

CNC WEST

THE MAGAZINE FOR WESTERN METAL WORKING MANUFACTURING

TOOLING & WORKHOLDING

- **PIERSON PALLETS HELPS TAKE TREE CLIMBING BRAND TO NEW HEIGHTS**
- **4TH GENERATION MACHINIST ADDS NEW GENERATION OF CNC**
- **SET-UP REDUCTION STRATEGIES**
- **PLATINO FIBER LASER PROVIDES SPEED & QUALITY**

...Plus Much Much More

**CELEBRATING
37 YEARS**

TO FLY IN THE SKY...



YOU NEED TO BE REALLY GOOD ON THE GROUND

Fagor Automation brings to you the most advanced CNC Technology available anywhere.

Various Aircraft Manufacturers around the Globe apply Fagor CNC technologies to reliably create highly accurate parts with exceptional structural integrity.

Advance functions such as ARFS (Adaptive Real Time Feed and Speed Control), HSSA (High Speed Surface Accuracy), Dynamic vibration control system, Collision detection and Nano-metric resolution are helping them to create at an ever increasing speeds complex profiles that achieve higher accuracies and part finish.

Integration of IIOT technologies within the CNC systems ensures continuous shared knowledge of the various processes, thus allowing for process improvements quickly and easily.



FAGOR



Adapting to your World

For more information:
800-4A-FAGOR or
info@fagor-automation.com

fagorautomation.us

Chicago | Dallas | Florida | Los Angeles | Montreal | Atlanta | Toronto



CNC Systems | Digital Servo Motors & Drivers | Feedback Systems | DRO Systems | Motion Control Systems

EXCITING THINGS ARE HAPPENING AT ALL AMERICAN!



We've moved!

Our new facility will allow us to demonstrate our new machines in an air conditioned environment. We will be able to show the new Fadal Vertical Machining Center and our new VMC 4020B-II/APC. We will also be stocking more Legacy Fadal parts as well as rotary tables, machine vises, 10,000 RPM grease pack spindles, and 10,000 RPM air/oil lubrication spindles.

Fadal 4020B-II/APC Pallet Changer

Fadal will be introducing their new VMC 4020B-II/APC machine at the IMTS show in September in Chicago.

This machine is a side shuttle system with 39" X 19" cast iron pallets.



Fadal
ENGINEERING

COMING
SOON!

We're growing and we want you to be a part of it.
Visit our new location to find out more!

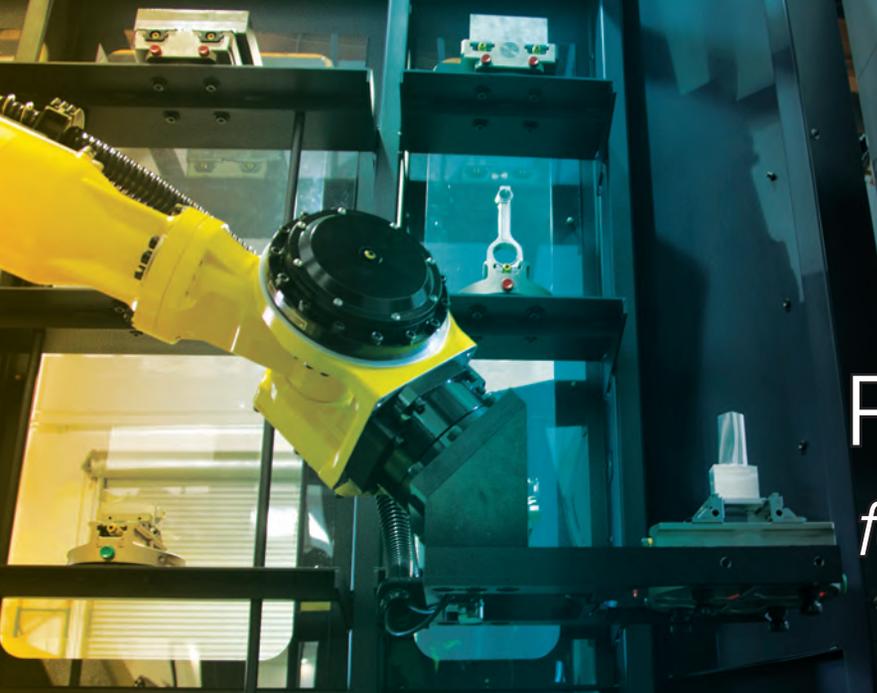


ALL AMERICAN
Sales & Service, Inc.

All American Sales and Service, Inc.

1200 N. Van Buren Street # D
Anaheim, CA 92807

714-688-0200 • www.aasalesandservice.com



Affordable Automated Pallet Systems for CNC Machines

Introducing the **NEW** Trinity **AX Series**

Designed to Maximize the Productivity of your CNC Machine Tools.



AX1 | Automated Load/Unload Cell
for CNC Machining & Turning Centers

AX3 | Front Loading Automated Pallet Cell
for CNC Machining Centers

AX5 | Side Loading Automated Pallet Cell
for CNC Machining Centers

Join us for the

AX Series Product Launch

X Wednesday Nov. 7th | 10am - 2PM | Selway/Trinity So Cal Showroom **X**
Selway Machine Tool Co. | 4582 E. Brickell Privado | Ontario, CA 91761

Come see Automated Pallet Cell & Machine Cutting Demo, Talk to Featured Partners Schunk, Autodesk, Big-Kaiser, & Lyndex-Nikkon, or just stop by for Lunch & Robots

For more information Call your favorite Selway, go to selwaytool.com, or email us at automation@selwaytool.com



+



Sales - Service - Applications - Automation | California - Nevada - Oregon - Utah - Washington | 888 735 9290 - www.selwaytool.com



CNC West

October/November • Volume XXXVII No 1

Feature Stories

The Secret to Automating CNC Machine Tools	18
Renishaw New Additive Manufacturing Center Opens in CA	20
Pro Pallet System Takes Tree Climbing Equipment to New Heights	
<i>A southern California shop took manufacturing in-house and now soars</i>	22
Set-up Reduction Strategies	30
IMTS Has Their Biggest Show Ever	34
Six Industries Benefiting from Additive Manufacturing.....	38
4th Generation Machinist Adds New Generation CNC	
<i>Company changes from Automatics to CNC Swiss.....</i>	42
Platino Fiber Laser Provides Speed and Quality for Washington Company	
<i>Fabricating shop use lasers in motor sports manufacturing....</i>	48
Nevada Home to Haas 200,000th Machine	52
Tim Paul’s CAD/CAM/CNC Perspective	
<i>Tim Tackles Cutter Compensation</i>	56
Precision Workholding System Extends Machine Capabilities	58

Departments

4	Publisher Editorial	60	Industry News
8	Executive Hotline	68	New Products



With the help of Pierson Products pallet systems Spyder Manufacturing has climbed to new heights.
- Pg.22



A Washington company conducted an extensive search for a Fiber Laser machine and are happy with what they chose.
-Page 48

Coming in Dec 2018/Jan 2019

QA & Fabrication —

Look for some really great stories and features covering the latest techniques, in quality assurance and metal fabrication, plus the latest news from the world of metalworking

Editorial: Nov 19, 2018

Ad Space: Nov 26 2018

Ad Material: Dec 2, 2018



VOL. XXXVII NO.1

October/November 2018

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

Founder:

Thomas F. Arnold (1927 - 2009)

PRESIDENT/PUBLISHER:

Shawn Arnold

EDITOR: Sean Buur

CIRC. MNGR: Charlene Strawbridge

PROD. MNGR: Linda Arnold

PROD. ASST: Jennifer Hallman

ADVERTISING SALES:

(714) 840-1300

CNC WEST (0747-3362) is published bi-monthly by ARNOLD PUBLICATIONS, INC., 16835 Algonquin St., No. 158, Huntington Beach, CA 92649. Periodical Rate postage paid at Huntington Beach, CA. and additional mailing offices. Postmaster: Send address changes to CNC WEST, P.O. Box 2029, Huntington Beach, CA, 92647. SUBSCRIPTIONS: Available without cost in U.S. only to company officials and managers of production, manufacturing engineering and purchasing agents. MUST be requested. All others may subscribe at \$10.00 per year. Single copy \$2.00. Please send paid subscription order to Circulation Manager, CNC West, P.O. Box 2029, Huntington Beach, CA 92647

Publisher's notice: We assume no responsibility for the validity of claims in connection with items appearing in CNC West Magazine. Addresses are given to facilitate further inquiry.

ISSUANCE AND CLOSING DATES: Published every other month, October, December, February, April, June and August. Issued second week of the publication month.

No portion of contents may be reproduced in any form without written permission from the publisher.

New Technology and Busy Shops

The recent IMTS show was everything it was supposed to be and a whole lot more. The aisles were jammed packed with attendees looking for the newest technology and maybe even a deal on a machine or product that had been thinking about purchasing. Booths like DMG MORI, Okuma, Makino, Doosan and Methods in the metal cutting pavilion were sometimes so crowded it was hard to get in them. I actually spoke less to people that I know at the show than any show I can remember. They were always busy talking to customers, either educating or trying to make a sale. I learned a long time ago from my father who started CNC WEST that these exhibitors pay a lot of money for their booth and never, ever disturb them if they are talking to someone else.

To find out more about the show and the technology in it check out the 2 page article in this issue. In addition to people talking about new technology the other theme was how busy shops are. We have stories in this issue on shops that are bursting at the seams. We also have reached out to some other shops for future stories, but they all say the same thing, sorry but we are too busy right now to give you 3 hours of our time. Now that might be a nice excuse not to have us come out as some people are just camera shy or don't like publicity. If your shop is doing well and want to be considered for a future article in CNC WEST send me an email at sarnold@cnc-west.com with a little info about your shop and we can go from there.

Our cover story this Tooling & Workholding issue is about a shop that branched out and now makes equipment for people climbing trees with the help of a pallet system from Pierson Products. Another story by Sean Buur tells of a company upgrading technology from automatics to CNC Swiss machines and they now run lights out and make complete parts in one operation.

We also have a fabrication story on a Washington state shop, an article on set up reduction strategies, an article on the secret of automating CNC machine tools and more. Also be sure to read Tim Paul's latest column titled To Comp or Not to Comp. That is in addition to a few other features our industry news and new product sections and of course all of the advertisers who think the western region is deserving of it's own magazine with only western region articles and pay for ads so you can get it for free. Without them there would be no CNC WEST so be sure to check out their products.

Sincerely
Shawn Arnold

Shawn Arnold

Publisher



aerospace

**RIGIDITY
ACCURACY**



Nakamura-Tome | NTRX-300

- Multi-Tasking Machining Center
- High Torque, 30 HP Spindles
- 12,000 RPM / 25 HP Tool Spindle
- Full 5-Axis Capability
- FANUC 31i-B5 w/Smart-X HMI



FANUC | RoboDrill D21MiB5

- RoboDrill 24K BIG-PLUS Spindle
- Up to 5-Axis Simultaneous
- 1.6 Second Chip-to-Chip
- 1.5G Acceleration/Deceleration
- Methods Automation Available



YASDA | YBM 7Ti

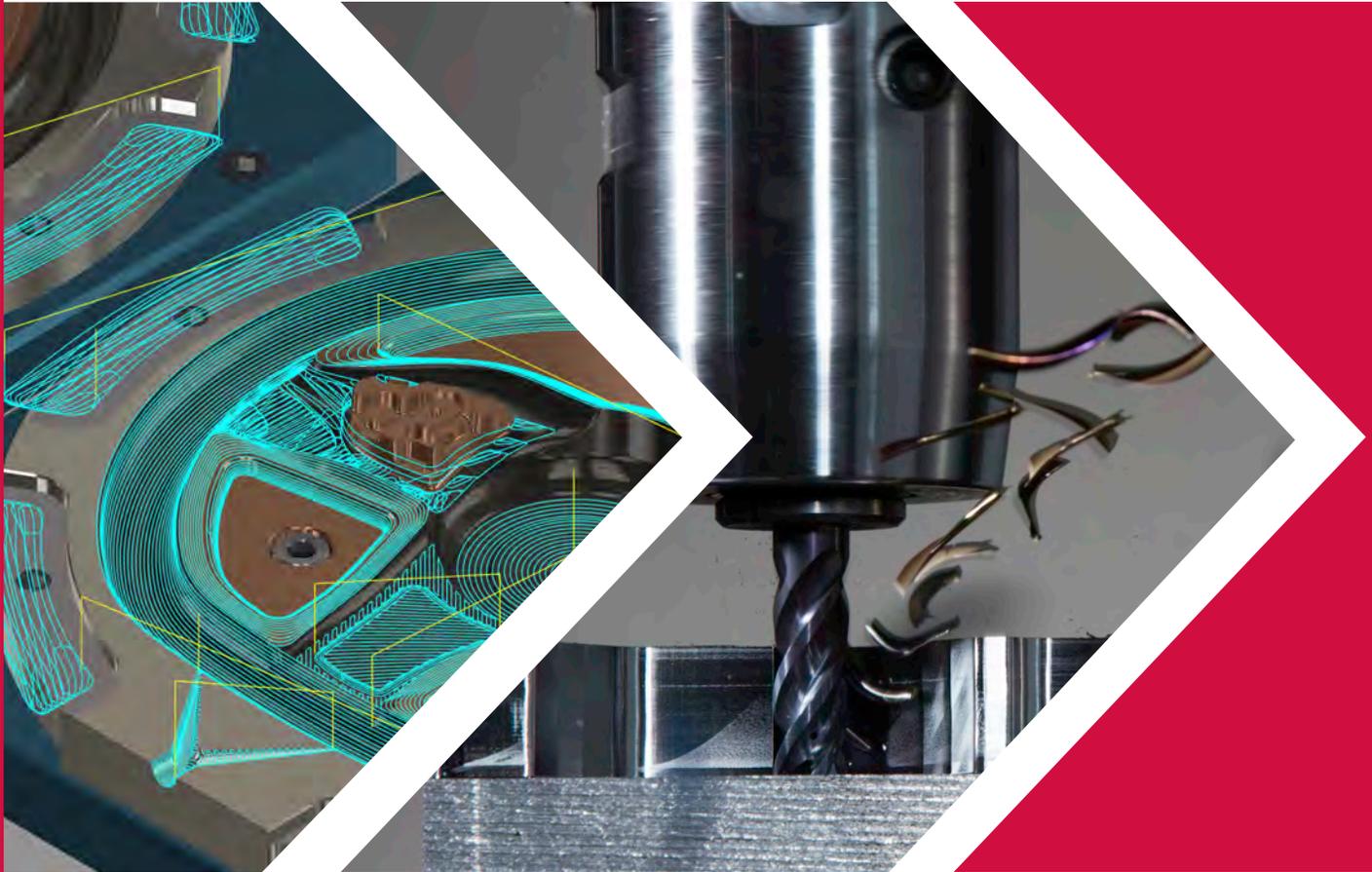
- Full Simultaneous 5-Axis Precision Center
- Big-Plus 50 Taper Direct Drive Spindle with Self-Adjusting Preload System
- Advanced Thermal Displacement
- Rigid Boxway Design for Hard to Mill Aerospace Applications
- Available in 2 or 6 Pallet APC

Showrooms and Technical Centers
Boston • Charlotte • Chicago • Detroit
Los Angeles • Memphis • Phoenix • San Francisco

Methods
877.668.4262 | methodsmachine.com



THE FUTURE STARTS HERE



Mastercam 2019

To see how Mastercam 2019 helps streamline your entire process, from job setup to job completion, visit [Mastercam.com/2019](https://www.mastercam.com/2019).



