machine axes and produce G-code that worked the first time,” Udelhoven said. “Our company does not sell any software, but we told Graydon that in our experience of selling many multi-tasking machines, the only software we have seen that works right out of the box is ESPRIT,” said Klaus Lassig, sales engineer for Smith Machinery.





Machining a pavement marker on a MAZAK Integrex i200s 7-axis multi-tasking machine.

“I noticed very quickly that vibration, harmonics, and rigidity were going to be my most difficult challenges with this part. For the greatest accuracy, I needed to clamp the part in the turning spindle as close as possible to the tooling, resulting in very tight clearances between the spindle and tooling,” Udelhoven said. “But having just invested a large amount of money into the Integrex, I wanted to protect my investment by ensuring that tools did not crash into the machine. ESPRIT simulation lets me see exactly where the tool is in relation to the machine, so I have complete confidence in my programs. There are points on the part program that are so close to a collision that I never would have taken the risk with my previous software. For example, at one point in the program, a 5-axis Swarf move has .035” clearance between the top of the B-axis head and the automatic tool changer cover.”

Each part is produced from a 5.5-inch long piece of 2-3/8-inch diameter bar stock. Instead of using a turning tool to separate each part, the program uses a milling head to travel back and forth across the part to trim it off. The milling operation improves part rigidity and process security. Udelhoven’s program further improves rigidity

by performing minimal semi-roughing operations to expose the tight tolerance drilling and milling faces before final rough and finish milling operations to maximize the rigidity and ensure accuracy of the part during these sensitive operations.

Due to the complexity of the part and the number of hours needed to program multiple operations, having ESPRIT’s post processors produce edit-free G-code was also paramount to Forbidn’s success. In addition, the ESPRIT deburring cycle helped triple productivity, cutting the cycle time down from a total of eight hours to only two for its most complex part.

“Now that I have gained experience in using ESPRIT, I have never been happier with a product,” Udelhoven said. “If I can think of the machine moving a certain way, ESPRIT can produce exactly what I am thinking. It has given my business an advantage in my area. I recommend looking no further than ESPRIT with a multi-tasking machine.”

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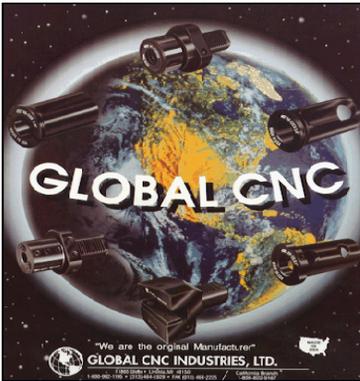


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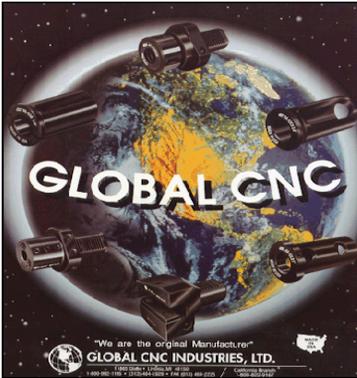
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# VERICUT Version 9.1 - for Simulation

CGTech announces the latest release of VERICUT software, Version 9.1. VERICUT CNC machine simulation, verification, and optimization software simulates all types of CNC machining, additive, and hybrid manufacturing processes. The software operates independently, but can also be integrated with leading CAM systems.

VERICUT 9.1 raises the bar for CNC simulation once again with several new cutting-edge features that increase efficiency and empower users to do more in less time. New visibility options, plus enhancements to toolpath optimization, Additive Manufacturing, tooling & Multi-tool Stations, measuring & Inspection/Reporting are just a few of the noteworthy features in this latest release. Hundreds of customer-driven improvements and software requests were also incorporated in this latest version.

“VERICUT 9.1 continues to enhance the User Experience through continued advancements with graphics and display controls, streamlined user controls, and more new capabilities and features than ever before”, says VERICUT product manager, Gene Granata. “Version 9.1 also introduces a Learn mode for Force optimization - a form of Artificial Intelligence for faster/easier NC Program optimization. Using Learn mode, almost anyone can create highly optimized NC programs from existing programs, without having to reprogram them.”

## ***Enhanced Visibility***

New visibility features have been added to the Project Tree and VERICUT’s right-click convenience menus for components and models, enabling users to toggle between visible and invisible states, or to enable/disable 3-D objects for the simulation. Quickly see unobstructed views of the cutting process and gain better access to the part by removing enclosures, models of sheet metal or shrouding, and other “in-the-way” objects via “Invisible” or “Disable” actions.

## ***New Visibility Options for AUTO-DIFF***

Similar to the above, new features have been added to AUTO-DIFF giving users a higher degree of control over component visibility, such as when Fixture models should appear.

## ***X-Caliper Annotated Images***

Setup Plan has been renamed to Annotated Images. VERICUT Inspection is also now included with Annotated Images. Both Setup Plan and Inspection functionality is greatly enhanced with dimensions, notes and tolerances for

checking parts at various stages of machining. Easily create professional looking and informative setup plans and inspection images stored with view layouts - ready to print as “shop aid” documents, or to appear in VERICUT’s comprehensive reports.

## ***Shanks in Cutting Tool Assemblies***

Defining shanks as separate objects from the holder and cutter enables programmers to see where these non-cutting portions of the cutter are - relative to the stock workpiece, and allows more discrete control over near miss and collision detection properties and tolerances. Tool holder models can also be used as “Shanks”.

## ***Streamlined Optimization with A.I.***

The Optimize Control window has been streamlined to fit in a single window with no tabs. Relevant features become active in subsections depending on which Mode is selected. A new Force “Learn” Mode is available, providing Artificial Intelligence (A.I.) for optimization. In Learn mode, VERICUT learns from simulating cutting, then automatically configures & optimizes tools for increased cutting efficiency and reduced machining times.

## ***Force Charts***

New “Save All As” Optimization Settings option added to the right mouse menu when clicking on a Force Chart. New ability to ‘Learn From Results’ enables optimization settings for a tool or all tools that were analyzed.

## ***Additive Manufacturing***

VERICUT 9.1 has a new “Additive” Default Machining Type. This enables VERICUT to predict system resources that will be needed to additively build the as-designed part, including a starting stock build plate or model.

VERICUT can build multiple parts created by a “nested” build NC program, enabling additively built parts to be independently relocated or assembled for finish machining, or exported. This feature is especially helpful for Big Area Additive Manufacturing (BAAM) and Large Scale Additive Manufacturing (LSAM) parts.

## ***DXF Import***

The DXF Import feature has been enhanced with several new features. The DXF reader can now read the layers within a DXF file and automatically detect CUT/NOCUT layers. Additional layers can be checked on to use as additional components.

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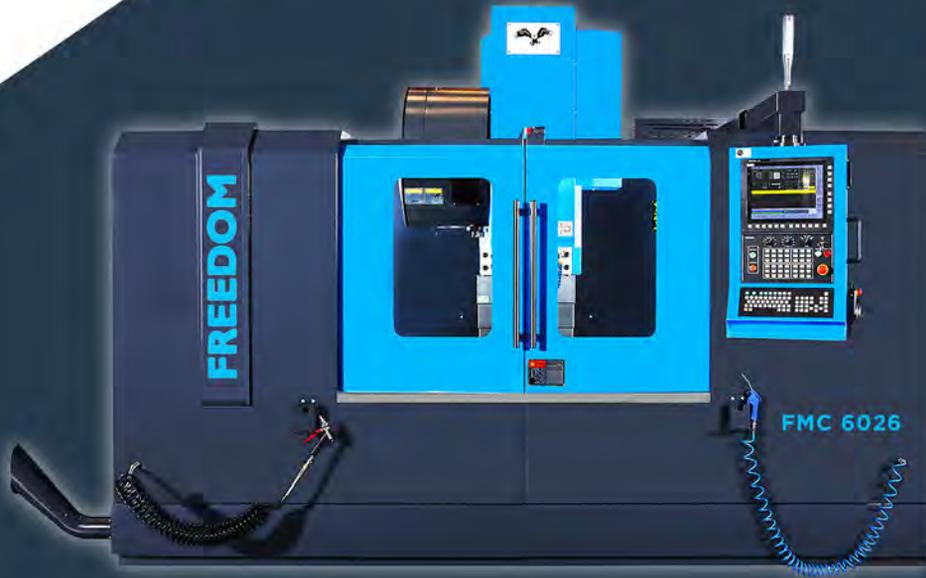
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# THE BEST LITTLE (SIC) JOB SHOP IN ALL OF TEXAS

**T**hat really requires clarification: The Bell Helicopter Drive Systems Center (DSC) in Arlington, TX, can never be confused with anything “little”. It’s a huge facility, filled with the best and latest technology and equipment (milling, drilling, boring), gear manufacturing and roughly 600 cracker jack machinists, programmers, operators, engineers and technicians. Where DSC does resemble a small job shop is in its agility, flexibility and responsiveness, a unique ability to always find a better way, always on the fly. It is one great wheel of tools and teams spinning ferociously, pumping out safety-critical product in ever-shorter cycle times, while constantly reinventing itself. In Texas, there may be speed limits, but at Bell nothing’s slowing down

According to Mark Rudeseal, vice president, Drive Systems Center, Bell Helicopter (a Textron company) the last four years DSC has been under siege. When the government said they’d finally made a decision — *the V-22 Osprey twin tiltrotor aircraft has been given the green light, the Marine Corps has committed to a four-year program* — DSC was already a year behind on capacity. A snapshot of the last two years . . . a blur of tools, technology and teams playing serious catch-up.

## SO MUCH FOR THE PLAN

Manufacturing organizations like to have a smooth, primarily linear plan that looks ahead at least a couple of years. Sudden revolving, steep curves and quick ups and downs tend to twist and turn inside out even the best of plans . . . into just so much chaos. But that’s part of the art of managing a manufacturing plant. When the world changes, it doesn’t change five years out, so everyone can say, *Oh, look at that dramatic change ahead!* No, such dramatic change happens close in, and if you aren’t agile, flexible and quick, you’re going to get stuck, and you’re going to get hurt.

Rudeseal explains the chaos. When the demand for V-22 suddenly (with little forewarning) surged in demand, requiring immediate response, the balance of work in DSC had already been in flux. Output for commercial aircraft had begun to shake — not because the demand for Bell helicopters fell (orders were in fact high, but so too were cancellations).