Preparation/
Setup



Tool Support



CNC
Programming



Validation

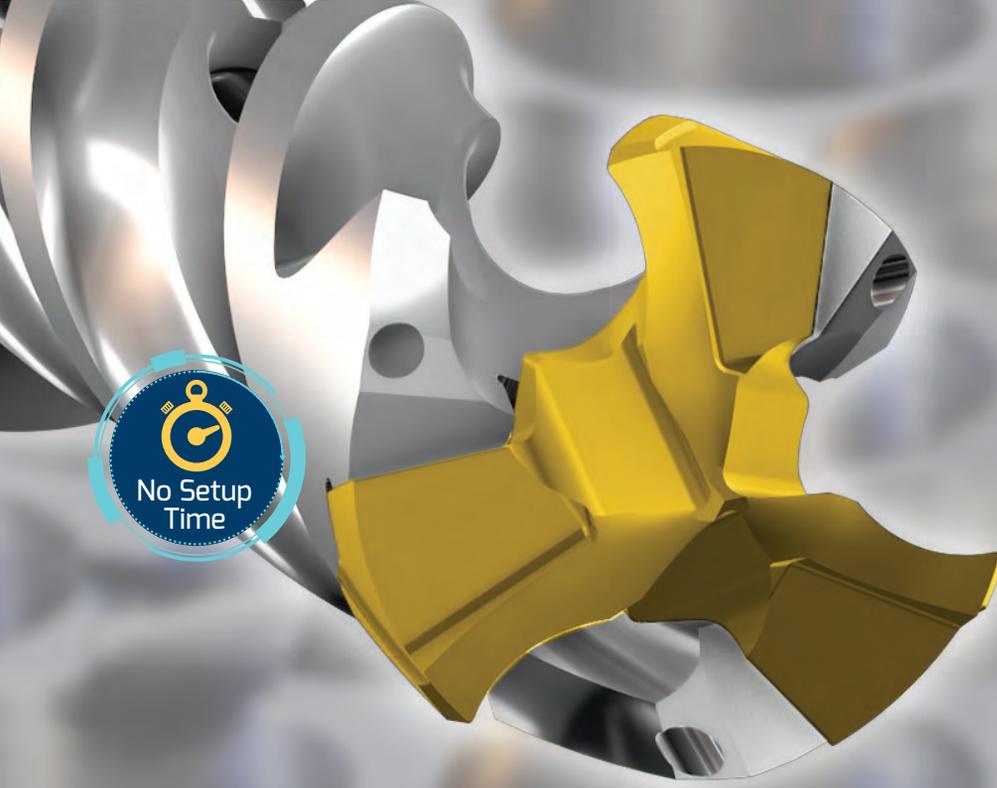


Job Management
& Documentation

LOGIQ DRILL

ISCAR CHESS LINES

3 Effective Cutting Edges Drilling Master

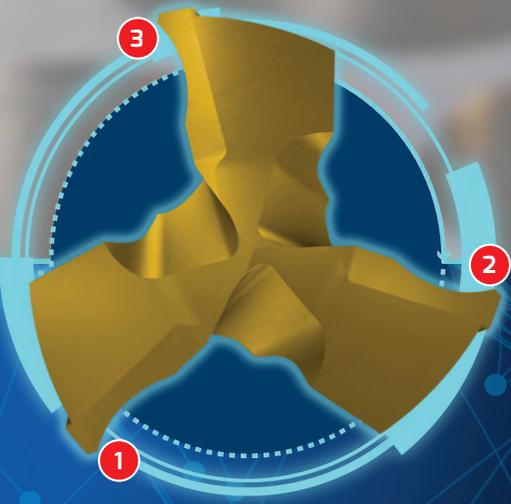


Available in
Diameter Range of \varnothing 12-25.9 mm
with 3 & 5xD Body Overhang

LOGIQ 3CHAM

THREE FLUTE CHAMDRILL

3 Effective Cutting Edges
for Higher Drilling
Productivity



Self Centering
Insert



for Steel &
Cast Iron



High
Productivity



Cost Effective
Insert

MACHINING IN DUSTRY 4.0
INTELLIGENTLY

Member IMC Group
iscar
www.iscarmetals.com

EXEC HOTLINE

Boeing Awarded \$2.9 Billion for Fourth KC-46A Tanker Production Lot

The U.S. Air Force awarded Boeing a \$2.9 billion contract for 18 KC-46A tanker aircraft, spares, support equipment, spare engines and wing air refueling pod kits. With this fourth production lot, Boeing now is on contract for 52 KC-46 tankers.

Boeing received its first two production lots, for 7 and 12 aircraft, in August 2016. The third lot, for 15 aircraft, was awarded in January 2017.

Boeing plans to build 179 of the 767-based refueling aircraft for the Air Force to replace its legacy tanker fleet. Tanker deliveries are expected to begin later this year.

Boot Camp Gets Small Companies Competitive For Contracts in San Diego

Fifteen small defense contractors from San Diego County have been chosen to participate in the Defense Innovation Voucher program, called DIVx for short.

The program, funded by the Department of Defense, seeks to make small defense contractors more resilient. Diversification is one aim.

The companies, chosen by the San Diego Regional Economic Development Corp., are AccelRF Instruments Corp., Amaratel, American Lithium Energy Corp., Coast Precision Enterprises Inc., EpiSci (also known as EpiSys Science Inc.), Fuse Integration Inc., GET Engineering Corp., intelliSolutions Inc., Marine Group Boat Works LLC, Ocean Aero, Planck Aerosystems, Sidus Solutions, Trabus Technologies, VetPowered LLC and Vortex Engineering.

The Pentagon's Office of Economic Adjustment provided money to the city of San Diego to fund the program. Driving the program is Propel San Diego, a partnership between six entities: the city, the San Diego Military Advisory Council (also called SDMAC), the Regional EDC, the East County Economic Development Council, the South County Economic Development Council and the San Diego Workforce Partnership.

The DIVx program will provide a six-month "boot camp" to educate company leaders on how

to be more competitive.

In addition, consultants identified by the Regional EDC will provide each defense contractor with \$15,000 in complimentary consulting services. Topics will include marketing, accounting compliance, certifications, lean supply chain and additive manufacturing tools, and strategic planning.

The 15 firms will compete for a DIVx grand prize, which will be \$25,000 in services from a pre-approved contractor.

Some 89 percent of San Diego's defense contracting supply chain is made up of small businesses: that is, businesses employing fewer than 50 people.

Forty percent of companies employ fewer than 5 people.

AeroVironment Lands \$6 Million Contract with Portuguese Army

AeroVironment Inc. has secured a nearly \$6 million contract to provide its Raven drones to the Portuguese army, the Monrovia, California unmanned aircraft manufacturer has announced.

Delivery on the drones will occur over a three-year period. AeroVironment develops, manufactures and tests its unmanned aircraft in Simi Valley, California.

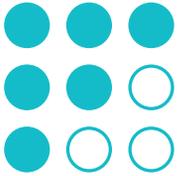
Shipbuilding Work in San Diego

General Dynamics National Steel and Shipbuilding of San Diego, Calif., has received a \$147.7 million contract for the modernization availability of the USS Cowpens, a Ticonderoga-class cruiser.

The U.S. Navy contract, announced by the Department of Defense, provides for a long-term availability which will include maintenance, modernization and repairs. The contract includes options which if executed would bring the total value of the contract to \$154.8 million.

Work will be performed in San Diego, Calif., and is expected to be completed by December 2019. Navy fiscal 2018 operations, maintenance and procurement funds in the amount of \$147.7 million will be obligated at time of award.

Continued on page 88.....

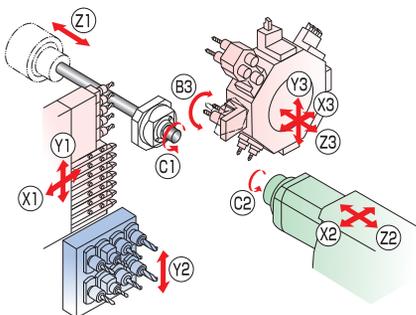


Maximize efficiency in machining intricate and complex parts.

SV-20R Automatic Lathe offers maximum versatility and flexibility.

With its innovative machine configuration, the redesigned SV-20R will produce complex parts in a single operation.

- Rigid construction enables continuous machining with superior accuracy over extended periods of time
- Built-in B-axis for multiple tools in 8-station turret increases machine flexibility



- Two-tool turning reduces machining time, improves accuracies
- 8-stations back working unit with Y-axis control provides flexibility in overlapping machining requirements
- Extensive selection of tools for various machining operations
- Can be used with or without guide bushing
- Star Motion Control reduces idle machining time



star[®]
Perfection in motion.

EST. 1949



HIGH QUALITY CNC MACHINES

HL-55/1250

HEAVY DUTY

LATHE

15" CHUCK



BOX WAY

2 SPEED ZF GEAR BOX

LARGE CAPACITY

CHUCK DIAMETER

15"

BAR CAPACITY

4.53"

MAX. TURNING DIAMETER

24.21"

MAX. SWING OVER BED

28.62"

MAX. TURNING LENGTH

42.12"

**SPECIAL
PRICE**

\$119,000

LIST PRICE \$139,000



WWW.FEMCOUSA.COM
(714) 898-2066

SPECIAL PRICE ENDS 11/15/2018

VISIT OUR WEBSITE OR CALL FOR DETAILS.



FIT

THE RIGHT MACHINE FOR THE RIGHT JOB

RIGIDITY + LONGEVITY + INTEGRITY = PRODUCTIVITY

the power of **CONNECTIVITY**



90th
Anniversary

When the beryllium optics for the James Webb telescope needed to be manufactured, we were chosen as the machine tool technology developer fit to accomplish this mission. What's your next manufacturing endeavor? Find out what FIT means for you at Mitsui Seiki by scanning the QR code below. Let's connect and find out how your needs and our manufacturing technology fit together!



MITSUI SEIKI

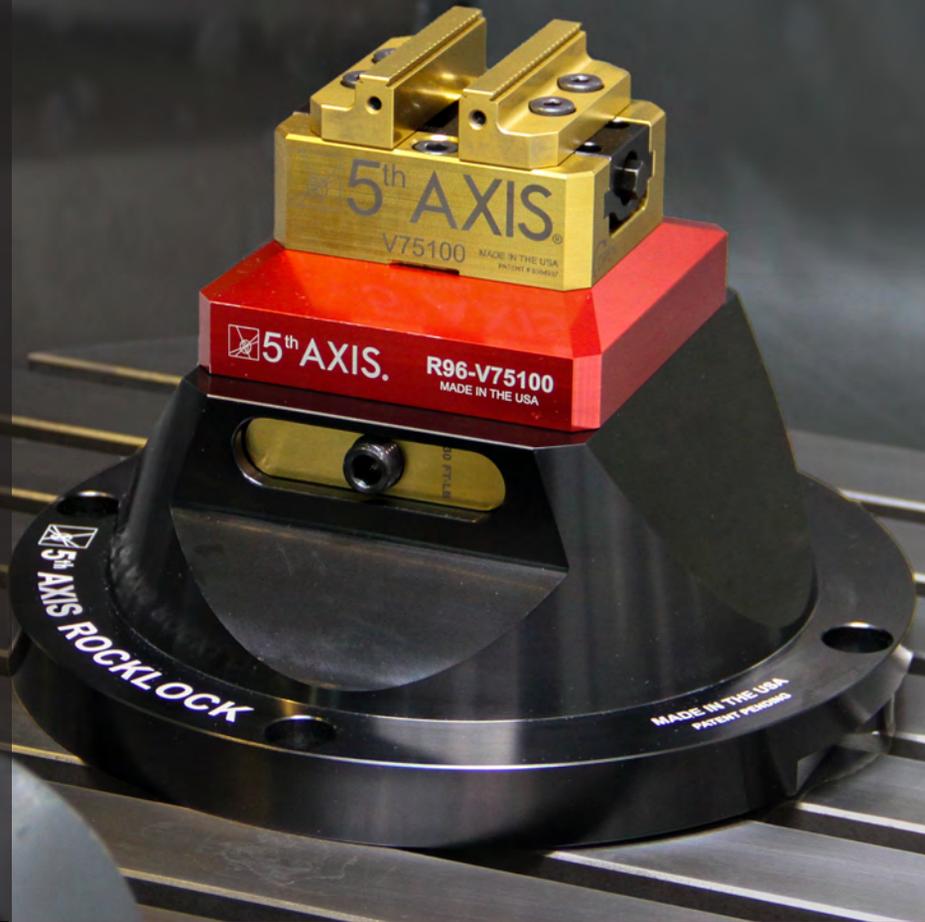


563 Commerce Street
Franklin Lakes, NJ 07417
Tel: (201) 337-1300
Fax: (201) 337-3680
www.mitsuseiki.com



GOT **FIT**
GET **FIT**
LIVE **FIT**

LOCK. ROCK. RUN CNC



ROCKLOCK™
QUICK CHANGE SYSTEM



96mm / 52mm
Pull Stud Spacing

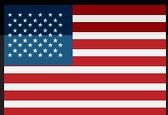


.0003"
Repeatability



Fits All Machine
Makes
and Models

Now Available!
52mm System



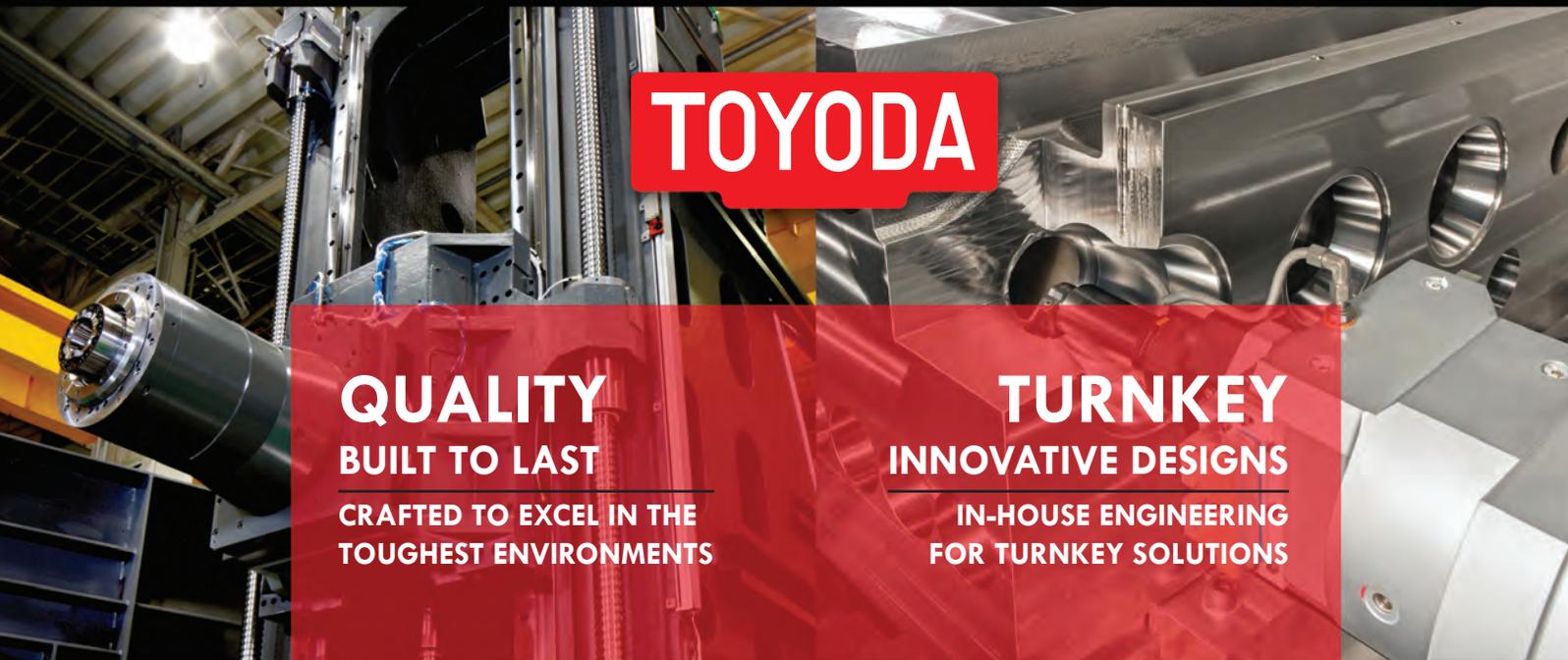
Proudly made in the USA

858.505.0432

workholding@5thaxis.com

www.5thaxis.com





TOYODA

QUALITY
BUILT TO LAST

CRAFTED TO EXCEL IN THE
TOUGHEST ENVIRONMENTS

TURNKEY
INNOVATIVE DESIGNS

IN-HOUSE ENGINEERING
FOR TURNKEY SOLUTIONS

What stands behind every Toyoda machine?



Horizontal
Machining Centers



Vertical and Bridge
Machining Centers



Grinding Machines



Turning Centers



Automation Solutions



SUPPORT
DEDICATED TEAM

SERVICE & TECHNICAL SUPPORT
AVERAGE TENURE 15 YEARS

24/7
PARTS ORDER

READY-TO-SHIP
CRITICAL SPARE PARTS
INVENTORY



INGENUITY BEGINS HERE
WWW.TOYODA.COM/TOYODAValue

JTEKT Toyoda Americas Corporation Sales: 847-253-0340 Service: 1-800-257-2985

From every perspective, the Kitamura SUPERCELL-300G brings high-impact productivity to your shop floor. Owners love that these high-speed, 5-axis horizontal workhorses don't just save time, they create time. Instead of a 2-shift, 80-hour week, now you can operate lights-out, 24/7 for 168 hours. Machinists love the 20-pallet/174-tool capacity. And clients love your shop's new-found responsiveness and flexibility. It's a win-win-win, made easy. Learn how online or call for a demo today. kitamura-machinery.com 847.520.7755



[SHOP FLOOR PRODUCTIVITY]



JIM HAYSSEN
Owner Bradford
Machine Company



DAVID SQUIRES
CNC Milling Machinist



JOHN THERRIEN
CNC Mill Supervisor



Watch and Learn!

CELEBRATING
85
YEARS



Hogue Precision Machinery
hogueprecision.com
209-892-5649 info@hogueprecision.com
Northern CA, WA, OR, NV (except Las Vegas)



Machinery Sales Co.
mchysales.com
800-588-8111 mail@mchysales.com
Southern CA, NV (Las Vegas only)

http://www.kitamura-machinery.com/dealer_locator/



U S Shop Tools *Direct!*

THE LARGEST VARIETY OF CHUCK JAWS IN THE USA!

USST AMERICAN STANDARD TONGUE & GROOVE CHUCK JAWS

For Bison, Buck, BTC, Cushman, TMX, PBA & Rohm Chucks

- Many more sizes & styles available
- American Standard tongue & groove
- Chuck Jaws stocked in California & Michigan!
- 100% MADE IN THE USA!



**IN STOCK!
READY TO SHIP!**

100% Made In The USA!

Chuck Size	Groove Width	Tongue Width	Screw Size	Hole Space	Hgt Inch	STEEL SOFT JAWS		ALUMINUM ROUND JAWS		
						Part Number	Set Price	Part Number	Set Price	
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.

CHUCK JAWS FOR 1.5mm x 60° SERRATION CHUCKS

For Kitagawa®, Samchully, Strong, SMW Autoblok & MMK Chucks

- Many more sizes & styles available
- Chuck Jaws stocked in California & Michigan!
- Large diameter steel round jaws available!

THE LARGEST VARIETY OF CHUCK JAWS IN THE USA!

Model	Chuck Size	Groove Width	Screw Size	Hole Space	Hgt Inch	STEEL SOFT JAWS		ALUM. ROUND JAWS	
						Part Number	Set Price	Part Number	Set Price
Kit B206 HS06	6"	0.472	10MM	0.787	2"	KT-6200F	\$ 34.37	RKT-6200A	\$ 72.61
					4"	KT-6400F	\$ 95.71	RKT-6400A	\$ 118.88
Kit B208 HS08	8"	0.551	12MM	0.984	2"	KT-8200F	\$ 40.70	RKT-8200A	\$ 85.36
					4"	KT-8400F	\$ 61.00	RKT-8400A	\$ 159.83
Kit B210 HS10, N210	10"	0.630	12MM	1.181	2"	KT-10200F	\$ 45.84	RKT-10200A	\$ 126.28
					4"	KT-10400F	\$ 76.14	RKT-10400A	\$ 193.60
Kit B12 HS12	12"	0.709	14MM	1.181	2"	KT-12200F	\$ 72.00	RKT-12200A	\$ 184.71
					3"	KT-12300F	\$ 107.96	RKT-12300A	\$ 245.72
Kit B212 N212	12"	0.827	16MM	1.181	2"	KT-12208F	\$ 72.00	RKT-12208A	\$ 184.71
					3"	KT-12308F	\$ 107.96	RKT-12308A	\$ 278.56

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

QUANTITY DISCOUNTS!
Buy 5 Sets or More Soft Jaws, Get **5% OFF!** (must be same part #)



GRIP-RITE
OEM STYLE

XTRA BITE

HARD JAWS

For 1.5mm x 60° Serrations Chucks

- Designed for first operation roughing
- Reversible- for OD & ID workholding
- 2 steps (1 step hard jaws also available)
- Ground body for improved run-out
- OEM Style features ground tips
- XTRA BITE: Very aggressive bite with conical teeth for extra gripping
- For Kitagawa™, Samchully™ & other chucks

Chuck Model	Chuck Dia	GRIP-RITE OEM STYLE		XTRA BITE	
		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



5C MASTER JAW SYSTEM

Use 5C Collets On Your 3-Jaw Power Chuck!



MADE IN USA

NEW ITEM!

- Available for 6", 8", 10" & 12" CNC lathe chucks
- Allows you to use your 5C collets on your 3 jaw chuck
- Easy Installation! Includes Master jaws, sleeve and instructions
- Saves you time and money!
- **MADE IN THE USA**

Chuck Make/Model	Size	Part Number	Price EA
B206, N206	6"	ED-MJSK6LA	\$783.75
B208, N208, HS08	8"	ED-MJSK8LA	\$783.75
B210, N210	10"	ED-MJSK10LA	\$783.75
HS10	10"	ED-MJSK10HA	\$783.75

Additional Sizes Available!

ADJUSTABLE JAW BORING RING



- Suitable for CNC lathes
- Easy to attach-no tools needed!
- Jaws are bored at same clamping pressure used to hold part
- Economical-3 jaw boring rings cover chucks sizes from 5"-12"!

USST

NEW ITEM!

Chuck Size	ID	OD	Part Number	PRICE
5,6,8"	3.94	6.7	JBR-TL5-8	\$379.00
6,8,10"	4.92	7.9	JBR-TL6-10	\$439.00
8,10,12"	6.30	9.8	JBR-TL8-12	\$519.00

LATHE TOOLHOLDER BUSHINGS



Bush Rite™

- Type C, Z, J, LB, LBF, B & Boring Bar Sleeves!
- Concentric ground & diamond polished
- Wrench flats for easy removal
- "Easy Entry" feature on OD
- Large variety available

TYPE J

Starting At:

\$38³³ each

Part # TBJ-07-0250-B

TYPE C

Starting At:

\$50⁴³ each

Part # TBC-07-0250-B

TYPE Z

Starting At:

\$60⁵² each

Part # TBZ-07-0375-B



U S Shop Tools
CALIFORNIA • MICHIGAN
Distributor Program Available. Please Call For More Information.

GET YOUR FREE COPY OF OUR ALL-NEW 2019 MASTER CATALOG

Order TOLL FREE: (800) 243-7701
Fax TOLL FREE: (800) 342-3311
Email: sales@usshoptools.com
www.usshoptools.com





BRAND NEW FOR HEAVY DUTY MACHINING: Five Axis Machining Center **Multimill 1000** in modern Design!

- Ergo Control
- Easy Access
- High Precision Workpiece Measuring System
- Dynamic Tool Measuring System
- Wide range of high-end machine tool components
- Early Collision Detection System
- Remote Maintenance



Further options:

- Quick Clamp Workpiece Change System
- Automatic Pallet Changer
- MILL-TURN Function
- Clear Vision
- Anti-Mist Suction Device
- Adaptive Workspace Light



(855)-4CNC HELP
(855)-426-2435
www.cncmatters.com



(833)-CNC-MILL
(833)-262-6455
www.edelmachines.com



Service and Sales in the United States
Manufacturing Machines made in Germany





MATTERS

AGMA VMC-168

Exceptional Box Way Construction



Travels: X-63in / Y-31in / Z-27in
Spindle: CAT 50 6,000 rpm Gear Drive
ATC: 24 Pocket

Chip Conveyor with Quad Y
Axis Augers

4th Axis Preparation

Oil Skimmer

Fanuc 2G Data Server

Fanuc AICC II High Speed
Look Ahead

(855) 426-2435

requests@cncmatters.com

www.cncmatters.com

2871 E. Via Martens, Anaheim, CA 92806

The Secret to Automating CNC Machine Tools

**By Derek Goodwin, Trinity Automation,
A Division of Selway Machine Tool**



At this year's IMTS everybody was talking about the need for automation. Why then are only 26% of America's top machine shops currently invested according to Modern Machine Shop's 2017 Top Shop Report. Most machine tool manufacturers had automation systems on display for things like loading workpieces and pallets as well as additional cutting tools. If machine tool manufacturers are onboard, what is stopping the other 74% of Top Shops from investing in automating workholding and material handling?

The Crux of the matter is...shop owners need to be sufficiently confident in their processes to consider allowing a robot to load components for unmanned machining. After all, automation is not about workforce reduction, it's about increasing productivity per employee and improving employee quality of life by having robots perform difficult, dirty, dangerous and repetitive tasks. It's just the right thing to do. So how do shop owners gain confidence? The answer already exists with their CNC machines.

Create a Stable Process, Then Automate

To create a stable process, you must have a proven CNC program, correct workholding methods and the right cutting tools. Once the process is proven, it must be verified on an ongoing basis with an 'in process' inspection plan created for the machine operator to check critical dimensions.

So, if all these inspection processes require skilled human intervention, then how can we effectively automate to allow a machining center to run untended?

Dimensional Stability is a Must

Variables affecting dimensional stability include tool wear and breakage. However, modern CNC machines can check tools using probes or lasers. You can also use tool life management in your CNC control to define the number of components that a cutting tool makes before replacement is required.

The trick is to have an automation system that can receive this information from the CNC machine and make intelligent decisions based on predefined macros. When tool breakage is detected the pallet can be tagged and removed, replacing the pallet with the next one in the priority list not using that tool. This way the system continues to operate automatically, even when production problems unfold.

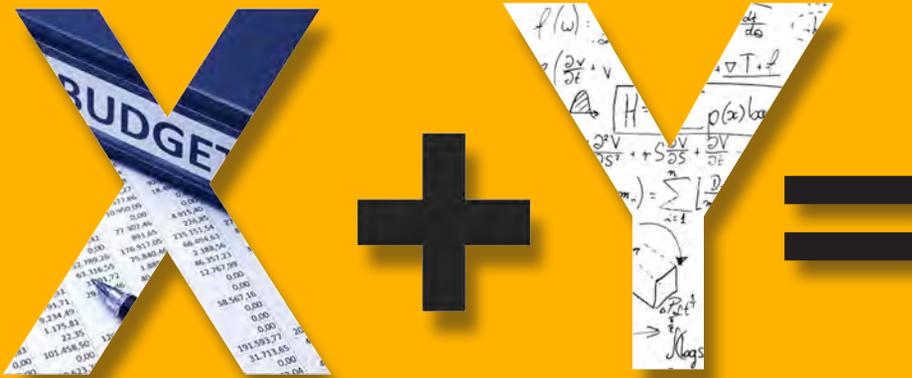
Are You Using Your Probing System?

Another opportunity for efficient automation lies with the probing system on your CNC machine. Probing can be utilized to check part orientation when each new pallet is loaded. Work offset adjustments can be made automatically, ensuring correct alignment and orientation. This provides dynamic process control by checking critical dimensions, inspecting parts and re-cutting based on the results.

Conclusion

When you are ready, automation will have a positive impact not only your bottom line but also your employee's well-being. The secret is to create a stable process and to utilize the verification functionality already in your CNC machine tool. Now you are ready to automate your work holding and material handling and progress to increased productivity and lights-out production.

Budget Meets Complex Needs



OKUMA GENOS M460V-5AX

✓ **Problem Solved**

5-Axis Performance at an Affordable Price

- Quality Construction
- Thermal Friendly Design
- Versatile Spindle
- Massive Trunnion
- Feature Rich Control
- Built in Japan

For Additional Information Contact Your Local Sales Engineer

GOSIGER
SERIOUS SOLUTIONS

OKUMA
OPEN POSSIBILITIES

GOSIGER West
6400 Gateway Dr.
Cypress, CA 90630
714-446-7770

automation | engineering | 24/7 support

GOSIGER Northwest
21911 68th Ave South
Kent, WA 98032
253-826-3921

Renishaw Opens Additive Manufacturing Demo Center in California



Renishaw, a leading manufacturer of advanced metal additive manufacturing (AM) systems, has opened a new Additive Manufacturing Demonstration Center in Newbury Park, California. Working in collaboration with Ibox Engineering, the Demonstration Center is situated within Ibox's headquarters and allows visitors to explore, interact with and use Renishaw's latest metal additive manufacturing systems.

The center will be equipped to print high-precision titanium (Ti64Al4V) parts on Renishaw's RenAM 500 series of laser-powder-bed-fusion AM systems. Ideal for industrial production applications, the RenAM 500 series allows for powder sieving and recirculation to be carried out automatically within the compact system, reducing the need for manual handling and exposure to materials.

To provide a complete picture of the metal additive manufacturing process, the Center will also feature ancillary elements such as wet downdraft, heat treatment, support, machining and inspection technology, and part removal equipment. These components work in concert with the AM system to ensure parts are printed and finished to specifications.

Also available at the site are InfiniAM Central software showcasing AM production reporting functionality and QuantAM build preparation software

which allows visitors to work through the development of a AM machine build file, including material parameter development.

Stephen Anderson (AM business development manager, Renishaw USA) stated, "It's fantastic to be able to place a metal additive manufacturing production cell within Ibox. Not only does it allow us to showcase our latest technologies but partnering with Ibox provides us access to an expert manufacturer of precision staging equipment who will utilize the technology to develop innovative products, and drive metal AM into new markets and even wider adoption."

Andre Perrin (Ibox Engineering CEO) said, "We have been a user of Renishaw's high precision encoder systems in our products for many years and have a close working relationship. They understand manufacturers and manufacturing, the importance of quality, reliability, and most importantly, service. We are very excited about Renishaw's approach to metal additive



manufacturing and their vision to develop high precision, repeatable machines capable of serial production of parts. We look forward to developing new AM parts for our business and to sharing our knowledge with Renishaw's visitors."