“We had all of the year sold out,” Rudeseal recalls, “but then customers began saying, *‘We really need the helicopter, but we can’t get financing.’* Customers wanted to buy but couldn’t find backing capital. So, we had quite a few customers who walked away at the last minute,



Boeing describes the V-22 Osprey as a joint service multirole combat aircraft utilizing tiltrotor technology to combine the vertical performance of a helicopter with the speed and range of a fixed-wing aircraft. With its rotors in vertical position, it can take off, land and hover like a helicopter. Once airborne, it can convert to a turboprop airplane capable of high-speed, high-altitude flight. This combination results in global reach capabilities that allow the V-22 to fill an operational niche unlike any other aircraft.

saying they really wanted the aircraft, but couldn't find the money to buy right now."

## RESPONDING

Somewhere along the chaotic path DSC now found itself on (sinking commercial programs, military programs holding steady or rising, the V-22 suddenly spiking to life and into production), someone said, 'guess what?' The machine tools that built H1 program helicopters (four-bladed Hueys and Cobras), and those that built Jet Rangers, gunships, and so on, are not going to be nearly hefty enough for the V-22 work — very large castings and forgings for gearboxes, adapters, fittings and components. The current array of machine tools was not going to carry DSC to where it needs to be.

"We went out and started looking at what was available in the market that would meet our needs," Rudeseal says, "and the big Starrag 5-axis STC 1250 was one of the first we looked at. We knew we needed a big, strong rigid machine from a builder who would stand behind the accuracies, guarantee accuracies in all the axes that we had to hold them. And this is where Starrag stepped up to the plate."

## THE TEST

Gerald Henderson, director, Manufacturing Support, Bell Helicopter, explains exactly how Starrag was selected as the Bell DSC supplier. "They guaranteed 0.002in true position on multiple bores," Henderson says. "The proprotor gearbox has a number of bores, and Starrag guaranteed tolerances that no one else would sign up for. They ran a bore test that we designed. We had them drill 36 holes in a 2in x 3in piece of aluminum, but not just drill 36 holes in a line. No, they drilled 36 holes, then we rotated the B-axis 90°, and they drilled another series of holes, and then back and forth, thusly.

"What we were looking for was not only could they hold the tolerance in a linear motion, but could they hold that tight tolerance while we rotated the B-axis? By doing this they were able to hold less than 0.0004in error. Which was well within what we were looking for.

"Another reason Starrag was selected was they had the trunnion size table that we needed for the V-22's big transmission adapter and the proprotor gearbox. So, they were able to hit the tolerances, had the trunnion table and other features DSC wanted and the price was competitive, plus they were enthusiastic about making the installation work. Further, Starrag standardized on

**U.S. 5TH FLEET AREA OF RESPONSIBILITY (May 24, 2014) U.S. Marine Corps MV-22 Osprey aircraft with Marine Medium Tiltrotor Squadron (VMM) 263 (Reinforced), 22nd Marine Expeditionary Unit (MEU), conduct flight operations. The 22nd MEU is deployed with the Bataan Amphibious Ready Group as a theater reserve and crisis response force throughout U.S. Central Command and the U.S. 5th Fleet area of responsibility. (U.S. Marine Corps photo/Released)**



Siemens 840D controllers for all their machines, meaning jobs and operators could fluidly move from one machine to another”, says Henderson.

### **FLEXIBILITY**

“From my perspective,” says Rudeseal, “one of the reasons we stick with Starrag rather than shopping around, resulting in dissimilar pieces of equipment and controllers in the shop, is exactly that. Flexibility to be able to move loads and work around depending on what happens moment by moment is critical at DSC. You can’t move work around very easily or inexpensively or safely if you don’t have the same controllers.

“We’ve great equipment engineers and process engineers and a solid, agile architecture where if we can put everything in place, we’ll have the accuracy, the productivity, and then the flexibility to adjust the loads. We’re becoming a very powerful manufacturing engine here. We are not there yet, but we can see the goal, and it’s not far off, that of being *the* premier manufacturer of gearboxes, period. Tolerance-wise, we’ve always been there.”

### **PUMPING PRODUCTIVITY**

In addition to being flexible and agile to meet demand, DSC is also working on trying to reduce set-up and cycle time and hike throughput. “With the old method,” Rudeseal notes, “it took us 200 days to do a gearbox. That

was the plan, and actually it took us more than 200 days. But when we put in the large 4- and 5-axis SIP jig bores, the 4-axis CWK 800s and the 4- and 5-axis SIP 7000s, plus the large case cell with the monster (twin 5-axis STC 1250s and a multi-story Fastem linear automated, programmable pallet load/unload, storage and retrieval system), we reduced planned cycle time down to a little less than 100 days. We cut it in half. We were able to achieve a 30% productivity output increase with all these new machines and combining operations. We went from around 300 boxes to 400 boxes a year, therefore, we probably did 40-45 percent more boxes.”

### **A UNIQUELY HIGH-PRECISION JOB SHOP**

Henderson addresses the “uniquely high-precision nature of the DSC ‘job shop.’” The twin STC 1250s run at 6,000 rpm even though they have the capability of 10,000 rpm, he says. “The program is written at 6,000 because engineering doesn’t want us to run the spindle too high. They worry about the residual stresses on the material, the heat buildup. And we’re not really that speed conscious here. We run castings or forgings. We’re removing 0.0015in or 0.0016in material. We really are a precision shop. Our gears are AGMA Class 13. The only people who build a better gear is NASA (Class 14), and we’ve built a number of their gears.”

Casting material is pretty common, 8356 or 8357 aluminum and titanium. The grade of titanium is purified

more than common through the smelting process. The steel is exotic, 9310 or H53 or Nitroloy. Very tough. Very tricky.

### CHANGING A CULTURE

Henderson continues: “If I look at the performance of the two STC 1250s with the Fastem pallet system, fondly named the monster, these changed the game so much that now we just feed The Monster castings. I don’t know where we’d be if those two machines and that pallet system weren’t doing what they’re doing.

“It’s truly been the technology,” Henderson adds, “using the monster to feed the machines and the reliability of those machines. I’m not going to tell you that we didn’t work hard to get there. I had a lot of programmers work a lot of hours, a lot of operators on the floor that did some great stuff, a lot of rabbits pulled from a lot of hats.

“We’re changing the culture here. It’s like driving down the road at 60 miles an hour while changing the fan belt. With the huge spike in V-22 boxes, we still had to produce H1 boxes and commercial boxes — they couldn’t wait for us to get all the tape trials done and get the machines up and running. We just had to do it. We had to do this while meeting *all* our schedules, and we did. We knocked it out of the park”

### SAVING THE PROGRAM

“Technology has made the difference,” echoes Rudeseal and cites an example. “We’ve had trouble with a supplier giving us the castings for the V-22 proprotor. They’ve been as much as six months behind. However, *we never stopped the final assembly line*. The only way we were able to do that is by not stopping at 100 cases. We’ve actually produced case sets in less than 30 days. We couldn’t have been able to do that with the old configuration, the old equipment. So, we were able to take being dealt a bad hand, and with great technology and the flexibility it affords, we’ve absolutely recovered to where the customer hasn’t suffered. We were late, yes. But they didn’t stop flying. The technology investment already has paid for itself: We saved the V-22 program.

“I’ll guarantee that had we stopped the assembly line for six months while we waited for castings, we would have lost our supporters, and we would have lost the aircraft out of the program. As good as the program has been, the government would have felt that Bell couldn’t keep up and couldn’t support the program. And two years ago that was the question: Could Bell keep up with the ramp? We proved we could, we were able to restore customer confidence. We saved the V-22 program, kept it alive and at Bell.”



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# Achieving Smart Machining With On-Machine Metrology



*Capturing metrology data on machine tools where parts are made creates a singular opportunity for using that data to identify machine-based changes as they occur and adjust them in real time.*

It has become a generalized belief that good metrology measurements must be achieved in a clean and static quality department on coordinate measuring machines (CMMs). The production equipment and environment is just too noisy and dirty.

This is not the case. Capturing metrology data on machine tools where parts are made creates a singular opportunity for using that data to identify machine-based changes as they occur and adjust them in real time. The results are more good parts per shift, longer-lasting machines and tools, and the ability to share data throughout the factory -- all significant production advantages on equipment you already own. This is the definition of Smart Machining.

## *From CMM to CNC*

*Manufacturing companies measure parts for three straightforward reasons:*

- To avoid releasing any bad parts to customers
- To maintain quality control procedures that produce good parts
- To create SPC (statistical process control) processes that maintain and improve the manufacture of good parts

External CMMs have become faster and more accurate over time, but necessitate removing a part from production equipment, fixturing it in a CMM, and, when necessary, returning the part to production equipment for further work. These steps take time and introduce new opportunities for human or automation equipment error to creep in. This remains true even though some CMMs themselves have be-

come smaller and portable enough to be located adjacent to the machining center.

In contrast, the CAPPSNC on-machine measurement system from Applied Automation Technologies ([www.aat3d.com](http://www.aat3d.com)) provides capabilities to quickly develop measurement programs offline and run these programs directly on CNC machine tools in a similar fashion to a CMM. Offline programming with virtual machine models and the use of CAD part models allow the machine tool itself to be programmed to perform complex measurement and reporting tasks, including multi-datum profile and true position analysis.

Users taking advantage of these programs with our work offset option are no longer restricted to using standard macros to identify only the most basic geometry as machining coordinate locations. Using CAPPSNC alignments, complex 3D features, intersections, tooling balls, and best-fit alignments pick up work offsets. Part setups are both faster and more accurate, saving time and money.

Realistic program simulations, collision avoidance, and optimum measurement path generation for multiple geometric features makes it very easy to program and make changes for any type of machine-tool configuration. This ultimately enables a very easy method of quickly generating metrology data directly at the production source.

### ***CAPPSNC – Software and Hardware***

The CAPPSNC system connects with the machine tool with an ethernet cable and can read and write to any controller parameter. The data generated with CAPPSNC's on-machine measurements is not only valuable for part verification—the goal here is not to make stand-alone CNNs obsolete. Rather, it's to use the data—immediately, as soon as it is generated—to improve the machining process by adjusting various machining parameters such as work offsets and tool offsets.

One reason it can do so is because the CAPPSNC system works as a variation of Edge Computing: The data need not travel away from where it is generated in order to be processed and used to improve machining quality. In fact, it's a secure closed-loop system — everything happens on the machine tool and its controller.

Error detection, diagnosis, and compensation all happen where the error occurred—and quickly. Periodic health checks throughout each shift enable greater machine consistency, which yields more good parts, which lowers production costs while improving throughput. Networking such Smart Machining data throughout a facility makes such improvements possible on all your production equipment.

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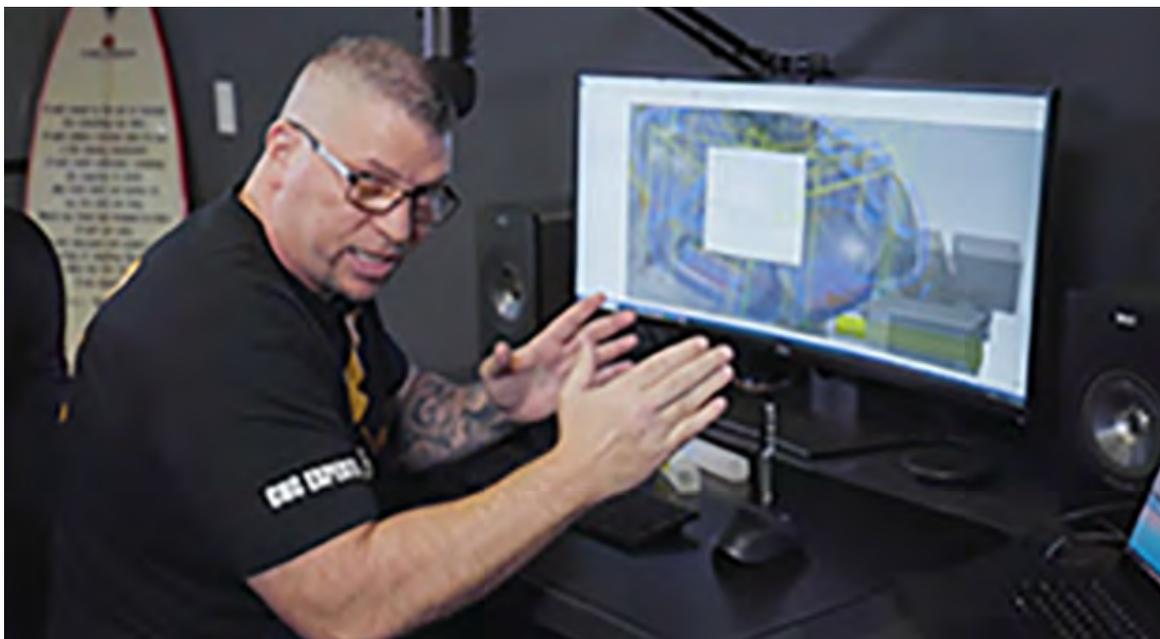


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# Mastercam Featured in TITANS of CNC Aerospace Academy



Mastercam, developed by CNC Software, Inc., is the featured CAD/CAM software in TITANS of CNC Aerospace Academy, which just launched Monday, June 29th, to help train the next generation of highly skilled CNC machinists and eliminate the widening skills gap.

Mastercam is one of the world's leading CAD/CAM software. The company reports it is the most widely used CAM in industry and education worldwide. The software is popularly used in companies requiring precision machining, such as shops in the automotive and aerospace industries.

TITANS of CNC Aerospace Academy ([www.aerospaceacademy.com](http://www.aerospaceacademy.com)) is a project-based platform teaching high-level manufacturers the skills necessary to produce complex aerospace parts using the most difficult materials. TITANS of CNC, Inc. CEO Titan Gilroy and his team have worked hard to create the Aerospace Academy as a platform to highlight aerospace machining and processes, that gives users an inside look at the entire process of manufacturing complex, hard-to-machine parts, that are realistic to the industry. Mastercam is featured throughout the platform and content and is being utilized to produce the majority of the aerospace projects which live on the free Aerospace Academy website.

"When we set out to build the game-changing Aerospace Academy, we knew from the outset that Mastercam was the only choice for a high-level CAM partner," says Gilroy. "Just as our real-part inspired projects challenge

users even at the highest level of programming, Mastercam is the greatest software, jam-packed with all of the tools manufacturers need to compete across all industries and meet the tough challenges and ITAR requirements. The Aerospace Academy is the next level of CNC education that will make a huge impact through the entire industry. We are proud to have Mastercam as a key partner in making this a reality."

"We are inspired by this next step with TITANS of CNC and the partnership with the Aerospace Academy," said Meghan West, president, CNC Software, Inc. "There is no organization better suited to create this material than TITANS of CNC. It is well known that we are suffering from a lack of skilled workers in the manufacturing industry. That shortage is felt from entry level machining all the way to the highest level of precision manufacturing. This Aerospace Academy is where we will see the next generation of the upper echelon. This is where we will find those machinists that are going to innovate, it is where we will find those machinists that are going to push the boundaries, and it is where we will find those machinists that are going to shape the future of manufacturing. I am so excited to see how this training program is going to empower people to find careers in manufacturing that are going to change their lives and change the world."

TITANS of CNC will use Mastercam to produce additional aerospace tutorials, which will live on the free Aerospace Academy website. In addition, they will be recreating their Rocket Series, Building Blocks Series, and The Art of Fixturing Series using Mastercam.

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## ROTTWEILER PERFORMANCE



Chris Parker, owner and founder of Rottweiler Performance has leveraged his experience as a small shop fabricator into a worldwide brand. Those who live on two wheels know Rottweiler Performance, appreciate the quality, and understand that sometimes you just gotta let the big dog out. Chris describes Rottweiler Performance as a design and manufacturing facility with the primary goal of creating useful products to customize motorcycles.

Chris began fabricating in the early '90s when he was given a shot at welding by a local Orange County, CA, fab shop. He had a knack that earned him jobs throughout the southland. He hit the big time when he got a job as a fabricator at Red Bull Motorsports. It was a high-stress job and a crash course in brain surgery all in one. "Red Bull Motorsports at the time was one of the top off-road racing teams in the world," tells Chris. "There I was a young welder/fabricator being part of the world record breaking '90's Peak Hill dirt team. I knew then that I wanted motorcycles to be a permanent part of my life." Racing has taken Chris from the top of the Rockies to the beaches of Baja as a racer, driver, tuner, fabricator and team owner. The day CNC West was on his mind was when Chris was busy prepping the team for the upcoming Sonoma Rally, a 5-day long endurance event that they had entered on an adventure bike.

CNC (Chris Parker Racing) came about around the turn of the century. The focus was on products like high-end roll-overs and similar systems for race cars, pedal systems and anything that needed an expertise that only a fellow racer could understand. "I had taken on a welder," explains Chris. "That a fabricator is a good welder who can solve puzzles. Racing brings with it a welder, but puzzles to be solved. By word of mouth I began to gather a following. All my customers came from referrals and I was able to blend fabrication with machining to solve my cus-

So much of the world has stopped in the last month, but we know manufacturing doesn't. Large and small shops are out there making parts and keeping us rolling. As a thank you CNC West Magazine would like to give you a little boost in exposure. Show your colleagues what you are up to, tout your services and really showcase who you are. Whether you have a marketing department sending out info or if you are a one person do everything kinda shop here is a chance to shine in front of your peers. Submit your 500 word company profile article to us via email along with 5 full res photos for us to pick from and we will feature your company in print or on our website. **FREE** press is the best kind so help us help you get the word out that you are cutting chips and keeping the country going strong.

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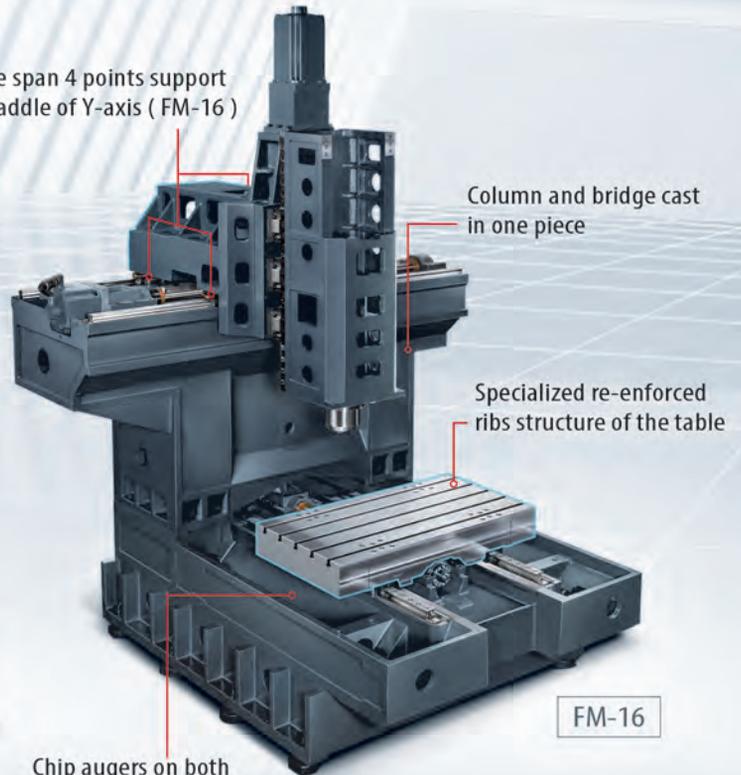
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- X / Z axes travel : 7.67" / 8.66"



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# What's the Difference Between ER Nuts?

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Few would argue with calling the ER style the world's default collet chuck holder system across the world. It's an open standard anyone can make. When it comes to dialing in an ER system's performance to match a specific application's requirements and/or long life, there are three components to consider: the collet, the body of the holder and the nut.

ER collets from BIG KAISER work with any other holder, are made to ISO and DIN standards, and are made in-house—no private labeling—to BIG DAISHOWA's exacting tolerances. The bodies of our holders have an extended bore designed specifically to improve runout accuracy and help to achieve our guarantee of 1-micron runout at 4xD when used with other BIG DAISHOWA components.

When it comes to nuts, there are choices aside from the standard ER nut—our ERN is interchangeable with any other holder brand, but accuracy cannot be guaranteed. Let's look at the other options.

**Mega ER Solid Nut** – This is a one-piece, solid steel nut without bearings. This nut has a counterbore on the back to match the pilot, so that when this nut goes on the holder body, it's sealed from the backside as well.

Flats are also removed from the nut; it's fully round. The nut design also allows for use of our MEGA Wrench for even 360-degree clamping. BIG Kaiser feels that when compared to wrenches that are only a foot long and flat bar stock, the MEGA Wrench, with its rubber handle, makes tightening easier.

**Mega ER Nut** – This high-performance bearing type nut, effectively sets the standard. It's shaped exactly the same as the solid nut but includes a bearing raceway. This reduces the

required tightening torque by about 40 percent, lessening wear and operator stress.