DOOSAN

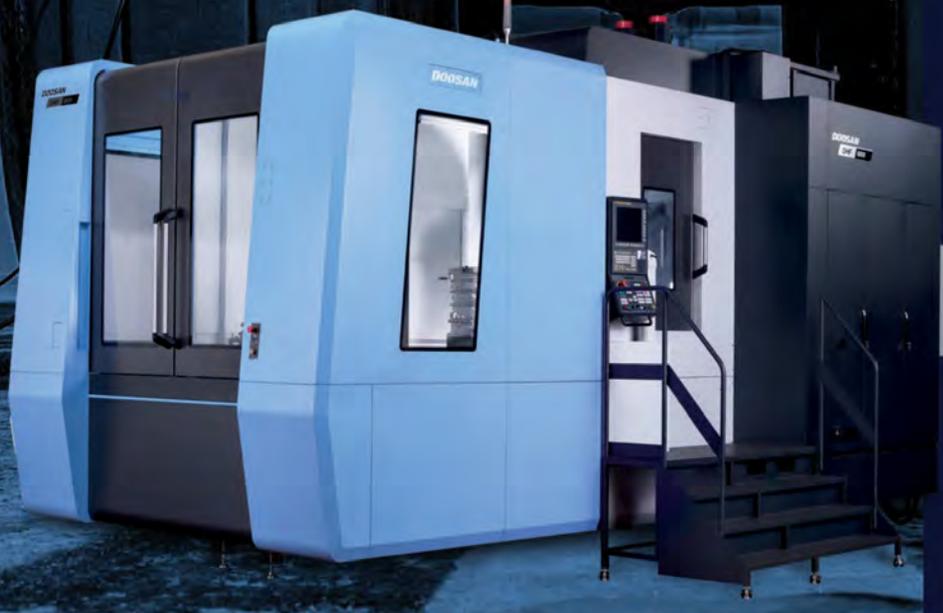


NOD YOUR HEAD

if you could use a horizontal twin-pallet 5-axis. Meet the DHF 8000.

Is your shop ready to take the machining of large and complex parts to a single setup? If so, the **DHF 8000** horizontal machining center is the robust and precise addition you need.

This 50-taper beast is equipped with a nodding A-axis spindle, dual ballscrews and standard linear scales. We built it for hard jobs and hard metals, so give it your stainless steel, Inconel and titanium. Then watch it work its magic.



**MACHINE
GREATNESS™**

Your local Ellison Technologies:

SOUTHERN CALIFORNIA

Sales: (562) 949-8311
Service: (866) 576-1125
Parts: (888) 207-2787

NORTHERN CALIFORNIA

Sales: (866) 814-7238
Service: (800) 994-0146
Parts: (888) 207-2787

WASHINGTON/OREGON

Sales: (253) 872-1661
Service: (253) 246-0130
Parts: (888) 207-2787



WWW.ELLISONTECHNOLOGIES.COM

SPYDER MANUFACTURING



PIERSON PRO PALLET SYSTEM HELPS TAKE TREE CLIMBING BRAND TO NEW HEIGHTS

Matthew Monnig of Spyder Manufacturing was born into the landscape business. His family has owned B & M Lawn and Garden Center since the late 70's. Like everyone with a family business as soon as he was old enough to be useful he was considered an employee. What began as a small lawnmower sales and service shop has flourished over the years to become a preeminent landscape center in the area. They supply tools for the Los Angeles Angels' grounds crew and even store the clay for the Halo's pitching mound.

Spyder Manufacturing was opened in the early 90's as a way for B & M to market their own brand of lawn and garden tools. "We just fell into manufacturing," tells Matt. "B & M was a distributor, and we would buy and sell different brands of equipment. We would grow a brand and then be cut out by companies selling direct or giving away distributorships to competitors a block away. The best way to avoid this was to market our own brand of equipment. By putting our name on it we had control of where and to whom it was sold. Along with

selling product at our own store we set up a network of dealerships to promote and sell our brand." In the beginning they didn't manufacture, it was more assembly. They would combine a mixture of the best elements of a tool and put them together into a complete product. So XYZ company made the best fiberglass poles, but ABC's shovel heads were great. So they combined all the necessary parts to be what we know as a shovel. Their sticker went on it as the house brand of tools.

That changed in 2000 when they purchased an ailing lawn mower manufacturing plant. "The company had some very basic manufacturing tools," details Matt. "The equipment was antiquated but functional, so we did a little retooling and re-r purposing and began simple manufacturing." Spyder Manufacturing notice that more and more lawn and garden stores were also selling tree climbing equipment. They saw it first hand at their own retail location. "It was a logical progression for us to add tree climbing equipment into our manufacturing," describes Matt. "We couldn't keep product in stock at our store so we branched out so to speak into that



Three of Spyder Manufacturing's Fryer mills are equipped with three pallet base stations connected to a single air valve. Matt purchased the Pierson Workholding Pro Pallet System to give him the choice of using Pierson's pallets or making his own. Here you see the Climb Right climbing spikes in production. The spikes are fit two up on the pallets and requires three ops. The operator moves the parts from pallet to pallet to complete the process.





Spyder Manufacturing's newest mill is a Fryer MC30. It has a smaller work envelope than their other mills so only two pallets fit in the new machine. The MC30 has a new controller giving Matt even more features for his money. Matt takes full advantage of the conversational programming on the controls.

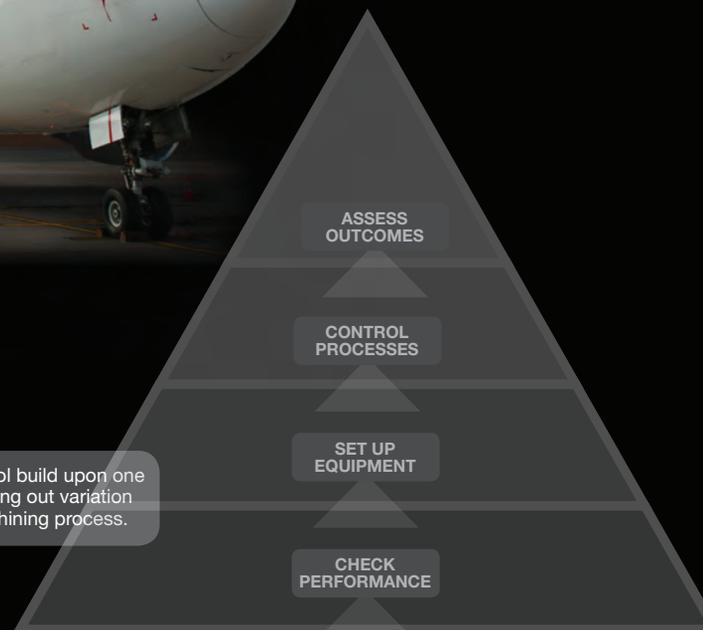
market with our Climb Right product line.”

Made in America is a sought after classification even in the world of tree climbing and all of Climb Right’s gear conforms to the applicable international standards. Everything down to the stitching on their harness is manufactured on site. As Matt gained more influence in a management roll he prioritized sourcing as many parts locally as possible. Assembling parts from American manufacturers gained them an edge over competitors. Slowly they began implementing the manufacturing in house. “We don’t cut any corners,” touts Matt. “Even someone not familiar with the industry can see visible differences in our product versus the ones that come from overseas. We took products that were 100% made in China, to only half being made in China, and now those part are 100%

USA made right here in So-Cal.” A prime example is their rope grab. It is a small device that the rope goes through and allows climbers to adjust the length of the rope as they move up and down a tree. It is a simple part with an outer casing, a cam system and a bolt. It was that part that led them to purchasing their first CNC mill.

The rope grab alone was costing Spyder Manufacturing 30k a year in machining costs, so Matt began his search for options that gave them the ability to produce it in-house. “It just so happened that a CNC rep walked in my office the day we decided to buy a machine to produce the rope grab,” details Matt. “It was fate, and we purchased a MB10 small tool room style mill from Fryer. It changed our lives. The open style was not great, but we made some covers to contain the mess and starting

Your partner for innovative manufacturing



Layers of control build upon one another — driving out variation from the machining process.



**Revo 5-axis
measurement system**
All-in-one,
high-performance
measurement flexibility
on a single CMM

As manufacturers ourselves, we understand the challenges you face. For 45 years, Renishaw has been creating breakthrough innovations that solve manufacturing problems and move productivity to new heights. Our suite of advanced solutions allows aerospace manufacturers to work to ever-tighter tolerances and significantly improve throughput. From additive manufacturing to post-process control, our proven technologies are found at the forefront of intelligent production systems.

Allow us to show you how the integration of innovative manufacturing techniques improve overall productivity and how we can be your partner for innovative manufacturing.

www.renishaw.com/aerospace



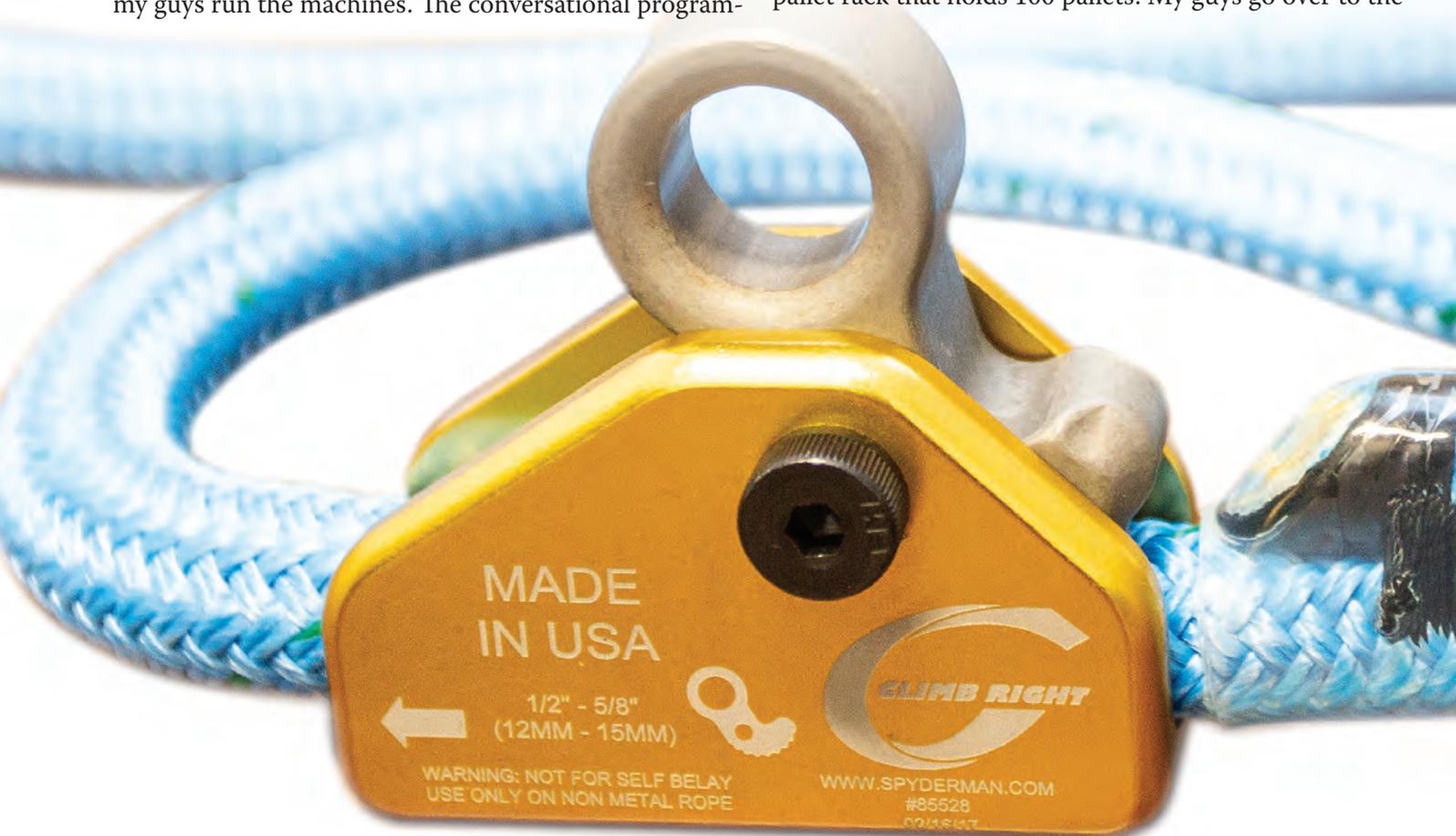
Matt built a pallet rack that holds more than 100 pallets. Each of his parts has its own pallet so the operator only needs to grab the pallet and the tooling.

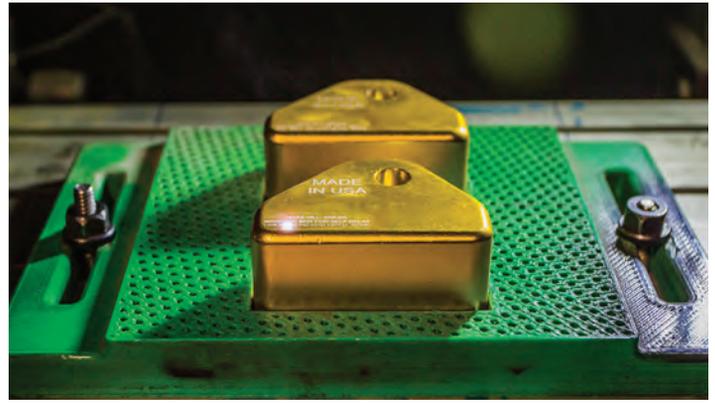
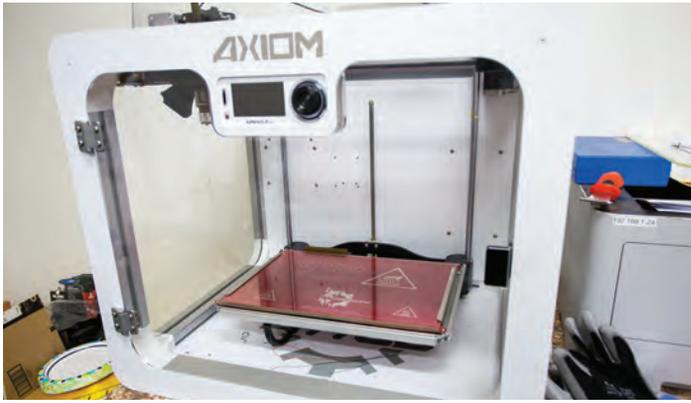
CNC machining parts. Our eyes were wide open now to the possibilities so we sold that machine and bought a standard Fryer MC40 3 axis mill." That mill was quickly filled to capacity so Matt added a second MC40 and then a third. "I didn't have any experience with CNC prior to buying one," admits Matt. "I learned how to get my drawings into Solid Works from watching YouTube videos and the Internet. Our parts are not super complex and don't require aerospace level tolerances so after only a few days of training with our first machine I had things figured out. Funny story I actually had swine flue during the training so I only got one full day of training in. Even being dehydrated and on the verge of collapse I picked it up quickly. It was all very logical and just meshed perfectly with how my brain works. I do all the programming and my guys run the machines. The conversational program-

ming on the controls is super handy and I do most of my programming from there."

Lean manufacturing was a buzzword that Matt wasn't necessarily familiar with. Spyder Manufacturing utilized similar principles in their assembly processes, but it wasn't until Matt went in search of faster ways to machine that he discovered pallet systems. "I learned right away that pallet systems are an effective way to increase my production," tells Matt. "I also learned that for the most part they are also expensive. Pierson Workholding came up in my Internet search and I saw they had a cost effective Mini Pallet System designed for hobbyist and tabletop setups. Then their Pro Pallet System caught my eye. It didn't cost an arm and a leg and was a way for me to try out a pallet system without a huge investment. So we purchased their pallet hardware kit for one machine. It allows me to connect three pallet bases by chaining them to a single air valve and gives me the option to make my own pallets. I was impressed."