As opposed to a solid nut where its face slides along the top of the collet, causing wear, the collet is free to rotate without the nut, and bearings reduce wear caused by the sliding motion. Reduced clamping torque protects the threads of the holder too. Sure, threads are going to slide against each other, but this nut can cut that wear in half.

Our research shows that when compared side-by-side to a solid after 500 clamping cycles, the MEGA ER maintains about 50 percent more gripping strength with a 30 percent reduction in runout.

**MEGA Perfect Seal** – This nut has all the features of the bearing-type nut but adds a front O-ring to seal for coolant-through delivery up to 1,500 PSI direct to the end of the cutting tool. Alternatively, the O-ring can be moved for jet coolant mode where coolant is delivered closer to the cutting shank, which is ideal for finishing jobs.

For the best performance we recommend all three of our components, because we know they are held to similar standards and tolerances. If you're looking to improve performance on an existing tool, replacing both the collet and nut will provide the most improvement. But if you must choose, the nut will make the most impact.

Interestingly, we've had the most success with customers that aren't using all three together, for example on transfer lines, where the ER collet chuck is built into the spindle of a dedicated machine. While you may not be able to replace the holder, even if it's another brand, you can still improve runout with a better nut and/or collet.

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# Industry News



## Mazak Announces Opening of New Expanded Spindle Rebuild Department

Mazak Corporation has announced the completion of its newly expanded Spindle Rebuild Department, now located in the company's South Building in Florence, Kentucky. The expansion coincides with other Mazak investments, including a new Technical Center in Northern California.

Mazak expansion efforts that also extend to its manufacturing plant, encompass the installation of a new state-of-the-art manufacturing cell with fully automated storage and retrieval system, six of Mazak's most advanced machine tools and several of its Mazak Smooth Technology digital process monitoring solutions.

In addition to visiting in person, individuals will soon be able to experience the new expanded Spindle Rebuild Department and Mazak's entire manufacturing campus as part of an interactive 360 Kentucky Campus Tour. This virtual interactive tour is part of Mazak's recently launched three-pronged holistic digital customer experience, which also features an immersive Virtual Technology Center and All Axes LIVE, an ongoing series of robust online events.

The Spindle Rebuild Department supports every Mazak machine tool spindle in North America. The expanded department will keep upwards of 1,000 rebuilt spindles in stock and ready for exchange.

Experienced factory-trained technicians use only genuine Mazak replacement parts to rebuild Mazak spindles. Within a tight turnaround window, these technicians perform every stage of the repair and rebuild process, provide comprehensive and trackable spindle documentation, and conduct stringent testing of every spindle.

## Techniks Tool Group and Mazak USA Announce New Partnership

Techniks Tool Group (TTG) has established a partnership with Mazak USA to offer tooling certificates that are now available as an accessory option with new machine tools.

Mazak dealers may now add TTG tooling certificates to machine quotes by using Mazak's i-Quote system. Tooling certificates may be redeemed by Mazak customers directly from TTG for any solutions available from Techniks or Parlec, including all toolholding, workholding, boring and even Turbo-Turn specials.

Greg Webb, TTG's EVP of Business Development, said, "We have had a great relationship with Mazak, and we are excited to build on that relationship with this new commercial agreement. With the largest SKU offering in the business, we are looking forward to providing solutions to customers when they are ready to tool up their new Mazak machines."



## IMTS Canceled For First Time Since WWII

Because of health and safety requirements imposed by the state of Illinois for holding conventions, IMTS – The International Manufacturing Technology Show has announced that it has cancelled IMTS 2020.

IMTS will offer two comprehensive digital programs, IMTS Network and IMTS Spark, over the next several months to assist exhibitors and the manufacturing community. IMTS is fully committed to returning to McCormick Place as scheduled for its normal rotation 2022.

"The show has been held uninterrupted for more than 80 years, but now the global coronavirus health crisis requires the cancellation of what would have been the 34th edition of IMTS for the health and safety of our exhibitors, audiences and local business community," says Peter R. Eelman, vice president & CXO at AMT – The Association For Manufacturing Technology, which owns and produces IMTS. "Our organization and its members take immense pride in presenting one of the world's largest manufacturing technology events, one that dates back to 1927. The cancellation is especially poignant because the show was poised to offer an unmatched breadth and depth of resources to help industry rethink, reestablish and reengage with supply chains disrupted by COVID-19."

Visitors who have registered for IMTS 2020 have the choice to receive a refund on registration or transfer their registration to a tax-deductible donation to Miles For Manufacturing,



# Industry News

where every dollar is given to programs that prepare students for careers in manufacturing technology.

“In the near future, we will launch the IMTS Network and IMTS Spark to provide the IMTS exhibitors and visitors with connections, networking opportunities and technical knowledge,” says Eelman.

## Laguna Tools Moves Headquarters to Accommodate Growth

Laguna Tools has moved its production department into a new 115,000 sq. ft. building in Grand Prairie, TX, which includes a 10,000 sq. ft. showroom.

Its current showroom, sales, service and marketing staff in California are moving into a new space in Huntington Beach, CA, which will feature a large showroom for its west coast customers.

Laguna Tools serves metal fabrication industries through its locations in California, Texas, South Carolina, Minnesota and Michigan.

## Idaho's Top Maker Minded Schools Awarded

LIFT, the Detroit-based national manufacturing innovation institute, and the Idaho STEM Action Center have announced the winning schools of the Gem State's 2019-20 MakerMinded competition, which expands student and school access to advanced manufacturing and science, technology, engineering and math learning experiences through an online platform.

In partnership with the U.S. Department of Defense's National Defense Education program, MakerMinded launched in Idaho in the fall of 2018. Now, more than 500 Idaho students and teachers from 65 MakerMinded schools are learning about the 21st century skills that are in demand at Idaho's 1,600 manufacturing companies that

currently employ nearly 70,000 people.

“STEM education is a critical part of ensuring the next generation of Idaho citizens are equipped with the

skills Idaho businesses need in their workers,” said Gov. Brad Little. “The State of Idaho is proud to continue partnering with LIFT and its Mak-

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The advertisement features a large central image of a CNC machine in operation, with a yellow callout box containing the text 'CNC Machine Simulation, Verification, & Optimization Software'. Below this, the slogan 'SAVE TIME • SAVE MONEY SAVE YOUR MACHINES' is prominently displayed. To the right, a red starburst graphic reads 'CRASH DETECTED!'. At the bottom, there are three smaller inset images showing different views of the simulation software. The Vericut logo and tagline 'Right the first time. Every time.' are at the bottom left, and the CGTECH.com logo is at the bottom right. Contact information for CGTECH is provided at the bottom center.

# Industry News

erMinded program to expand access to STEM education opportunities for Idaho students.”

Four Idaho schools are being recognized for their outstanding performance in MakerMinded, and will each receive cash awards from the STEM Action Center to build or enhance a STEM or advanced manufacturing program:

White Pine Charter School (Ammon, Bonneville County, Basin 5-8 (Idaho City, Boise County), Syringa Middle School (Caldwell, Canyon County)

“With the manufacturing sector continuing to play a critical role in Idaho’s economy, we are focused on increasing student and school partici-

pation in MakerMinded as a means to gain the skills and experiences students need to prepare for the STEM jobs of tomorrow,” said Dr. Angela Hemingway, Idaho STEM Action Center Executive Director.



## Doosan Machine Tools Enters Partnership with Titans of CNC

Doosan Machine Tools announced a new strategic partnership with TITANS of CNC, Inc. As part of this partnership, Doosan Machine Tools will become the exclusive premier machine tool builder partner for TITANS of CNC.

TITANS of CNC is focused on being the top global manufacturing education provider, and over the past few years, has reshaped the way manufacturing education is approached and delivered. With its free, online, video-based, step-by-step, training system, TITANS of CNC continues to provide real solutions to real manufacturing problems.

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# Industry News

“My team and I are extremely excited to partner with Doosan Machine Tools,” stated Titan Gilroy, CEO of TITANS of CNC. “They are a global leader in machine tool technology and are trusted by companies all around the world. Together we will close the skills gap and train machinists to produce real parts, allowing them to compete at the highest level.”

For over 40 years, Doosan Machine Tools has been supporting the manufacturing industry with high performance CNC machine tools. “Doosan Machine Tools shares TITANS of CNC’s passion for educating manufacturing professionals,” stated Jim Shiner, Doosan Machine Tools America’s vice president of sales & marketing. “The need for trained ma-

chinists is greater now than ever, and in our new partnership with TITANS of CNC, we are proud to recommit our efforts to building the next generation of young machinists

## GMN USA Announces New President

GMN USA is proud to announce Konstantin Posehn as the new president of GMN USA replacing Gary Quirion who is stepping down as president. Mr. Quirion will remain at the company handling technical sales.

Mr. Posehn is a graduate of Nuremberg Tech George Simon Ohm where he studied Mechanical Engineering. He comes from GMN Nuremberg where he has worked since 2010

as a technical sales manager of eastern and southern Europe. He became vice president at GMN USA beginning in 2020 and is clearly the best

suited to carry GMN USA through the current world conditions and beyond.

GMN is a world leader in the manufacturing of spindles, motors, bearings, seals and clutches. GMN USA is located in Bristol, Connecticut, and sells new spindles and repairs most makes and models for North America.



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# Industry News

## Fanuc America Offers Free Trial of CNC Virtualization Platform

FANUC America, a leading automation solutions provider, is offering

a free trial version of CNC Guide – Fanuc’s PC-based virtualization platform for control design, training and part programming.

To assist machine tool operators and builders through the rough economic



times created in 2020, Fanuc is offering this simulation tool at no cost. CNC Guide offers an immersive and safe way to learn how to operate CNCs, even for novice operators. Because the software creates digital twins of machine controls, programmers can test G-code programs with no risk of damaging actual machines.

CNC Guide can also help optimize machining operations since users can experiment in the virtual environment with performance-enhancing features in Fanuc controls. In addition, the software used in tandem with their conversational programming tool, MANUAL GUIDE i, can act as a simplified CAD/CAM package. This platform enables programming on a PC instead of the machine tool, so equipment stays in production.

This limited-time offer is good only through September 2020 and available to Fanuc America customers residing in the U.S. Interested parties need to contact Fanuc through the CNC GUIDE trial offering page on their web page to get started.

## Emuge Celebrates 100th Anniversary

This year, Emuge-Franken, is celebrating its centennial. In 1920, Richard Glimpel, a German engineer and master craftsman, founded a company and invented a single-finishing tap with a spiral point that revolutionized the machining of internal threads. The tap

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EMUGE-FRANKEN Headquarters in Lauf, Germany. The new building shown on the right will increase production space more than 215,000 sq. ft. by 2025.

obsoleted the 3-part tap set with only one tool which did the job at a fraction of the time it normally took.

The new tool was so successful it helped secure a large order and growth for the fledgling company that Mr. Glimpel and three employees had started. In turn, partners were soon added and the brand name “Emuge” was established. Today 100 years later,

Emuge-Franken has more than 1,900 employees with locations worldwide.

Many successful Emuge tool innovations and product expansions have followed, including the addition of tool holders in 1928, special workpiece clamping in 1950, and in 1953, the development of the patented steep spiral-fluted tap, a tool that to this day features the same geometry for machining threads in blind holes throughout the industry. In 1956, Mr. Helmut Glimpel, son of the founder and current owner, joined the company, and in 1958 Emuge acquired Franken, a manufacturer of milling tools, and changed its name to Emuge-Franken.

Emuge Corp., which today has a newly expanded 50,000 square foot state-of-the-art facility in West Boylston, MA with a technology and training center, tool reconditioning and manufacturing, including end mills for advanced aerospace machining applications.

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# Industry News

## Starrag USA Announces That Tim Mooney Has Been Promoted to the Director of Sales

Tim has over 20 years of machine

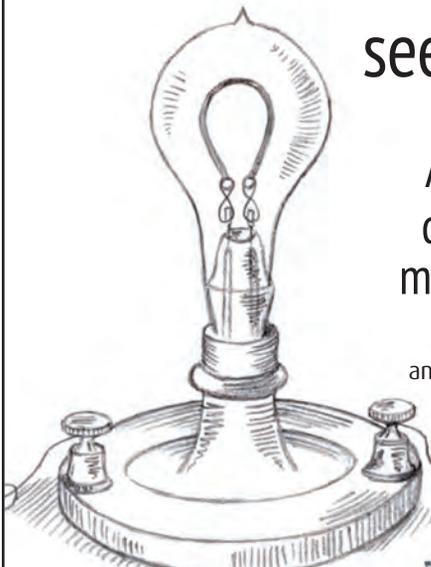
tool experience and has been part of the Starrag USA team for the past 3 years. Prior to joining the Starrag team, Tim was the metal cutting product manager and Boeing account manager for Ingersoll Machine Tools. Tim has extensive

experience in the aerospace, defense, energy and industrial manufacturing sectors.



“I am very excited for this opportunity to lead a sales team that can offer machine tools with unmatched capabilities. Engineering precisely what our customer values will allow Starrag our continued growth in the US market.”

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## DMARK Partners with Drake Manufacturing

DMARK Machine & Tool Company has partnered with Drake Manufacturing, in Southern California.

Drake Manufacturing offers the thread grinding industry with precision-built solutions, engineered for success. Drake capabilities allow for the design and manufacture of state-of-the-art CNC thread grinders for industries including Aerospace, Automotive, Cutting Tools, and Oil & Gas.

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# Industry News



## BIG KAISER Celebrates 30 years

BIG KAISER Precision Tooling Inc., is celebrating its 30th anniversary. On August 1, 1990, KPT Kaiser opened its doors and began its mission to make Kaiser CKB modular boring tools, developed in Switzerland, the leader in the North American market.

When the company began in 1990, most shops used boring tool technology from the 1950s, where tool changes were a costly and a time-consuming

process. Labeling themselves “The Tooling Problem Solvers,” the sales team set out to take on the industry’s toughest problems and prove the efficiency and time savings of modular boring tools. Today, the modular connections are still the same, meaning a tool built in 1969 can still be used on a machine today.

“I started the company out of necessity,” BIG KAISER president and CEO, Chris Kaiser said. “I knew we needed to change how we were selling the boring tools manufactured by my father’s company in Switzerland, Heinz Kaiser AG.”

Now a member of the BIG Daishowa Group of companies, BIG KAISER plays an integral role in the company’s worldwide R&D and manufactur-

ing strategy. BIG KAISER develops and provides high-performance tool holders, boring heads, workholding, measuring instruments and custom engineering support for machining companies.

“After 30 years, I’m proud to say we’ve had a good number of customers from the very beginning,” Kaiser recalled. “Possibly the first was a Swiss-born machinist who carried Heinz Kaiser boring tools back from his vacation in Zurich to his job in the repair center at United Airlines in San Francisco. We’re grateful that companies like United, Bell Helicopter, Sikorsky, Caterpillar, John Deere, Metalex, Vermeer and Viking Pump – among others – are still with us to this day.”

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# Industry News

## Wenzel and Nikon Metrology Enter Distribution Partnership

Nikon Metrology, Inc and Wenzel America announce their new distribution partnership, commencing June 29th 2020 (06/29/2020). The distribution partnership means that WENZEL becomes an official Nikon Metrology partner for the sales and distribution of Nikon Metrology laser scanning products in the North American market.

Wenzel's expertise and innovation in the CMM market, and Nikon Metrology's peerless laser scanning technology will support the American customer base with tailored CMM laser scanning solutions to meet a wide variety of applications, industries and requirements.



To meet the demands of Industry 4.0 and mutual customers, the collaboration of Nikon Metrology and Wenzel efficiently delivers innovative CMM-based laser scanning solutions throughout North America.

Drew Shemenski, President of Wenzel America Ltd. states, "One of our core philosophies at Wenzel is working with market leading technol-

ogy partners to offer broad solutions to our customers. Nikon is a clear leader in Laser Scanning technology, and WENZEL America is thrilled to be able to add this prestigious brand to our list of partners. Combining the power and capability of Nikon sensors with the accuracy and reliability of Wenzel systems will give the market unparalleled solutions to the metrology challenges faced by modern manufacturing."

"We could not be more excited about our partnership with the WENZEL brand and collaboration supporting our mutual customers as well as our new customer opportunities. This partnership certainly has a head start because both brands are passionate solution providers offering premier products and best-in-class support for

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# Industry News

today's metrology market demands." says Robert Martin, vice president of sales, Nikon Metrology (Americas).

With Industry 4.0 practices integrating all areas of manufacturing to improve the efficiency of production processes, laser scanning is a key component in its implementation. In the production environment, laser scanning helps to obtain a rapid insight into deviations, a significant benefit of high-speed digital data capture.

## Haimer USA and Fullerton Tool Company Form Safe-Lock™ Partnership

Fullerton Tool Company and Haimer USA, have recently signed a U.S. licensing agreement for HAIMER's

patented Safe-Lock™ anti-pullout system. Ever since their beginning in 1942, Fullerton has specialized in the production of high performance and high quality cutting tools.

Brendt Holden, president of Haimer USA states, "We are very happy to have formed a partnership with Fullerton Tool, an American market leader in the cutting tool industry. Fullerton's precision-made tooling is well suited for the HAIMER Safe-Lock™ system. I fully believe Fullerton customers will welcome the added security and inherent balance and precision of the Safe-Lock™ System that will allow them to increase their shop's productivity."

"Fullerton Tool is excited to partner up with a world class tool holder company like Haimer," president of Fullerton Tool Company Patrick Curry

states. "The combination of Fullerton Tools' advance performance end mills and Haimer Safe-Lock™ is a proved solution for our customers who have challenging machining applications."

Since its creation, the Safe-Lock™ system has continued to grow rapidly in the U.S. market across all industrial sectors. The success of the system has largely been fueled by its popularity as more and more manufacturers recognize increased productivity due to the pull-out protection Safe-Lock™ provides. Safe-Lock™, which emerged from the requirements of heavy-duty machining, initially made a name for itself in the aerospace and energy industries.

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# Industry News

## Sunnen Products Co. Launches Rebranding, e-Commerce Site

Sunnen Products Co. has launched a new global website as the keystone of a brand refresh that caps an period of change and activity for the company. That change includes the acquisition of BTA Heller, expansion of worldwide manufacturing operations and entry into the deep-hole drilling machine market. The new website incorporates Sunnen's BTA Heller deep-hole drilling tools as well as a new e-commerce platform in the early stage of development.

The brand refresh includes an updated Sunnen logo and a statement of the company's business philosophy: "Partnership, Precision, Performance."

With as much as 70% of a customer's buying journey completed online, Sunnen's goal was to simplify the buying process, making it easier for

potential customers to find the product as well as the technical and performance information needed to make their purchase decision, whether it be offline through a sales representative or online ordering. The website thus includes an e-commerce platform for North American customers which is in beta testing now, with wider rollout expected later in 2020. The company plans to make most catalog items available to customers who have registered and been validated.

Sunnen's core technical competencies include automated and manual honing and lapping systems, custom system development and integration, abrasives, tooling, lubricants, and gaging. The BTA Heller acquisition expanded Sunnen's industry leading honing expertise to include tooling for initial hole creation and other complementary bore sizing and finishing processes.

## Big Kaiser Enables Buyers to Find, Purchase Demo Equipment

A new feature of Big Kaiser's online Stock Check now enables buyers to search for discounted demonstration inventory. This category includes nearly 200 boring tools, toolholders and other accessories that have been lightly used for machining demonstrations or for trial applications and still perform like new.

"We want to be flexible in supporting our customers with lower-cost options as much as possible," says Jack Burley, VP sales and engineering.

Big Kaiser's Stock Check is used to search products by catalog number or description. Users can apply a filter to see all U.S. inventory or only the quantity of discounted demo units available.

"These are like dealer-certified pre-owned cars," Mr. Burley says. "They

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# Industry News

have been in a machine or on display at a trade show and returned to inventory but may have a small blemish or scratch so they can't be sold as new. Each tool is carefully inspected and packaged with all the required spare parts and wrenches."

## Selway Machine Tool is Now a Reseller of Desktop Metal 3D Printers

Selway Machine Tool Co announces their partnership with Desktop Metal. Founded in 2015 Desktop Metal is reinventing the way engineering teams produce metal and composite parts—from prototyping through mass production.

"We are very excited to offer our customers the Desktop Metal 3D Printer product line. Their focus on making accessible the metal & composite materials our manufacturers require is going to play a huge role in the growth additive manufacturing in the territories we represent." Zack Selway, VP of Additive Development

Desktop Metal's material portfolio consist of both metal and composites. For metal they support: 17-4 PH (Stainless Steel), 316L (Stainless Steel), H13 (Tool Steel), 4140 (Chromoly Steel), Alloy 625 (Nickel Based Superalloy), & Copper. These materials are offered on the following systems: Studio (build envelope 12"x8"x8"), Shop (build envelope up to 13.8"x8.7"x7.9"), & Production (build envelope 19.2"x15"x10.2").