Matt outfitted three machines with an identical three-pallet system, allowing him to run any job on any machine by just loading the program. Each pallet is spring powered and only uses air to unlock the pallets so it is failsafe in case air pressure is lost. Spyder Manufacturing just added a fourth Fryer six months ago. The new MC30 has a slightly smaller work envelope so when it came time to buy Pierson Workholding Pro Pallet System for it only two bases were needed. "I have all my jobs setup on pallets and ready to go at any time," explains Matt. "I built a pallet rack that holds 100 pallets. My guys go over to the





Spyder Manufacturing went from no CNC to plenty of CNC. Along with the four Fryer 3 axis mills they also have a small Fryer lathe, CNC sewing, laser engraving, 3-D printing and even a waterjet. Their 18,000 sq.ft. manufacturing center also houses welding, assembly, shipping and dozens of manual machines like press brakes.

rack and get the pallets and the tooling and away they go. We utilize the pallets differently depending on the parts we are running. For example the rope grab is three operations so each pallet is a single op.” They can fit 14 parts on each pallet and run all three ops in a single cycle of the machine. The pallets for that job are loaded and unloaded on the bench by the operator. As the machine is cutting his operator is loading the next set of parts onto pallets. “Taking the pallets off and loading them back in place is super quick and easy,” continues Matt. “Repeatability is 0.0003” or better so they always go back right into place.” The other way Matt utilizes his Pro Pallet System is by

leaving the pallets in place and changing out the parts in the machine from one pallet to the next. Their spikes for example are larger than the rope grab so they only get two up on each pallet. It too has three ops, so one op per pallet. The operator then just moves the part down the line of pallets to complete the machining. “The versatility on the Pierson Workholding Pro Pallet System has been great for production,” concludes Matt. “We went into CNC as total novices and finding companies like Pierson Workholding gives us the ability to keep the Made in America tradition alive in an industry flooded with overseas products.”



Climb Right's rope grab was originally made in China like some of their competitors. Matt began sourcing the parts from American manufacturers until it was 100% made in the USA. Spyder Manufacturing purchased their first CNC mill to keep up with the production needed to supply all their vendors. It is now made 100% inhouse at their plant in Placentia, Ca.



a500Z

Now Athena Enhanced

Introducing the a500Z, Makino's new production-oriented 5-axis horizontal machining center. It includes two responsive direct drive rotary axis, housed in an integral Z-type table, providing rigidity that allows the a500Z to deliver all the benefits of 5-axis machining without any of the typical compromises. And the a500Z is enhanced with Athena.

Makino machines are the first to be enhanced through the voice-activated technology of Athena, maximizing our machines and guiding you through the future world of digital connectivity, data and intelligent manufacturing to embrace your changing business.



PARTNER WITH THE WORLD LEADER IN SMALL PART TURNING SOLUTIONS



Tsugami's M08SY CNC Lathe is a heavy duty turning center with a surprisingly small footprint. This machine's 6 programmable axes (X1, Y1, Z1, A1, Cmain and Cback) and rigid construction make easy work of your toughest applications. The M08SY can hold up to 12 live tools and is ideal for milling, drilling, cross drilling and boring. Ask about Tsugami's M08SY standard and gantry options.

Experience the power of Tsugami.

866.224.8576 | info@remsales.com | www.remsales.com



Reference code: M08CNCWest when you contact Rem Sales directly to receive a free Tsugami gift.

TSUGAMI
Rem Sales, LLC

Set-up Reduction Strategies

By Michael Near - Drop-N-Go



Efficiency and productivity are key concepts that lead to profitability in any production environment...especially in the machine shop. In my time studies and organizational reviews, I have noticed that one of the greatest determinants of productivity is set-up or changeover times. This interval is dead time when no chips are being generated. It is the time when the engine is idling and the car is going nowhere. Developing strategies to reduce this idle period is one significant way to improve productivity and efficiency without capital investment. In this article, 6 action points will be presented.

1. Coordination

Most machining jobs are done on CNC today. This

means that there must be a program, a workholding method, a tool list and inspection points. These elements each require different thought processes and usually different people to perform each part of the overall job. Regular planning meetings gather all participants into the same room so a vision and job outline can be developed. Refinement of concept during these meetings leads to better understanding of the challenges that are inherent in every new job. It has been proven that people perform better and things operate with much more efficiency when everybody knows where they are going and how they will get there. Coordinated planning and strategy development provides the common understanding required to foresee pitfalls before they become nightmares.

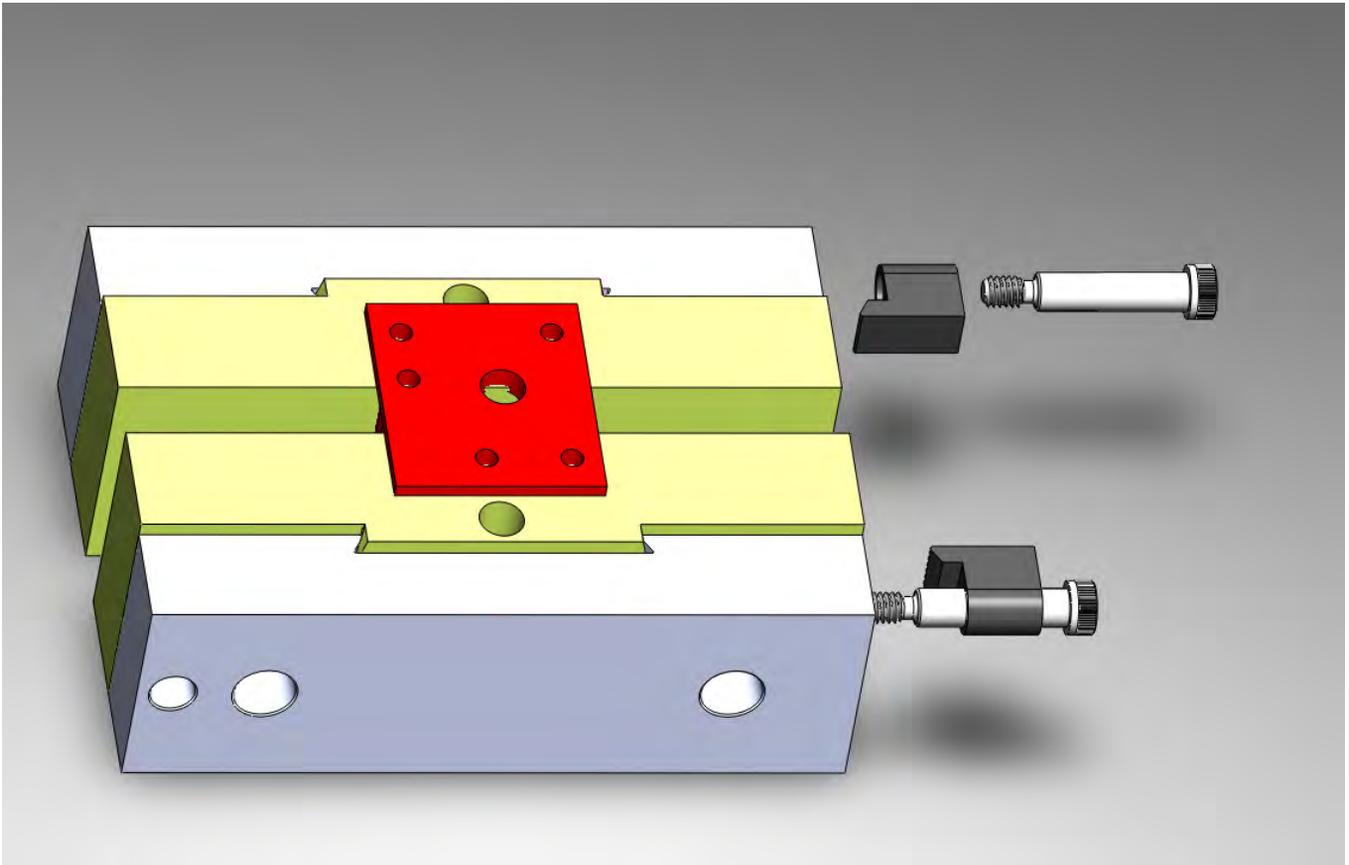
2. Organization

The efficient shop is organized. Military people know this because the adage of “a place for everything and everything in its place” pays big dividends. Knowing where a tool or fixture is eliminates the hunt and gather phase of set-up. I have seen tool racks with identified locations for each tool. All fixtures have unique locations and even cutting tool kits are allocated to specific part numbers and stored in an organized manner. In this type of shop, anybody can put their hands on any set-up element quickly and repeatedly. Just knowing that things are where they should be is a great benefit and streamlines the process while reducing frustrations.

3. Tool Library

Many programmers will start programming with Tool #1 to create a prominent feature on the part. Moving on to the second feature, the next tool is numbered #2. While this is a straightforward numbering convention, it adds confusion when each program different tools numbered 1, 2, 3 thru the end of the program. Many errors have occurred when (for example) tool #6 was not changed from one program to another. The wrong tool in the machine causes terrible problems. One excellent solution is to have each tool commonly used assigned to a unique identifier number.

As an example, almost all jobs have tapped holes. One strategy is to have all taps numbered with values starting at 2000 thru 2999. All tap drills can start with 3000 thru 3499.



All chamfer tools can be numbered 3500 thru 4000. Excel spreadsheets can manage this list and provide a method for recording important data like insert type, mounting screws, tool holder information and so on. Additionally, each tool should have a detailed drawing showing all details including projection length and recommended speeds and feeds for common material types.

Adhering to a system similar to this allows for off line storage so that the tools remain set in holders thereby eliminating the assembly time between jobs. The programmers can each draw from this list and work with consistent tool call-outs. This standardization eliminates confusion and error.

4. Workholding

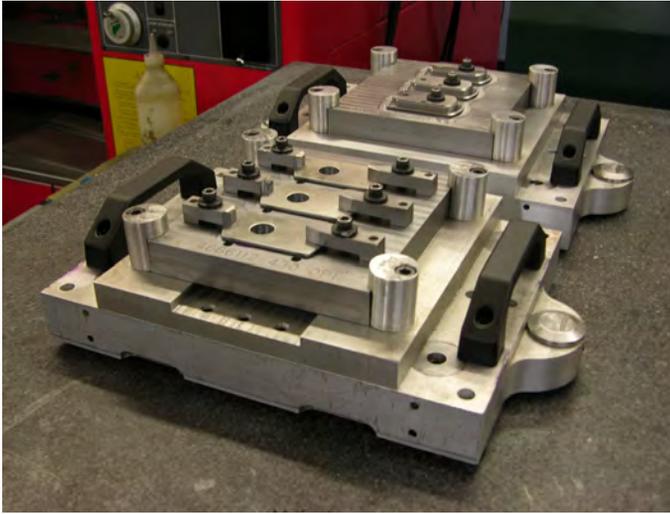
One huge reducer of set-up time is having the right workholding method readily available when it comes time to changeover from job to job. Two methods I have seen to be successful in reducing set-up are: (1.) Standardize fixturing wherever possible and (2) Simplify workholding and combine operations.

What is meant by standardization of fixturing is this: many parts lend themselves to vise work and other jobs fall into a flat-work category. Still other jobs lend themselves to be 5th axis work. Review your historical workflow and group jobs into categories. Then develop methods that will bridge the individual jobs and reduce the fixture elements. If you

can establish common tooling elements it will greatly reduce your set-up times. Some common elements are quick change vise jaws, pallet systems, dovetail holding fixtures and so on.

Simplifying workholding while combining operations is a creative way to eliminate set-ups altogether. With today's multifunctional machines it is possible to turn, drill, mill and finish in one set-up. If exotic machines are not available, think about how one fixture can be transferred between multiple machines. Any unit of work that can be combined can





potentially reduce a set-up. Some zero-point clamping elements provide a platform for transferring the same fixture from machine to machine. While these are somewhat expensive in the beginning, they pay off as the set-up times shrink.

5. Dedicated Resources

Many shops will have the individual machinist perform the tool and fixture gathering duties for the next set-up. I suggest having a person dedicated to this function for two reasons. First, the dedicated person will become intimately familiar with tool and fixture location and thereby be able to get the work done efficiently. Secondly, the assigned person will be performing this important task ahead of machine changeover schedule and free the critical Machinist resource to do what they do best; setting the machine work offsets, fixturing and loading the tools properly. Having the tools and fixtures ready BEFORE the new set-up gives significant benefit.

6. Continuous Improvement

One thing to remember is that nothing is perfect. There is always room for improvement even in the best of shops. Developing the mindset of continuous improvement when it comes to set-up reduction will shave minutes off of your downtime averages. Over time, refinement of your operations will show improvement to the profit margin. It all starts with not being complacent, never settling for “good enough” when “excellent” is available.

Regular meetings that involve the programmer, machinist, tool room manager and any other critical path personnel are important and will bring out the snag points and illuminate the areas for potential improvement.

In conclusion, set-up reduction is the low hanging fruit that can be harvested without capital investment. Looking seriously at this issue with an organized concerted effort will pay back in higher productivity, greater efficiency and

increased profits. Start today and develop a plan to identify your set-up averages and work consistently to bring them down. You will be glad you did.

Michael Near is a journeyman machinist with a BA in Organizational Management. He also is an international efficiency consultant with 50 Years manufacturing/engineering/service experience.

Free Manufacturing Workshop in Denver -Thursday, November 15-

The Community College of Denver (CCD) and partners are offering a free CNC programming and machining workshop titled “Smart Programming – in CAM or at machine?” to be held on Thursday, November 15th in Denver.

Nearby manufacturing companies & student who want to learn about smart programming and HEIDENHAIN TNCs should attend for this unique learning and networking experience.

The workshop will be held at CCD’s Advanced Manufacturing Center and will start at 8:30 a.m. with Donuts & Coffee before the official agenda begins at 9am. Lunch is provided, and demonstrations and training sessions continue until 3pm.

The sessions will include presentations on latest features of HEIDENHAIN controls, training on 3+2 and 5-axis programming techniques and corresponding part demonstrations on CNC machines at the Advanced manufacturing lab.

An overview will be given on the CAD-CAM-CNC-process chain with tips for optimization.

CCD and HEIDENHAIN have teamed up with Mastercam for this joint workshop.

Registration is required and can be done with: Spring. Johnson@ccd.edu

For more information, contact:
tncapplication@heidenhain.com

TAKISAWA®

LA-250YS

TAIWAN

Turning Center

Features:

- 15 station turret
- 4.8" travels on Y axis (Multi Tools Per Station)
- 3" Bar Dia.
- Direct Drive spindle, no vibration for a (Better Finish)
- Fast index time of 0.9 sec
- 17,600 lbs, powerful & Rigid Machine
- Unique machine features for Bar production



"CALL FOR SPECIAL PRICING"

15271 Fairfield Ranch Rd., Unit 130, Chino Hills, CA 91709, USA

So. California & Nevada
(714) 572-6830

Arizona
(602) 470-0334

Northern California
(510) 249-1000

Oregon
(503) 997-0320

**TORNQUIST
MACHINERY
COMPANY**

**TORNQUIST
MACHINERY
COMPANY**

**PERFORMANCE
MACHINE TOOLS, LLC**

R-TEC
Machine Tools & Service

Record Breaker: IMTS 2018 Largest Show Ever



A rapidly transforming industry sparked IMTS 2018 – The International Manufacturing Technology Show, to set all-time records for show metrics. The 32nd edition of the show drew a record registration of 129,415 people and featured 1,424,232 sq. ft. of exhibit space representing 2,123 booths and 2,563 exhibiting companies. IMTS 2018 ran from Sept. 10 – 15 at Chicago’s McCormick Place. Previous records were 121,764 registrants (IMTS 1998), 1,415,848 sq. ft. of exhibit space (IMTS 2000), 1,808 booths (IMTS 2016) and 2,407 exhibiting companies (IMTS 2016).

“Connectivity, the digital transformation of manufacturing, automation, additive manufacturing and a strong economy drove record numbers at IMTS 2018,” says Peter R. Eelman, vice president – Exhibitions & Business Development at AMT – The Association For Manufacturing Technology, which owns and produces IMTS. “Digitization collided with a robust manufacturing industry to create our most dynamic show ever.”