For composites they can print: PEKK + Carbon Fiber, PEEK + Carbon Fiber, Nylon 6 + Carbon Fiber, & Nylon 6 + Fiberglass. The Carbon Fiber Composites exist of both a chopped fiber as well as continuous fiber tape for reinforcement. These materials are offered on the Fiber System (build envelope 12.2"x9.4"x10.6").

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# New Products

## Feed Unit and Controller Package for Drilling and Tapping —Zagar Inc.

Zagar Inc., bundles its MQ150SU with a dual axis CNC control package for a broad range of ferrous and non-ferrous drilling and tapping. The combination is intended as a good first choice for a variety of applications, as well as for optimizing current operations and can be integrated into more robust drill and tap applications.

The MQ150SU is a sealed unit version of the company's popular MQ150, featuring an internal synthetic lubrication system and grease packed bearings for long life and operation in any position. The feed unit uses a ball

screw on the centerline of a hardened, precision, 55mm diameter quill. It is precision ground, pre-loaded with zero backlash. An involute spline driven spindle uses EP7 high precision bearings and the unit features an HSK-32C Spindle nose supplied connection with clamping cartridge assembly.

The dual axis controller uses standard CNC commands and features an internal motion processor and PLC. A 10.4" color display and operator's panel is user friendly. Two servo motors and two servo drives for spindle and feed axis are included, as well as motor cables.

The combination is well-suited for numerous drilling and tapping applications in stainless steel, CRS and

aluminum, with maximum spindle speeds of 5,000 RPM.

## Expanded Jet-through Hydraulic Chuck Line for 5-axis Machining —BIG KAISER

BIG KAISER expands its jet-through hydraulic chuck line to include the BCV interface and additional inch sizes.

The HDC jet-through type holders are ideal for high-precision 5-axis machining with maximum RPM of 35,000 and clamping range of 1/4" to 1/2" and fit nearly any application in the automotive, aerospace, medical, and die and

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# New Products

mold industries.

An exclusive thread feature allows for convertible coolant delivery between jet-through coolant and center-through coolant. Jet-through hydraulic chucks are ideal tool holders for finishing applications that would benefit from improved coolant delivery. The coolant flows through the end of the tool holder and is angled to direct coolant to the cutting tool tip, greatly improving surface finish and tool life.

BIG KAISER HDC tool holders are simple to use; only 1 hex key wrench is needed to clamp or loosen the cutting tool, making tool changes fast and easy without special equipment. Every HDC toolholder is guaranteed to .00012" TIR at 5 times diameter.

## New Citizen CINCOM M532 & L212X

### —MCC

Marubeni Citizen-Cincom (MCC) introduces Citizen's new, state-of-the-art, Swiss style lathes – the next generation M32 and L12.

The M532 VIII is the newest version of the Citizen Cincom M series turret style Swiss turning center. This 32mm capacity machine (with the capability to increase to 38mm) has a new design that helps improve productivity and operating convenience. The standard 12 cutting axes includes a B axis for angular drilling and contour milling. In addition, the 10 station turret with half index capability provides 20 positions.

With the excitement of the M532, MCC is also delighted to showcase the new generation Cincom L212X. The L12X features the all axis simultaneous Cincom System M70 Control (Mitsubishi Meldas 70LPC-VU) as well as 15,000 rpm main spindle. This new generation machine also features a Y2 axis on the back spindle which expands the range of usable tools. In addition,

the maximum spindle speed has been increased to 12,000 rpm which shortens acceleration/deceleration times.

Both of these machines employ Citizen's user-friendly editing function which utilizes multi-line, multi axes

## VERISURF Inspection Software



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# New Products

programming along with superimposed and synchronized control, making setting up the most complex job easy.

## Rugged New GAGE-CHEK Now Available —HEIDENHAIN

With its rugged industrial design, HEIDENHAIN's new shop-floor hardened GAGE-CHEK 2000 evaluation electronics box is now available. Offered as a plug-and-play embedded system along with HEIDENHAIN-brand encoders including length gages, this solid metrology unit provides reliable basic measurement of 1D values. The new GAGE-CHEK 2000 is well



sited for positioning tasks on many applications, from typical measuring rooms to a harsh production environment.

Built on HEIDENHAIN's next generation DRO software and hard-

ware, the GAGE-CHEK 2000 offers a simple-to-view readout and up to 3-axis inputs. Its slim aluminum housing with integrated power adapter and fanless passive cooling system is exceptionally sturdy and resilient.

The GAGE-CHEK 2000's straightforward touch screen is made of specifically hardened glass and supports multi-touch gesture control, including permitting operation with gloves. The logical arrangement of menus and elements provides intuitive user guidance in the use of various functions.

Many useful features are offered in the GAGE-CHEK 2000 including: a digital gage view that shows the view an operator would have used in the past

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# New Products

with any dial gage, configurability of each axis for length or angle display and measurement series with recording of min and max values. Other features include simple switching of the counting direction and measured-value output – either manually, continuously or when triggered by a touch probe

The GAGE-CHEK 2000 is available in two main hardware variants that are each provided with standard firmware with basic functions.



only reduce set up times by as much as 70%, they also allow machinists to increase machine utilization while also streamlining tool setting processes. Designed for absolute ease of use with uncomplicated software and a stable cast iron base, HAIMER Microset gives machinists a high degree of accuracy and process reliability.

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## Microset VIO Linear Presetting Machine —Haimer

HAIMER reports that their Microset tool presetting machines not



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# New Products

friendly operating panel, machinists with varying skill levels can use the presetting machine.

## Double Turbo Square Shoulder Mills and Inserts Introduced

### —Seco Tools

Seco Tools has expanded its line of square shoulder milling cutters with the new Double Turbo. The cutters improve roughing operations and reduce power consumption in steel, stainless steels, cast iron and high-temperature alloys with an advanced cutter geometry. The tools utilize double-sided inserts with four cutting



edges and state-of-the-art Seco Tools milling grades.

Seco reports this system features a highly accurate geometry with the most positive helix angle possible to reduce the likelihood of surface mismatches and enable impressive 90-degree angle accuracy. Double Turbo cutters are available in 19 metric variants ranging

from diameter 40 mm to 125 mm and 16 inch variants ranging from 1.50" to 5".

The ZOMX16 inserts have high, positive geometries for effective chip evacuation and reduced cutting forces. These features minimize vibrations for extended tool life and smooth surface finishes. The double-sided design provides significant cost-per-edge savings. The ZOMX16 inserts include two geometries, ME10 and M12, and two radii, 0.8 and 1.6. Both PVD and Du-ratomic® CVD grades are available.

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# New Products

## Burnishing Tools for Varied Applications —Monaghan Tooling

Monaghan Tooling Group presents the full line-up of Elliott Tool Technology burnishing tools, which produce a 4 to 8 Ra surface finish in one pass, thus eliminating secondary machining operations and their requisite set-up time and costs.

With tooling to burnish ID, OD, ID/OD and flat surfaces, Monaghan has the capability to handle virtually any burnishing project. By improving surface irregularities and tool marks, the company reports they also eliminate secondary machining operations such

as grinding, honing and polishing, thus cutting project costs and lead times.

Speed is coupled with accuracy, as ID burnishing tools produce accurate sizing in “.0001” increments.

## OKK High Precision Vertical Machining Center —Methods Machine Tools

Methods Machine Tools, Inc., has introduced the OKK VB53a Vertical Machining Center (VMC) that is ideally suited for die and mold machining.

The OKK VB53 has several features for high rigidity and accuracy. A rigid machine base, wide size linear roller



guide and fine pitch high-resolution ball screw increase machining precision. Enhancing positioning accuracy,

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# New Products

a 0.05 micron resolution linear scale is offered. Soft Scale Cube technology features thermal sensors that monitor and compensate for any displacement in real time.

An externally located isolated oil cooler removes a common source of machine vibration and results in better die and mold quality. Due to the coolant sheltered work environment, the machine casting is protected from chips and coolant. The Y-Axis shutter is designed to reduce chip accumulation and reduce operational downtime, while coil-type conveyors clear out chips. An automatic grease lubrication system ensures there is no waste oil contamination of the coolant.

The OKK VB53 features a Fanuc F31i-B control together with Hyper

HQ control technology. Hyper HQ control consists of a 64-bit, high speed RISC processor including a look ahead multiple block (multi-buffer). It automatically detects the corner on parts from the NC part program, and controls the feed rate so it does not exceed the machine's permissible acceleration rate. A large capacity, 1 GB data server holds large files and sends it through a high-speed Ethernet connection for external analysis on the RISC .

The new OKK VMC features a 20,000 RPM, 20/15 HP spindle and has X,Y,Z travels of 41.3" x 20.8" x 20.1" respectively. The automatic tool changer will store up to 30 tools. The table work surface area is 49.6" x 23.6" and offers load capacity of 2,646 lbs. The OKK VB53 is a compact size ma-

chine with a footprint of 98.23" x 120".

## Next Generation "Aero" Series Double Column Machining Center —YCM

YCM introduces the "AERO" Series of next generation high performance double column multi-axis DCV2018A/B-5AX machining centers. The new YCM DCV "AERO" series are carefully engineered with high speed and efficiency to handle the demands specific to the aerospace industry.

The DCV2018A-5AX features an HSK-A63 with 18,000rpm spindle putting out 94hp. The 1,181ipm rapid feed rate on all 3 X, Y, and Z axes give

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# New Products



optimal axial performance. A powerful Z-Axis direct drive motor with no counter balance provides highly responsive, precise, and backlash-free. The direct coupled drive on X-Axis provides faster acceleration. The table is equipped with 8,800lb. load capacity

78.8"x59". An optional 120 ATC unit is available as well 250mm Z-axis riser is available.

A reinforced double-column structure with smooth operation and low vibration is designed to enable better finishing and extend tool life. The internal double-A type ribbed-bed design offers full support for the table which allows the force to be evenly and effectively distributed to the foundation. Roller linear guideways are on all three axes with multiple oversized slider blocks. The Y-axis is designed with a large span in horizontal and vertical directions.

The five-axis universal head is

equipped with a direct-drive motor with resolution of 0.001 degrees. The machine also features cross roller bearings with high rotation accuracy that are capable of accommodating bearing loads in every direction, says the company. A Heidenhain encoder is standard for positioning the B- and C-axis headstock. Additional features include a pneumatic positioning clamping system, over-travel protection and B-axis anti-drop function at power outage.

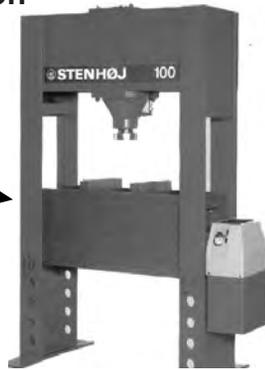
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# Second Generation of G350 5-Axis Universal Machining Center-Grob Systems



Grob Systems highlights its second-generation G350 5-axis universal machining center, featuring a compact design, maximum milling performance, high visibility, and optimized work area access. The GROB G350 is made for use in aerospace, die and mold industries, or medical applications.

The Grob Systems G350 universal machining center features a unique machine concept; three linear and two rotary axes permit 5-axis simultaneous machining and simultaneous interpolation. The machine's unique axis arrangement permits upside down machining, offering almost limitless possibilities for part machining. Meanwhile, the horizontal spindle position permits what the company reports

is the longest possible Z-travel path and optimum chip fall.

The unique arrangement of the three linear axes minimizes the distance between the guides and the machining point (TCP), lending the machine considerable stability. Thanks to the machining center's special axis concept, the full tool length can be employed in any axis position, even with maximum part size. This "tunnel" concept provides the basis – even with extremely long tools – for being able to swivel and machine the largest possible component within the work area without collision.

The company reports with a swivel range of 230 degrees in the A'-axis and 360 degrees in the B'-axis, the G350 offers the greatest possible positioning flexibility, while the machine bed's intrinsically stiff welded design delivers machine rigidity. The G350 also features absolute position encoders, an air purge seal in all linear and rotary axes, and a disk-type tool magazine for fast tool change.

The central, ergonomic arrangement of the machine components guarantees optimal accessibility to the fluid cabinet and electrical cabinet, as well as easy access for preventive maintenance and inspection.

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# New Products

## New Disc Grinding Wheels —Norton

Saint-Gobain Abrasives, announced the introduction of its new Norton Stellar inserted-nut grinding wheels for double and single disc grinding. The new grinding wheels are ideal for a wide range of industries.

A company spokesman said that Norton Stellar grinding wheels have an over 30% longer wheel life than existing disc grinding products and require less dressing and parameter changes for increased productivity. The new wheels also have an improved material removal rate of more than 15%.

“Our advanced manufacturing process produces homogeneous wheels



that have extremely consistent quality from wheel-to-wheel,” said Kelly Pica, sr. product manager, Norton | Saint-Gobain Abrasives. “We are very pleased to offer customers our new Stellar double disc grinding wheels that produce excellent, high quality surface finishes throughout the life of the wheels.”

Norton Stellar wheels are available in Norton’s range of high performance grains and bonds, including the most cutting-edge ceramic grains and advanced bond technologies. All Norton Stellar disc grinding wheels are made-to-order to fit exact customer requirements, and are available in diameters from 8” thru 42” and in grit ranges from 16 thru 220.

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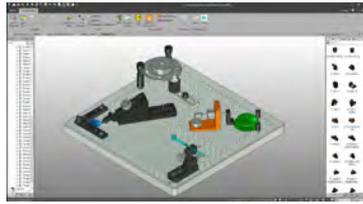
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# New Products

## New Version of Fixture-Builder 3D-Modelling Software —Renishaw

Renishaw announces the release of FixtureBuilder 8.0, the latest version of its 3D fixture modelling software. FixtureBuilder offers a wide range of customer benefits.

The software allows users to design metrology fixturing set-ups without having to use co-ordinate measuring machines (CMM) and other inspection devices. It can be used with a CAD model of the part, which is imported into FixtureBuilder. The entire fixturing set-up, along with the part, can then be exported into inspection programming software.



In FixtureBuilder 8.0, users can now model fixtures that use the innovative Renishaw QuickLoad™ rail system, which is used on CMMs and provides a secure workholding position when used in conjunction with QuickLoad base plates. These are attached to the rail on either side using quick release magnets and location pins. The interchangeable design of the rail and plates maximizes the machine operator's ability to inspect and release

parts swiftly.

Metrology tables, M12 fixtures, ¼-20 fixtures and many other new fixturing components have also been added to FixtureBuilder v8.0, providing users with access to an even wider range of fixturing components in the software's library.

An improved mechanism mode provides real life movement and collision detection with increased precision. Exporting the fixture model into inspection software has become faster and easier in the new version as well. In addition to supporting Parasolid, STEP, ACIS, STL, IGES and many other file formats, FixtureBuilder 8.0 has been upgraded to allow users to import and export the latest versions of these 3D

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# New Products

CAD file formats.

It is available for purchase through the Renishaw distribution network. A 30-day free demo version of the software is also available from the Renishaw website.

## Introducing the HFKS-2G Power Chuck —SMW Autoblok

SMW Autoblok, introduces the HFKS-2G weight optimized power chuck with flats and large through hole.

Made for high volume lathe and mill turn applications, the HFKS-2G is optimum for heavy duty precision machining of easily deformed workpieces. Thanks to flats on the chuck



body technology and lighter weight, the ability to use shorter tools to gain closer access to workpieces provides

added parts precision.

Unique to the HFKS-2G is the wedge hook mechanism combined with multi jaw guide, which multiplies the points of contact and provides added surface connection and stability. The company reports this specially designed guidance system features inclined geometry that locks the master jaw mechanically after clamping against the chuck body and dramatically reduces jaw movement.

A company spokesman said, “the integrated centrifugal force compensation enables significantly higher speeds and delivers double the grip force at maximum RPM compared to other industry 3-jaw chucks. Direct lubrication channels and grease reservoirs in-

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# New Products

tegrated in the jaw guideways ensures constant clamp force and improved accuracy even in harsh machining environments. The chuck body and internal parts are case hardened. It accepts inch serrated top jaws and is available in sizes from 165-320 mm”.

## New Addition to The Modular Family: 2-Jaw Module

### —HAINBUCH

When you have a wide range of part diameters, configurations and small quantities, the dream setup would be to have maximum flexibility. Hainbuch reports that whether you’re

working with round, prismatic, small or larger components, virtually any workholding configuration is possible with their modular system. The various workholding adapters can be installed in two minutes or less. HAINBUCH’s designers and engineers in Germany are constantly expanding its modular system to offer the best workholding solutions. Something was missing though: an adaptation to clamp cubic parts. That’s why HAINBUCH is introducing the 2-jaw module.

Round workpieces are clamped from the outside with clamping heads (collets) within the collet chuck. Larger diameter workpieces, beyond the capacity of the collet chuck, can be clamped with the 3-jaw module. For

cubic parts that are positioned centrally on machining centers and milling machines, the NEW 2-jaw module is now an option. A company spokesman said, “You can change-over from clamping round parts to cubic ones in less than two minutes”.

The 2-jaw module can handle turning applications up to 1,500 RPM. The 2-jaw and 3-jaw module use the HAINBUCH collet chuck as their base. Change-over is possible without removing the collet chuck and realignment due to HAINBUCH’s Centrex quick-change interface.

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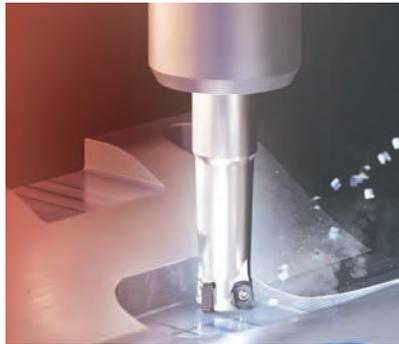
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# New Products

## New High Feed Milling Series —YG-1

The YG-1 ENMX High-Feed Mill 4 is a new high-feed milling series developed to meet the most stringent demands of versatility, productivity and process stability for today's applications. These types of tools are commonly used in mold & die, power generation and a variety of applications and materials in general machining markets. The unique YG-1 ENMX High-Feed Mill 4 concept provides an ideal choice for high-feed milling with small-diameter tools.



The unique thickness of the YG-1 ENMX insert offers a series of benefits. First, YG-1 reports they make the inserts 20-25% thicker than others on

the market. The company reports this allows normal flank wear to develop without encroaching on the secondary edge and results in full use of all four edges for a more economical solution.

YG-1 reports that greater insert thickness also lends itself to the most stable clamping, ensuring predictable and secure machining and longer tool life in the toughest applications. Also, the thicker negative insert has a positive rake angle that improves chip evacuation and reduces machining load.

In addition, YG-1's corner protection design enhances rigidity while increasing tool life with the chip-

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# New Products

breakers' optimized geometry.

The ENMX cylindrical cutter is available in diameters from 0.75" to 1.25". Shell mills are available in 1.5" to 2" diameters.



## New STC-MTV 5-axis VMC For Hard Metal Machining —Starrag

With 70 HP all-steel geared head spindles offering torque ratings up to 1,200 ft lbs., plus 200 bar/3,000 psi high pressure coolant for integrated

turning, Starrag's new STC-MTV five-axis mill-turn machining centers are specifically targeted for hard metal machining of a wide range of workpieces.

The two new machines, models MTV 1000 and MTV 1250 offering 8,000 rpm/700 ft lbs. of torque and 4,500 rpm/1,200 ft lbs. plus 200 bar/3,000 psi high pressure coolant for integrated turning, are joining the STC-MTV family of horizontal machining centers.

Starrag reports they promise effective single set-up milling, boring, drilling and tapping, as well as turning of materials such as Ti6AL4V and Ti5553 titanium alloys, nickel-based super alloys and high alloy steels.

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# New Products

lbs. can be processed on the MTV 1250 (up to 6,613 lbs. on the MTV 1000) within the machines' X, Y and Z axes travels of 67 x 82 x 74 inches (MTV 1000) and 86 x 82 x 74 inches (MTV 1250), and both machines offer rapid traverse rates of 1,770 inches/min. Additionally, component diameters of up to 74 inches and 94 inches on the MTV 1000 and MTV 1250 can be accommodated.

High metal removal rates are guaranteed with the all-g geared A axis spindle drive, where the compact 1D-head with minimal distance between the spindle nose and A axis enables the use of very short tools and large bearings.

A specially coated damping disk in the 1D-head, combined with optimal

parameter settings from the Siemens 840D CNC, makes heavy roughing possible, semi-finishing and finishing in 5-axis operation.