Historically, years between IMTS lead to incremental machine improvements, which are now reaching physical limits. “The velocity of change has become different,” observes Tim Shinbara – AMT vice president – Manufacturing Technology. “Analog technology yields linear improvements. Digital technology creates exponential growth and transforms how manufacturers and job shops operate.”

An Expansive Show

Notable growth areas at IMTS 2018 included an expanded Additive Manufacturing Pavilion that featured 51 exhibitors and covered 31,550 sq. ft., the strong partnership with HANNOVER MESSE USA and its four co-located shows and 510 exhibitors, an expanded Smartforce Student Summit that drew 6,000 more visitors than in 2016.

“IMTS witnessed an unprecedented degree of collaboration among exhibitors to develop additive manufacturing, automation and connected systems,” says Eelman. As an example, he points to the venture between 3D Systems and GF Machining, with their DMP Factory 500 metal 3D printing system unveiled

to the public on the first day of the show.

Co-Located Shows

The HANNOVER MESSE USA co-located show hosted 510 exhibitors from around the world. At the center of HANNOVER MESSE USA was the Solutions Theater, which hosted more than 60 learning sessions that dove deeply into important topics such as IIoT, intelligent manufacturing and next-generation technology.

Dell Technologies, Microsoft and SAP joined other innovators in a new Digital Factory exhibition that showcased breakthrough products and solutions focused on integrated processes and IT solutions for plant operations. The show has increased its exhibition space by 26 percent over IMTS 2016 and by more than 440 percent since its first appearance eight years ago.

Two AMT’s Emerging Technology Centers

With digital technology, the pace of change makes it difficult to fully grasp the possibilities. IMTS 2018 directly addressed that issue with AMT’s Emerging Technology Center (ETC) on digital transformation, which featured demonstrations of how new science impacts manufacturing.

IMTS 2018 will be noted as the year of digital transformation, as exemplified by an automated cell linking a Hurco CNC, a Universal Robot arm and Hexagon CMM using the MTConnect™ standard.

“MTConnect is the building block that enables intelligent systems and decision-making based on data rather than instinct,” says Eelman. “Instead of asking ‘What’s a connected system?’, visitors now say to exhibitors, ‘Your systems use MTConnect, right?’”

Paul Gray, Hurco’s R&D Manager, notes that the only required connection between machines is an Ethernet cable. “Simple connectivity and software communication overcomes a major hurdle for job shops that focus on high-mix, low-volume and even custom parts,” he says.

Additive Advances

“Additive manufacturing is one of the most revolutionary technologies ever brought to IMTS, and that’s reflected in the ETC focusing on additive manufacturing,” says Eelman.

This ETC also featured a “Knowledge Bar” hosted by America Makes where visitors learned about the development of education roadmaps, an online platform for members to exchange information and establishment of industry-wide additive manufacturing (AM) standards and specifications.

Additive Presence Grows Exponentially

“Every building in McCormick Place featured AM technology,” says Eelman. “Four years ago when we produced the Strati vehicle on the show floor, large-scale AM was a novelty. At IMTS 2018, AM technology was part of the manufacturing processes used to produce the entrance hall impact units.”

Smarter Solutions

ATHENA, the industry’s first voice-operated assistant, debuted at IMTS in the Makino and OKK booths, as well as in AMT’s ETC where visitors could control a 5-axis DMG Mori CNC.

Index previewed its iXworld, an online portal with four distinct service areas under a single interface. Fanuc’s FIELD system, an open platform that collects machine data in real time, was connected to more than 300 machines from 144 companies at the show. SAP focused on how to use blockchain to improve trust and transparency from source to consumption.

Smartforce Student Summit

The IMTS 2018 Smartforce Student Summit broke its previous record with 23,000 registrants, 6,000 more than IMTS 2016 event.

“The national conversation around STEM education has had a positive influence on our ability to attract more schools to the Student Summit,” said Greg Jones vice president of Smartforce Development for AMT.

The 2018 Student Summit gave students the opportunity to experience 25 different job functions available

in manufacturing.

Technical Conferences

In total, more than 2,500 visitors attended conference sessions during the week of IMTS. The largest event, in terms of both content and visitors, was The IMTS Conference.

Presented by AMT and managed by GIE Media, The IMTS Conference attracted more than 850 people and featured 71 different sessions, each selected by a review board. Collectively, The IMTS Conference and the co-located events provided IMTS visitors with more than 142 hours of educational programming.

“The two most popular themes from the conference sessions were additive manufacturing and connected/digital manufacturing,” says Bill Herman, director, International Exhibitions and Sponsorship, AMT. Many conference attendees were looking for ways to begin their “digital journey” within their shops or how to implement next steps, as well as how they might harness additive manufacturing into their processes.

“The Additive Manufacturing Conference was a tremendous success and our largest event to date with more than 575 attendees,” adds Travis Egan, publisher, Additive Manufacturing magazine.

“Our new Job Shops program attracted 405 participants,” Michelle Edmonson, senior director - Exhibitions Operations & Marketing, AMT. “With such strong interest at this show, we plan to continue our focus on jobs shop at IMTS 2020.”

Presentations included a seminar on the unending search for qualified labor hosted by four job shop owners. “The part of the discussion on reaching out to high school-level and community college students was good. I hadn’t thought about going to those sources to find kids interested in manufacturing,” says Aaron Collier, general manager of Liberty Bottleworks in Yakima, Washington.

EOS’ “Applied AM – Where Additive Minds Meet” half-day symposium drew more than 300 people. In a sign of how far AM has progressed, topics included a session on AM digital supply chain readiness.

Seeking New Approaches

Visitors walked the floor of IMTS focusing on technologies, ideas, business practices and face-to-face conversations that advance manufacturing.

“We had very astute attendees coming to IMTS 2018,” says Eelman. “They are more educated about the health of their business and know that connectivity, digitization, automation and knowledge are part of the solution.”

Surpassing even your uncompromising standards.

ZEISS CONTURA



// RELIABILITY
MADE BY ZEISS

The reference machine in the compact class

The affordable ZEISS CONTURA CMM for flexible, reliable and uncompromising quality assurance. The ZEISS CONTURA line has sizes up to 1200 x 2400 x 1000 mm and more sensor options, including the VAST XTR gold with an integrated rotary axis that adjusts effortlessly to complex workpieces. Proven navigator technology and CALYPSO software let you measure faster, increasing throughput. Designed and assembled in the USA, ZEISS CONTURA cements its place as the standard in its class.

www.zeiss.com/contura





U S Shop Tools *Direct!*



ALUMINUM 10 PACK VISE JAWS



- Fits KURT & other standard machine vises
- Machinable aluminum- customize jaws for your application
- Buy the 10 pack and save BIG!
- Made in USA



FREE SHIPPING!

Prices Starting At Only \$13.27 per pair!

Length	Height	Width	Part Number	Reg. Price	PROMO!
6"	2"	3/4"	VJ-601-10	155.20	132.70
6"	2"	1"	VJ-602-10	172.30	147.32
6"	2"	1-1/4"	VJ-603-10	203.80	174.25

Accu-Collets™

ER COLLETS



ER 11/ER 16
Prices Starting At:

\$8.75 each
OLD Price: \$16.50

- PRECISION ER Collets:**
0.0005" TIR or better
- TRUE INCH and metric sizes
 - Crafted from high quality spring steel
 - Individually tested for accuracy
 - TG, DA & AF collets also available
 - 100% Satisfaction Guarantee!



PRICES REDUCED OVER 45%!

ER 20/ER 25
Prices Starting At:

\$9.75 each
OLD Price: \$18.00

ER 32
Prices Starting At:

\$10.25 each
OLD Price: \$18.00

KURT MACHINE VISE



NEW ITEM!

- 6" vise, full 9" opening
- Narrow body style allows for more vises on the machine
- Recessed pocket for easier lifting
- Thru-body chip evacuation
- Same bed height as D688
- 4 bolt stationary design fastens from the top



KURT DX6

6" Vise w/9" Opening
Mfg's List: \$617.00

\$569.00 each
Part # KURT-DX6

ISO 1/8" PARALLEL SET

- Made from high quality tool steel
- Stress relieved against distortion
- Precision ground and hardened
- 1/8" thick with 2 holes
- 10 pairs, 6" Length
- Heights: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2" and 1-5/8"
- Complete w/ fitted case



1/8" Parallel Set
Part # A-3900-3010

\$54.00

1/4" Parallel Set

9 Pair (#A-3900-3009) **\$90.00**

BALANCED TOOLHOLDERS



10% OFF!
10 Or More Holders
Mix & Match!

- **BALANCED to 15,000 RPM @ g6.3** on a HAIMER machine (cert. included)
- Manufactured to ISO 9002 quality control standards
- CAT & BT taper endmill holders, collet chucks & Jacobs/Morse Taper holders
- AT3 Class Accuracy
- Results in less vibration, chatter & extended tool life.



STOCK UP & SAVE!

END MILL HOLDERS
Prices Starting At:

\$49.95 each
Part # C40-37EM250-K

ER COLLET CHUCKS
Prices Starting At:

\$79.95 each
Part # C40-16ER250-K

RETENTION KNOBS

Your VALUABLE Machine Deserves A Premium Knob!



QUANTITY DISCOUNTS
10% OFF!
10 or more knobs

- Individually Magnetic Particle Tested
- Made in the USA!
- Large Variety of CAT & BT Tapers
- Made of 8620, Heat Treated to Rc 56/58
- Exceeds Industry Standards For Tolerance (ANSI, DIN, JMTBA)

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

LAMBRICHUSA DRILL CHUCKS

Ball-Bearing Drill Chuck With Key For Production Drilling Equipment



Ball Bearing Construction!

- Ball bearing construction to reduce friction in tightening mechanism and provide better grip
- All components hardened and ground
- One-piece ger ring and fluted sleeve eliminate tooth breakage
- Finely crafted in Spain

Jacobs Equiv	Cap.	Mount	Part Number	Mfg List	SALE!
8-1/2N	1/64-5/16"	2JT	LAM-L40070B	\$123.72	\$86.60
11N	1/32-3/8"	2JT	LAM-L40071B	\$132.13	\$92.49
14N	1/32-1/2"	3JT	LAM-L40072B	\$192.22	\$134.55
16N	1/32-5/8"	3JT	LAM-L40073B	\$216.26	\$151.38
18N	1/32-3/4"	4JT	LAM-L40074B	\$324.41	\$227.09
20N	3/16-1"	5JT	LAM-L40075B	\$444.58	\$311.21
-	1/32-1/2"	6JT	LAM-L40626B	\$192.22	\$134.55

HEAVY DUTY!

Lungaloy CARBIDE TURNING INSERTS



- AH120-The "Super Grade" for steels, stainless and super alloys!
- TM Chipbreaker-Medium cutting of steels and hi-temp alloys
- SM Chipbreaker- Medium cutting of mild steels and stainless

Insert No.	Rad.	Grade	Chip-Breaker	Application/ Material	Part Number	BOX QTY EACH
CNMG431	.015	T9125	TM	Steels	TO-3514	\$8.51
CNMG432	.031	AH120	TM	Super Alloys	TO-1364	\$8.51
DNMG431	.015	AH120	TM	Super Alloys	TO-1709	\$11.15
DNMG432	.031	T6130	SM	Stainless	TO-6805431	\$11.68
TNMG431	.015	AH120	TM	Super Alloys	TO-2833	\$9.24
TNMG432	.031	AH120	TM	Super Alloys	TO-2868	\$9.24
WNMG431	.015	T6030	SM	Stainless	TO-6827354	\$8.51
WNMG432	.031	AH120	TM	Super Alloys	TO-3338	\$8.51



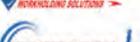
U S Shop Tools

CALIFORNIA • MICHIGAN

Distributor Program Available. Please Call For More Information.

GET YOUR FREE COPY OF OUR ALL-NEW 2019 MASTER CATALOG

Order TOLL FREE: (800) 243-7701
Fax TOLL FREE: (800) 342-3311
Email: sales@usshoptools.com
www.usshoptools.com



Six Industries Benefiting from Additive Manufacturing

By: Steven Brand - CMTC

Additive Manufacturing (AM), or 3D printing, has evolved rapidly in recent years. As new industries have begun to embrace the technology, they are discovering the many ways in which the technology is impacting their business. AM is helping them to reduce development and manufacturing costs; increase production, speed, innovation and time-to-market; produce new structures and shapes; and decrease waste. Let's take a look at six industries using additive manufacturing to its full capacity.

1. Aerospace

Always on the cutting edge, the aerospace industry was an early adopter of additive manufacturing. As you can imagine, aerospace companies must meet some of the industry's most stringent standards, and parts and components need to be made of the highest-performance materials. Using AM, engineers can design complex, high-strength parts. In addition, AM helps reduce weight of aerospace components by printing more efficient geometries, thus eliminating significant amounts of unnecessary material. This allows for lower fuel consumption, reduced CO2 emissions, and reduced costs (plus, better airfares).

2. Automotive

Much like aerospace, the automotive industry is always looking to innovate with newer designs; their products are also subjected to high speeds and harsh conditions. AM printing allows them to develop complex, high-quality parts that can withstand these conditions, offering improved safety. Rapid prototyping also improves vehicle quality, enabling automobile manufacturers to test things like water resistance and high temperatures. In addition, 3D printing allow for parts consolidation, reducing inventory and enabling repair or maintenance to be done with a single part.

3. Consumer Products

For marketing teams taking a product from concept to completion, often the biggest amount of time is spent on design. To be sure the product is just right, a great deal of time is spent on creating prototypes to prove concepts to stakeholders and ultimately deliver a consumer-pleasing product. By embracing AM, marketing teams can develop iterations of their product much quicker, and then rapidly pivot to adjust design as needed.

4. Energy

Electrical power outages, surges, and spikes are estimated to cost more than \$150 billion in annual damages to the United States economy due to labor downtime and loss of productivity and data. Experts at Eaton Energy predict a 5-10% increase in the total number of minutes customers are without power each year until the U.S. electrical grid is modernized. Using additive manufacturing, the energy sector can create lightweight, efficient, and environmentally-friendly components that can also withstand extreme conditions.

5. Infrastructure

Approximately 75% of U.S. infrastructure—roads, bridges and tunnels—will require renovation or complete replacement by 2035. It sounds like a financial nightmare, but the expense (not to mention the inconvenience to drivers) can be greatly reduced using additive manufacturing. Because AM makes it possible to use no more than the exact amount of materials needed per project, waste is reduced and any surplus of raw materials could then be utilized for the next construction project. In addition to these savings, AM can reduce construction congestion. During any infrastructure project, extra lanes need to be closed to allow large construction materials to move in and out. AM would allow for large-scale structural components to be printed right onsite, even in confined space.

6. Medical

Additive manufacturing technology is delivering breakthroughs to doctors, patients and research institutions. The incredible plethora of objects that have already been successfully printed in the medical field gives a glimpse into the potential that this technology holds for healthcare in the near future. The technology is being used by researchers to print human embryonic stem cells, which are then used to create tissue for testing drugs or growing replacement organs; to print skin that could replace skin that's been burned or damaged; and to print cancer cells, in order to study them and test out new drugs on them. Surgeon Anthony Atala, Director of the Wake Forest Institute for Regenerative Medicine, has even been working on printing organs.

Additive manufacturing is a game changer for manufacturers of all sizes. It can enable them to create products faster, cheaper, with less production waste.