Integrated high-pressure coolant permits efficient one-hit turning and the machines' 30 HP angular automatic milling head enables easy access to internal surfaces and features. The angle head is loaded automatically from the tool magazine and tools can also be automatically changed into/out of the head.

The C axis CNC rotary table offers 500/400 rpm with torque ratings of 2,950/4,425 ft lbs. on the MTV 1000 and MTV 1250.

## New Generation Control -Heidenhain

"Heidenhain is bringing to market the new Gen 3 version of its high-end TNC 640 control for machine manufacturers and end users looking for forward-thinking manufacturing capabilities," said a company spokesperson. This control is designed for machines ranging from 3-axis milling to 5-axis simultaneous machining with milling, turning and grinding operations and up to 24 axes.

"With its new Gen 3 drives, Heidenhain's TNC 640 features powerful inverters and controller technology that are key components in the complete system of its control package," said



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## New Products

the spokesperson. “Now providing even higher spindle and axis dynamics during the manufacturing process, these drives also require less space in its electrical cabinet and result in reduced storage, mounting costs and servicing time.”

With Gen 3 drives serving as the new system foundation, the new TNC 640 offers high availability and surface quality with shortened machining times, as well as any other upcoming path-breaking functions of Heidenhain controls.

Highlights of this latest generation TNC 640 control include new jig grinding functions, Extended Workspace Compact, Optimized Contour Milling (OCM) within its Dynamic Efficiency package, as well as the ongoing option of a Dynamic Precision package. Also, Heidenhain’s new StateMonitor 1.3 makes it easy to remotely monitor efficiency improvements and ROI of these new CNC functions.

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# ...Hotline Continued From Page 8

## L3Harris to Hire 200 For New Plant in Utah

L3Harris is the eighth biggest private employer in Salt Lake County, the 15th biggest in Utah and they are one of the ten biggest defense contractors in America.

L3Harris manufactures technology they can't really talk about, says their vice president of engineering in Utah, Aurora Taylor-Rojas.

"What we focus on is securing all the communications for the war fighter," said Taylor-Rojas.

It's sensitive work that is considered essential, meaning it continued through the pandemic shutdowns.

"I think within a week we had over 60 percent of our workforce working from home at some level," said Taylor-Rojas.

Beyond just continuing their work, L3Harris is building a new factory in Utah and they are advertising 200 new positions for engineers.

"Anyone that is interested in huge growth, technology and the products we provide the services that we provide are essential right now for our military men and women so it is a very exciting place to work," said Taylor-Rojas.

## Faraday Bankruptcy Plan Approved

Faraday & Future Inc.'s founder and former chief executive caught a break from the U.S. Bankruptcy Court for the Central District of California in Los Angeles on May 21, paving the way for the Gardena-based automaker to start manufacturing electric vehicles.

The court approved a Chapter 11 reorganization plan for \$3.6 billion in personal debt and financial losses Yueting Jia incurred through LeEco, his failed China-based tech company.

Confirmation of the plan "should prove to be an enormous benefit" to Jia's creditors, the company said in a statement, and "act as a springboard for the closing of (Faraday's) upcoming financing round."

Jia, who founded the firm in 2014, resigned from his role as chief executive and was named chief product and user officer shortly before filing for bankruptcy in October.

Carsten Breitfeld, who served in management roles at BMW, took over as Faraday's chief executive in 2019. In a recent interview with

Bloomberg TV, he said the company is looking to raise \$850 million to help kickstart manufacturing at its Hanford plant in Northern California about nine months after closing the series B funding round.

The facility is "not a high-volume plant, but it can do about 30,000 cars a year," Breitfeld said.

## Career Technologies Is Acquired

Electronic components manufacturer Circuit Services, which does business as Career Technologies USA, has been acquired by a local southern California competitor.

Terms of the deal were not disclosed.

Chatsworth-based Career Technologies USA is now part of Valencia, CA.-based Lockwood Industries Inc., which does business as Fralock.

"We have known Fralock for more than two decades," Career Technologies USA President Armen Hayrapetian said in a statement. "With a combined offering, we will have a wider range of components, design, technology integration and manufacturing capabilities to serve customers together."

Career Technologies USA, founded in 1998, was a subsidiary of Taiwan-based Career Technology Mfg. Co. Ltd. with more than 10,000 employees and six manufacturing plants.

The company, which also operates three facilities in Los Angeles County, specializes in design and production of printed circuits for tablets, cameras and smartphones.

Specialty materials company Fralock makes components and subassemblies for semiconductor equipment for the life science, aerospace and satellite industries. It operates a 60,000-square-foot facility in Valencia and employs more than 170 workers.

The deal for Career Technologies "broadens Fralock's processing capabilities, and their combined portfolio of manufacturing process.

## Viasat Awarded \$75M to Update Info Distribution Terminal for US, Foreign Clients

Viasat out of Carlsbad, California has secured a four-year, \$75.4M contract modification to update multifunctional information distribution system terminals for three U.S. military branches and international defense clients.

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# ...Hotline Continued From Page 96

## Leonardo DRS Lands \$120M Navy Contract to Develop Aircraft Countermeasures Replaceable Package

Leonardo DRS has secured a potential four-year, \$120M contract from the U.S. Navy to design representative development and production models of an aircraft countermeasure weapons replaceable assembly.

Work involves the development, integration and testing of Distributed Aperture Infrared Countermeasure WRAs, the Department of Defense said.

The AN/AAQ-45 DAIRCM system is equipped with a laser technology and designed to protect rotary-wing platforms against infrared missile threats.

Naval Air Systems Command awarded the contract on a sole-source basis and will obligate \$23.5M from the branch's fiscal 2020 research, development, test and evaluation funds at the time of award.

Contract work will take place in California, Florida and Texas through June 2024.

## Denver-Area Supersonic Jet Maker to Roll Out Prototype This Fall

Denver based start-up Boom Supersonic has announced it will roll out XB-1, a 1:3 scale prototype of its upcoming supersonic commercial jet Overture, on October 7, with test flights beginning in 2021.

The move will help to pave the way for the first commercial supersonic flights since the legendary delta-wing passenger airliner made its last flight in 2003.

"XB-1 is the first step in bringing supersonic travel back to the world," Blake Scholl, founder and CEO of Boom Supersonic, said in a statement on the company's website.

## Honeywell Opens Facility for Maintenance in Phoenix

Honeywell has opened a new facility near its Honeywell Aerospace headquarters in Phoenix, AZ dedicated to maintenance for the U.S. military T55 turboshaft helicopter engines.

The new Center for Excellence was established after Honeywell secured approval from the U.S. Army through a product verification audit. It brings together engineering, pro-

duction, repair and overhaul work for the T55 engine to optimize operations, the company said.

By putting repair and overhaul work together in the same space as new engine production, the company said its trained technicians can more easily share knowledge and speed up repair and overhaul work. It also improves troubleshooting and will help with future upgrades

## SpaceX Hits Key Milestones With Latest Launch

Space Exploration Technologies Corp. achieved two milestones with the July 20 launch of a Falcon 9 rocket carrying Anasis-II, a South Korea military satellite.

The mission marked the fastest turnaround use of a booster rocket by the Hawthorne-based aerospace company. It was also the first time SpaceX managed to catch both halves of the rocket's nose cone, or fairing, following a launch.

The Falcon 9 rocket lifted off at 5:30 p.m. Eastern Time from Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida, following a 30-minute delay due to weather conditions.

Following stage separation, the company successfully landed the Falcon 9's first-stage booster on Just Read the Instructions, a dronship stationed in the Atlantic Ocean. The Anasis-II spacecraft deployed about 32 minutes after liftoff.

The first-stage booster was previously used fewer than 60 days ago to launch the Crew Dragon capsule that carried NASA astronauts Robert Behnken and Douglas Hurley to the International Space Station.

Soon after the July 20 launch, SpaceX ships caught both halves of the Falcon 9's nose cone, according to a tweet from company founder and Chief Engineer Elon Musk.

SpaceX had previously only caught single halves of the nose cone or had collected them from the ocean. The ability to catch the nose cone halves will reduce launch costs for the company, which is already able to save money by reusing its booster rockets.

SpaceX is also preparing for its second crewed flight of the Crew Dragon spacecraft, which is planned for September.

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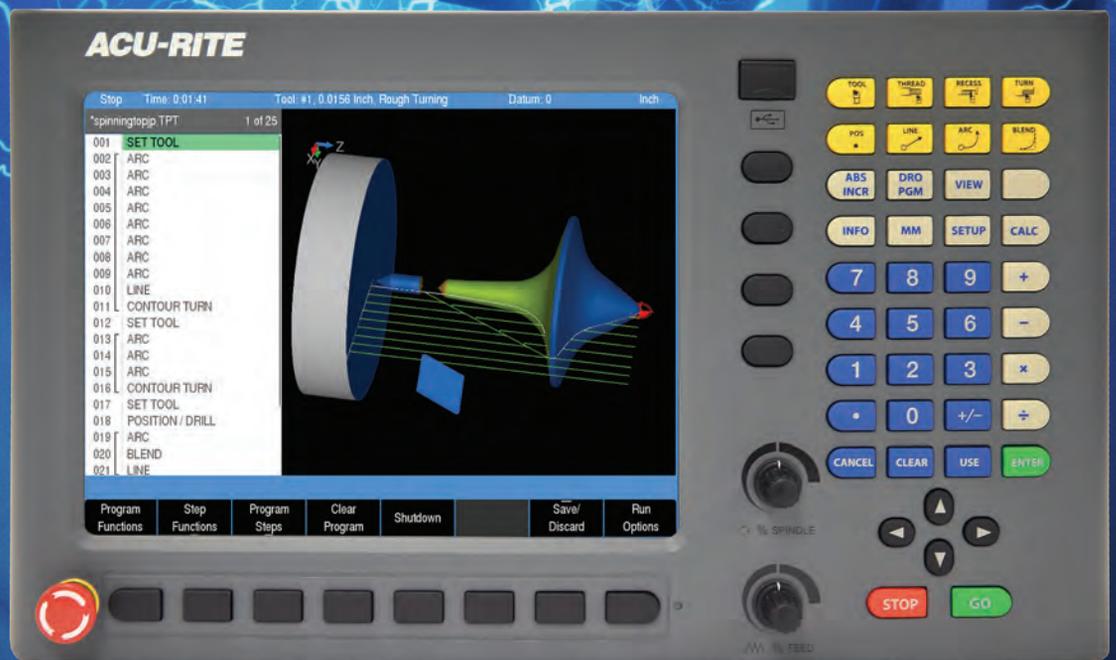
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