Monitor and collect data from **any machine** tool with FactoryWiz Monitoring



Modern Machine



Vintage/Legacy Machine

View **actionable data** on any internet connected device from anywhere in the world



FactoryWiz V19
Preview Video

FactoryWizTM Monitoring

408-224-9167 | factorywiz.com

ENDLESS POSSIBILITIES

GEN MILL T-500

510mm High Speed Mill-Drill-Tap Center

- + 12,000 RPM Inline Direct-Drive Beltless Spindle
- + Roller Bearing Ways (twice as rigid as ballways)
- + 21-Tool Drum Turret
- + 1.6 Second Tool-Tool
- + 7.5 HP Spindle Motor
- + 6,000 RPM Synchronous Rigid Tapping

GEN TURN 32-CS

7-Axis CNC Swiss Machine

- + 36 mm 1-3/8" Bar Capacity
- + Dual "C" Axis with 19" Travel
- + 27-Tools with 11-Driven Tools
- + Simultaneous Main & Sub-Spindle Machining
- + Tool-Load Monitoring w/ Cutter Torque Sensing
- + 1,181 Inch per Minute Rapid Rates



Take advantage of section 179

Visit www.section179.org for complete details & consult your accountant to confirm eligibility for exact tax benefits/savings

GANESHMACHINERY.COM | 818-349-9166



GEN MILL | GEN TURN™
By Ganesh



Never! Ever! Hand balance again.

Introducing the **FSG-ADIV Series**

The first precision surface grinding machines with fully automatic controllers that deliver

- ▶ In-machine dynamic balancing
- ▶ Constant surface speed in dressing and grinding cycles
- ▶ Loading force detection

...for a higher level of precision, flexibility and functionality.

Be the first to check out our family of advanced automatic precision surface grinders:
FSG-1224ADIV | FSG-1632ADIV | FSG-1640ADIV

▶ Learn more at www.chevalierusa.com/ADIV

CHEVALIER[®]
Grinding / Turning / Milling

We shape your ideas.™

4TH GENERATION MACHINIST ADDS NEW GENERATION OF CNC AT AUTOMATIC SPECIALTY CO

Automatic Specialty Co is family owned and operated screw machine shop, manufacturing specialty hardware; nuts, bolts, screws, and washers. For decades they've relied on the accuracy and reliability of their Brown & Sharpe single-spindle Ultra-matic screw machines. After 75 years and millions and millions of parts, 4th generation machinist Nathan Donaldson recently invested in two new Ganesh SL20Y2 Swiss turning centers to better serve his customers.

Nate's great grandfather Raymond Beckerman opened Automatic Specialty Co in 1943 out of a gas station in Huntington Park, Ca. They still run some of the same parts from the 40's and even service many of the same customers. "Companies like Zephyr Tool have been with us for-



Within the span of a year Automatic Specialty went from a shop having never had a new CNC machine before to owning two Ganesh SL20Y2 Swiss turning centers. Once Nate got the first one on the floor and running he couldn't keep up with the new orders placed. There was no room in the schedule to run the parts he originally bought the machine to run. So he purchased an identical machine to get the job done. His production gains have far exceeded his hopes and he loves his new found ability to run lights out.

ever,” describes Nate. “Standard Abrasives was bought by 3M, but we manufacture shafts for their abrasive department the same as we did in the 50’s. Most of the parts we manufacture are pretty basic. For example, one of the 3M parts is a shaft they mold the flap wheels on to. It is a part that is perfect for all my Brown and Sharpe machines. +/- 10 all day, every day.”

Raymond’s son only worked a little on and off at the shop before becoming a butcher, but his grandson David Donaldson really took to the screw machine business. “My dad, David took over the day to day operations in the early 80’s,” tells Nate. “He loved the shop, the Brownies and was satisfied in how they manufactured. I worked on and off for him over the years and knew a little about machining. When he got sick I was working in aerospace as a Tig welder. That was nine years ago. I took over the day to day operations and tried to learn as much as I could, but he passed away only six months after I took over.” Nate found that most of his struggles had to do with the ownership side of things like accounting, vendors and customer management. The machining came easy, but that was only one part of being a business owner.



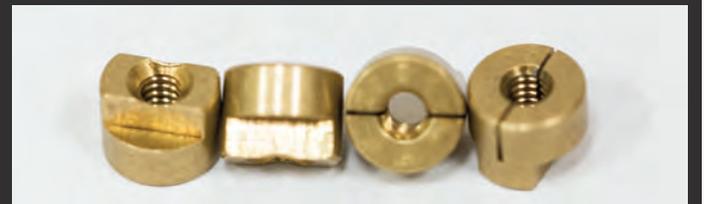


Until recently Automatic Specialty Co. was an all manual shop. (Left) Employees hand knurl hundreds of gun barrels a day. (Right) The "Brownies" served the company well for many years, and continue to run the simple parts requiring only one operation.

It was a few years after becoming Automatic Specialty's president that Nate took stock of where he envisioned the company going. He began to dread winning bids with 6 or 8 operations because of the sheer time and effort required to run it. "The parts ran great on the Brownies," tells Nate. "But I started to look at some of the parts as more a burden than anything else. I knew that I had to move forward with technology and automation so I could free up some time to run the business." Nate's dad was an

old school machinist, content with how they ran parts. He never considered moving away from manual machines. He also hated computers. "My dad loved playing solitaire in his office," jokes Nate. "That was literally the only thing he used a computer for. He was not a fan, but I wanted to see if CNC would benefit the shop."

Nate began his search for CNC machine tools, ultimately buying a few older machines and learning to program by reading *CNC Programming Handbook: A Com-*



Automatic Specialty Co is family owned and operated screw machine shop, manufacturing specialty hardware; nuts, bolts, screws, and washers. For decades they've relied on the accuracy and reliability of their Brown & Sharpe single-spindle Ultramatic screw machines. After 75 years and millions and millions of parts they have purchased two new CNC Swiss style machining centers. All the parts requiring more than one op are now going on the new Ganesh SL20Y2 machines. Parts that were taking 5 or 8 ops are now being run in a single operation on the Ganesh, giving Nate finished parts right off the machine.

DESTINATION: PRECISION



Clamping solutions for the aerospace industry

As aerospace materials and parts have become more complex, machining operations demand the highest accuracy. **HAINBUCH workholding systems** deliver the tight tolerances, fast change capability, and consistent performance that makes your production process take flight. Contact your HAINBUCH America representative to chart **your path to precision**.

This landing gear part is clamped on the I.D. with a T212 MANDO Adapt mandrel. The mandrel is being held in a HAINBUCH TOROK 65 chuck, which was mounted on a 5-axis machine.



1.800.281.5734
Germantown, WI USA
www.hainbuchamerica.com

 America
HAINBUCH
WORKHOLDING TECHNOLOGY



Nate Donaldson pulled the trigger on Automatic Specialty Co's first new CNC less than a year ago. He purchased a Ganesh SL20Y2 Swiss turning center. It is basically two 4 axis lathes. Cross milling, drilling, live tooling everywhere, and has a bar feeder. He thinks it's "awesome."

prehensive Guide to Practical CNC Programming by Peter Smid. His first CNC was a Hardinge retrofit with an analog controller. "I wasn't sure what to expect so I bought it at auction for like \$2000," laughs Nate. "I figured if I was going to fail, then fail fast, and fail cheap. That was only 5 or 6 years ago. It was a great way to start, but old machines come with old machine problems. If there was an issue I didn't know who to call for service on a 30-year-old piece of equipment. I wanted a new machine and just bit the bullet when I found one. Best decision I've made as president."

Service and support were as big a part of the buying process as the capabilities of the machine. Nate did his re-

search and decided to give Ganesh Machinery a call. They were located just down the street from his shop, and had a good reputation.

Automatic Specialty Co. provides personalized service to their customers, and Nate appreciates companies that do the same. "I prefer not to deal with huge corporations that treat you like a number," describes Nate. "I've had a good experience with everyone I've come in contact with at Ganesh. From sales and service to tech, everyone has treated me like we've done business together for decades. Ganesh worked with me right from the beginning. It wasn't a matter of show me the cash and we can talk about the machine, they understood where I was as a company



and where I wanted to go, then offered up expert opinions. First time buyer looking for only one machine their sales rep came in, saw my shop, and was open and honest. We talked it over for two months before I pulled the trigger on a Ganesh SL20Y2 Swiss style screw machine. It is basically two 4 axis lathes. Cross milling, drilling, live tooling everywhere, it is awesome.”

Nate ordered the Ganesh SL20Y2 specifically to service a couple of jobs he already had in house. One example is a gun barrel. It is a 4” barrel for a .22 caliber pistol. They’ve made them for years and produce up to 40,000 annually. Before getting the Ganesh Nate would rough form and part it off on the Brown & Sharpe, then centerless grind it, then gun drill it, then it needed a groove on the back, a 5 degree taper and finally knurl it. The part would sit and sit just waiting for the next operation. The Ganesh does all of that in one pass. “It was a big investment for me,” explains Nate. “The machine is overkill for what I originally purchased it for. I wanted it to be future proof and offer the ability to manufacture more complex parts. Funny enough I got the second machine because customers learned I had a new machine and started having me quote more work.” He received a 150,000 annual part order from a customer out of the blue because they knew he bought a new machine. “I had to buy a second Ganesh just to keep up. I’ve got so many new parts in that I’m short on time to run the parts I originally purchased the machine to run.” The second Ganesh is an identical SL20Y2. It has the exact same everything, same bar feed-

er, same controller, same tooling. Nate can run any part on either machine without making program edits. It simplifies things for him, plus he was so happy with the first one there was no point changing anything on the second machine.

Talking with Nate he is probably most impressed by his newfound ability to produce complete parts in one operation. Even the most basic of parts has become so much faster and easier. Automatic Specialty Co. runs hundreds of thousands of a simple brass lock nut. It was five ops before and literally took them weeks if not months to complete an order while waiting on machines and changing setups. It was the first part he ran on the new Ganesh. “I set up the brass nut before I left on Thursday,” touts Nate. “Sunday morning it was done, all unattended. We cut a month of production down to one extended weekend. I’ve always liked long runs, but now I adore them even more because it is being done lights out.” Nate has moved all his multi op parts from the Brownies over to the two Ganesh SL20Y2 machining centers. If it is a super easy one op part it stays on the Brown & Sharpe.....for now. “My goal is the have three or four of the Ganesh Swiss machines running 24/7 with the least amount of human interaction possible. The Brownies served this company well for so many years that I might have one chromed as a display, but I can’t say enough how much I love my Ganesh Swiss screw machines. They are a perfect fit for what we do. I wish I had pulled the trigger sooner rather than later on that first SL20Y2.”

PLATINO FIBER LASER PROVIDES SPEED & QUALITY NEEDED BY WEST COAST JOB SHOP



Article & Photos Courtesy of Prima Power

In 2017, Mike Hobeck, president & ceo, began to search for a replacement for an aging used CO2 laser. He chose the Prima Power Platino 5kW Fiber laser because of its open-cabin design and easy accessibility.

From the time he was a child, Mike Hobeck was fascinated with speed. He began his time in the fast lane by racing dirt bikes. The dirt bike career was interrupted several times by injuries. Hobeck then moved onto racing jet skis, reasoning that the water was a little safer than the hard ground. His love of racing led him to begin building parts for the numerous motorized vehicles he owned. And his fabricating career has been on a fast track ever since.

Hobeck began his fabricating career by working for several job shops in the Seattle and Spokane areas, followed by a stint with Boeing. He opened his own busi-

ness in Marysville, WA in 1997 as a weld shop. By 1998, the company grew in size and fabricating services. Today, Metal Werks Incorporated, with its 17 employees, is housed in a 10,000 square-foot facility.

The company's experienced and motivated team produces, manufactures, and supplies OEM products and solutions to a wide variety of clients throughout the world. Customers served include such industries as: medical, energy, technology, race car parts, fish hatcheries, retail store display/point-of-purchase, food service, and many others.

In 2017, Hobeck began to search for a replacement for an aging used CO2 laser that he had purchased in 2008. He chose the Prima Power Platino 5kW Fiber laser. “We looked at other laser companies,” explains Hobeck. “The biggest reason for choosing Prima was the open cabin design. You open the doors and you can go to any part you want in that 10’ bed, which is really nice. It is a single-sided gantry. We looked at every major laser brand on the market, and we liked the Prima Power the best.”

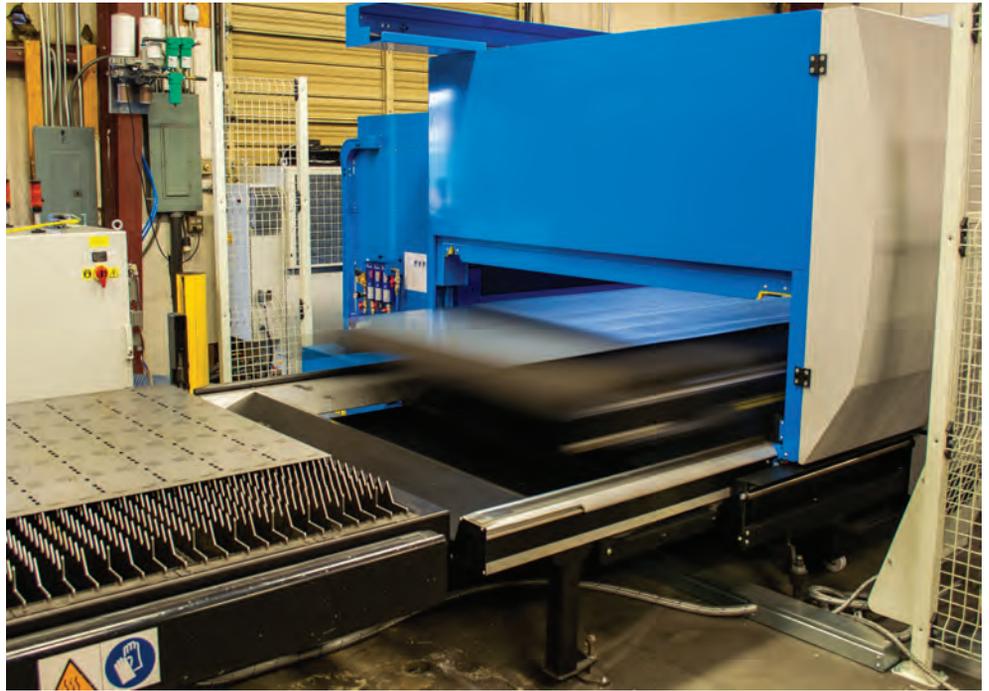
PLATINO FIBER LASER

Prima Power believes the Platino Fiber laser cutting machine is the perfect balance of innovation and experience. This product combines state-of-the-art efficient and ecological fiber laser technology, with the proven reliability and flexibility of the Platino platform. They report it is the right choice for sheet metal manufacturers looking for a production tool which is:

- Efficient, granting energy and maintenance savings
- Productive, particularly on thin and medium-gauge sheets
- Flexible, suitable for a wide range of materials, including highly-reflective metals
- Reliable and capable of meeting any production need, with a variety of automation modules
- User-friendly, easy to install, use, and maintain



The Platino Fiber laser can be used to cut a wide range of materials. Fiber lasers are more effective than other laser sources for cutting highly-reflective materials (e.g. aluminum alloys, copper, brass).



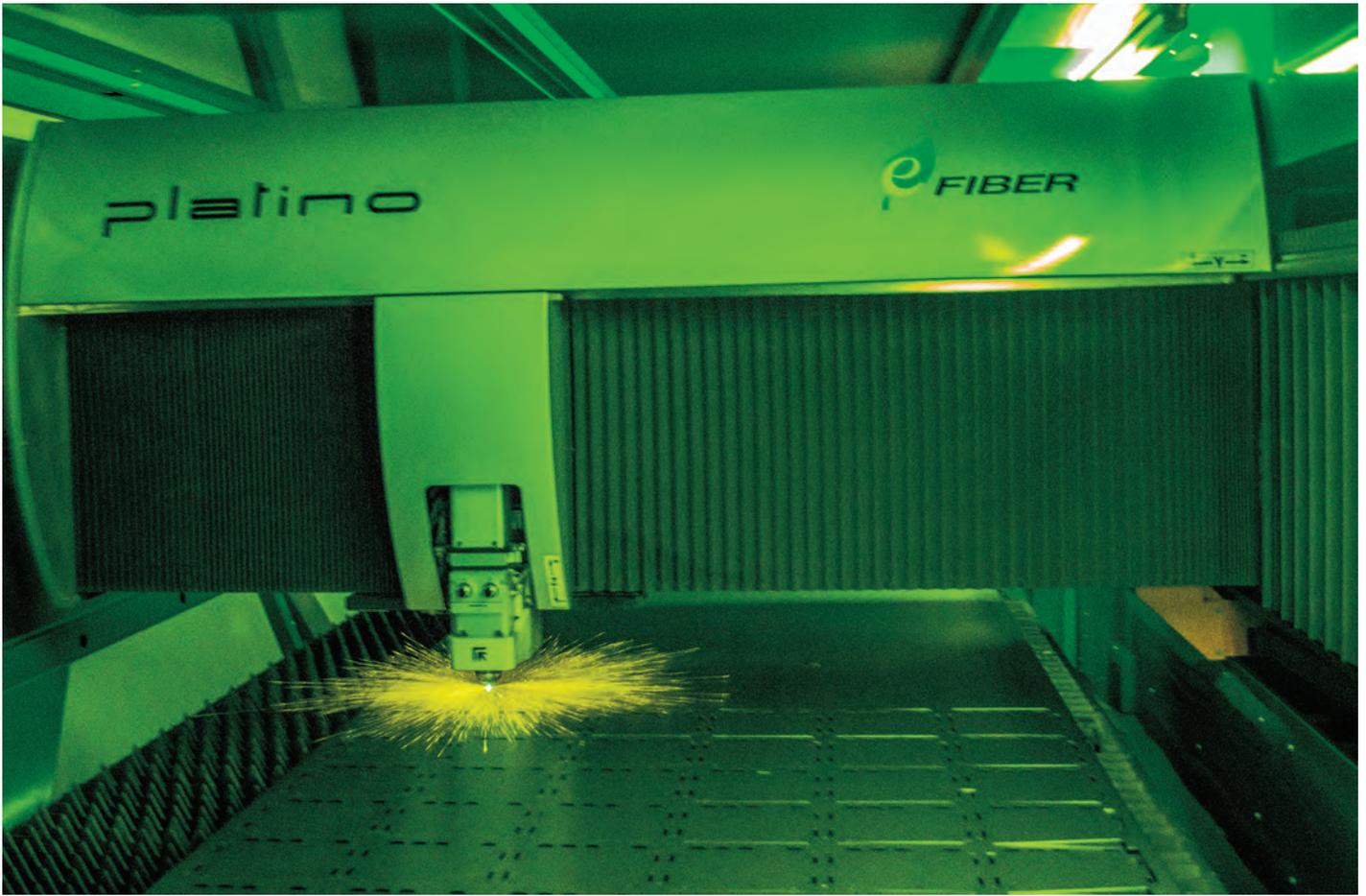
The Prima Power Platino Fiber has doubled the cut production in making parts at Metal Werks while increasing the company's quality.

The Platino Fiber laser can be used to cut a wide range of materials. Fiber lasers are more effective than other laser sources for cutting highly-reflective materials (e.g. aluminum alloys, copper, brass). The Platino Fiber cuts various thicknesses, up to 20 mm of mild steel, with efficiency and quality. Productivity increases particularly with thin and medium-gauge sheet metal.

OTHER FEATURES AND BENEFITS INCLUDE:

- Very low power consumption
- No laser gases
- Minimum maintenance and low consumables
- Floor space saving - compact automatic loading, unloading, and storage
- Easy and fast operating interface - fast setup
- Less energy, less waste of material, no laser gases
- Unique machine design using a synthetic granite frame offering the best thermal stability and vibration damping
- Cantilever design for maximum accessibility to the machine
- Protection cabin with roof, fiber-safe windows and fully-opening sliding doors: total safety, visibility of the work area and accessibility
- Single focusing lens system with automatic nozzle changer

The Platino Fiber laser has been developed to maximize customers' competitiveness according to their application. A series of option suites is dedicated to the different production needs:



Metal Werks uses the Platino Fiber to service customers in such industries as: medical, energy, technology, race car parts, fish hatcheries, retail store display/ point-of-purchase, food service, and many others.

SMART Cut, for fast cutting of thin sheets (up to 5 mm) allows a reduction of the cycle times up to 30%.

MAX Cut, for the fast cutting of medium-thick gauge sheets, makes it possible to reduce processing times up to 40%.

NIGHT Cut, for intensive production, grants a higher piercing and cutting process safety.

BEST PURCHASE COMPANY HAS MADE

“The Platino Fiber laser has zero maintenance when we compared it to the CO2 model,” continues Hobeck. “It has been a very good machine. Performance wise, we run it an average of 12 -15 hours per day. It is a 100%

healthy machine. Our biggest benefit from the Platino Fiber is that it has doubled our cut production in making parts while increasing our quality and is the best purchase we have made at this company. As far as risk/reward, the Platino Fiber was definitely a great purchase.”

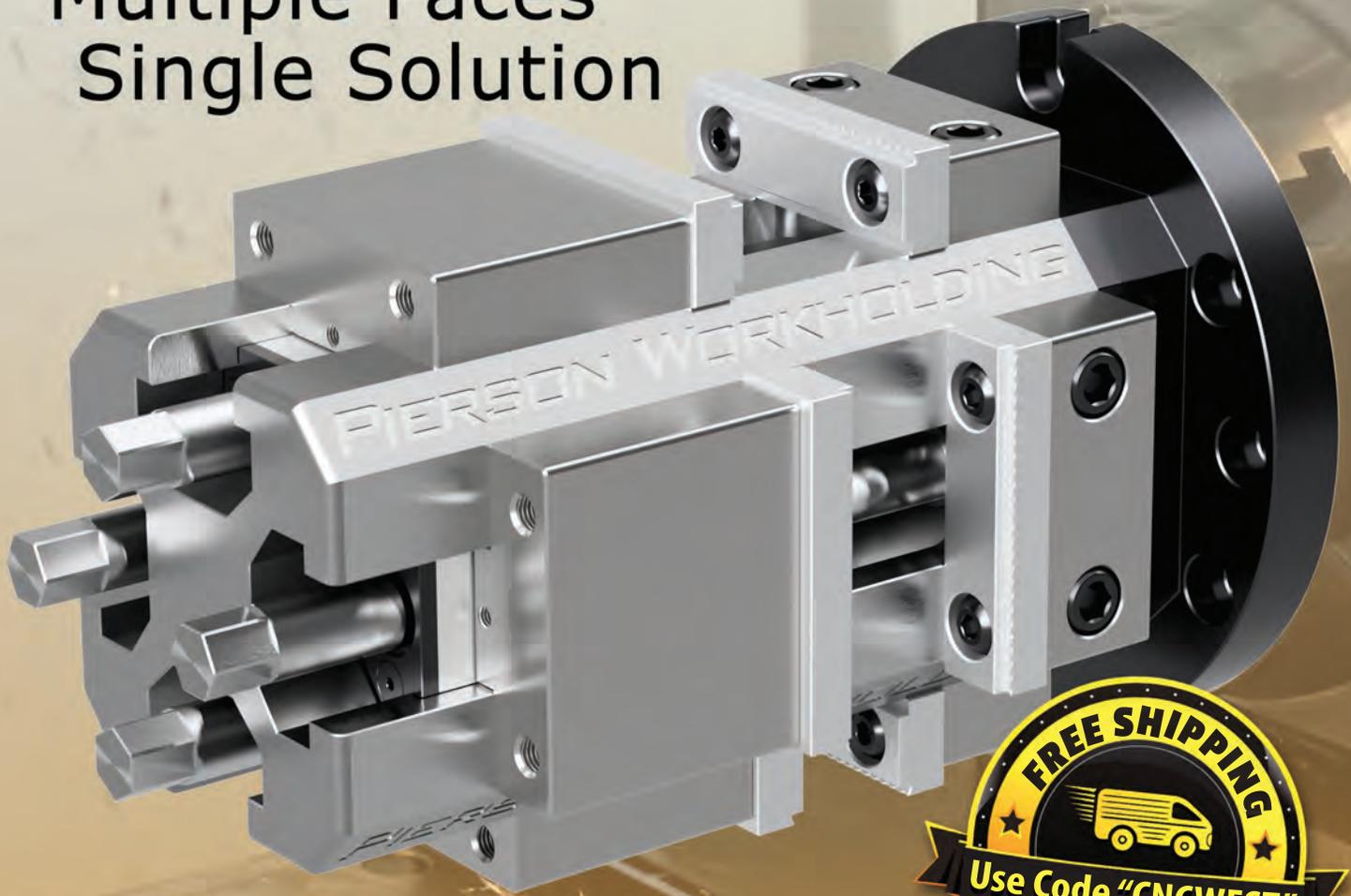
CUSTOMER SERVICE

“Prima Power customer service is by far the best,” concludes Hobeck. “If we have a problem today, we have a service tech the next day. The same goes for software.”

PIERSON

WORKHOLDING

Multiple Parts
Multiple Faces
Single Solution



The RotoVise

Give Your 4th Axis a Production Boost
Compact & Rigid... Learn more at:

WWW.PIERSONWORKHOLDING.COM

Nevada Home to Latest Haas Milestone – 200,000th Machine



Scott Gasich, VP of sales and marketing, Haas Automation, Inc. “The fact that it coincides with the 30th anniversary of the Haas VF-1 is proof that the Haas combination of value, performance, reliability, and support is just as important today, as it was in 1988.”

The UMC-750SS is a 5-axis, 40-taper universal machining center with 30” x 20” x 20” travels, 1200 ipm rapids, and an integrated high-speed, dual-axis trunnion table. The machine is equipped with a 15,000-rpm inline direct-drive spindle, a high-speed 40+1 tool side-mount tool changer, and Haas Automation’s powerful high-speed machining software.

Haas Machine Haas Automation, Inc. announced the installation of the 200,000th Haas CNC machine – another major milestone in the company’s history.

It was 30 years ago that a little upstart machine tool company from Southern California introduced its first vertical machining center at IMTS 88 in Chicago. The Haas VF-1 – affectionately known as the very first one – quickly became the industry benchmark for affordable CNC technology.

Today, Haas Automation is one of the largest machine tool builders in the world. The company’s 200,000th machine – a UMC-750SS universal machining center – rolled off the production line recently, and was installed at Vineburg Machining Inc., in Carson City, Nevada.

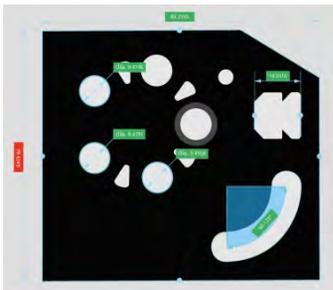
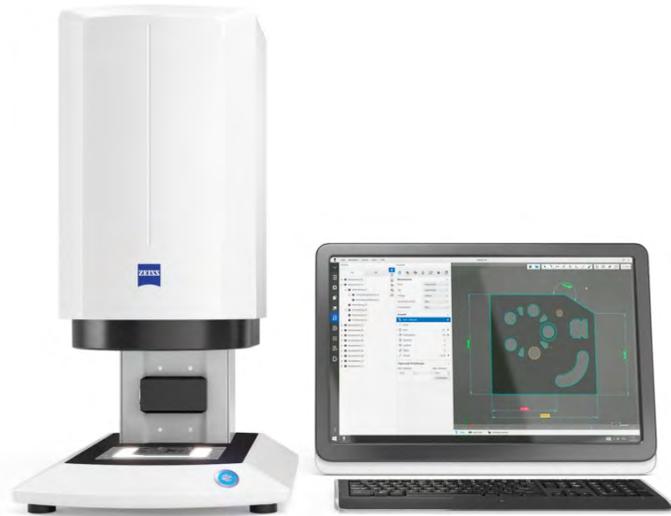
“We are honored to be the recipient of the 200,000th Haas machine, and couldn’t be happier,” said Gerd Poppinga, vice president/operations, Vineburg Machining Inc. “This is our 7th Haas 5-axis UMC, and they’ve been a game changer for us. We are focused on creating quality American-made products, and Haas machinery helps us keep that promise to our clients.” “Installation of the 200,000th machine is a very special occasion for Haas Automation,” said

To simplify job set up, the UMC-750SS features dynamic work offsets and tool center point control, and comes standard with Haas Automation’s wireless intuitive probing system. Haas products are distributed through a worldwide network of 170+ Haas Factory

Outlets (HFOs) – dedicated, independently owned Haas resellers who provide the industry’s highest levels of service and support. The 200,000th Haas CNC machine is supplied and supported by the Haas Factory Outlet (a Division of Selway) in Union City, CA. “It’s a great honor to be part of these celebrations,” said Keith Granno, HFO Union City.

“Vineburg is a valued customer and has invested in many Haas machines over the years. This celebration is a wonderful opportunity to recognize the achievements of all those involved, but the important thing is that the Haas machine will give the customer many years of profitable, reliable service.”

Press One Button That's all it takes!



All these features measured in less than one second

Introducing the O-Select:

- Put the part down, press the button, and your part is Measured. It's that simple!
- Zeiss Optics, second to none
- Collimated lighting.
- Computer, Software
- Auto Focus and Auto Lighting
- And More! Call for details

Priced at \$39,900

Compare to other brands for \$50,000 +

Call your local Zeiss Distributor for More information.

Northern California & NV

Precision Tool
Frank Black
408-774-1274
fblack@pretool.com

AZ, UT, CO, NM

Total Quality Systems
Todd Johnson
602-228-3863
todd@tqscorp.com

ID, MT, WY

King Machine
George Cobb
208-345-9600
George@kingmach.com

Oregon, Washington

Western Metrology Sales LLC
Tom Zitzelberger
503-559-5255
tom.zitzelberger@westernmet.com



One that makes all possible
Hanwha
CNC Swiss Type Lathe



Precision Processing
Technology



Enhanced C/T
and productivity



Multifunctional Model
XDII 12/20/26/38



High rigidity and efficiency model
XD42/45



Turret Type
STL 32/38

EXCEPTIONAL VALUE

Limited Time Offer, While Supply Lasts

Offer Ends Dec 31, 2018



▲ Included Chip Conveyor Not Shown.

Special Year End Promotion. Contact Your Dealer for Details.

NXV1020A

25 HP	12,000 RPM	CAT40 Tool	24T ATC
44"x20.47" Table Size		1,102lb. Load Capacity	

\$ Price Too Low to Show

GT-250B + Chip Conveyor

20 HP	426 FT.LB. Torque	3,500 RPM	10" Chuck
12T Turret	3.46" Thru Hole	3.07" Bar Capacity	

\$ Price Too Low to Show



YCM Technology (USA) Inc.

a subsidiary of YEONG CHIN MACHINERY INDUSTRIES CO., LTD.

www.YCMCNC.com

20540 Belshaw Avenue ■ Carson ■ CA ■ 90746

+1.310.735.8610

info.us@ycmcnc.com





CAD/CAM/CNC Perspective

By: Tim Paul

Manager- Manufacturing and Business Strategy

Tim.Paul@Autodesk.com

Instagram: OneEarTim

To comp or not to comp...

A few days ago, I was at a friend's shop. He is someone I would consider a competent machinist, programmer and business person. Most of his business involves rapid prototyping parts for Silicon Valley and Bay Area companies. Many of the parts are complex. After a part was done, I watched him measure a bore, do some math and then run back into his office and made some adjustments to his program. He reposted the program and re-ran the bore operations. I was a bit surprised and asked what he did. He explained that he needed to bore another .0015 larger, so he went into Fusion and changed the stock to leave to a negative to adjust the size. I always say that whatever process you have that makes good parts and is profitable is an acceptable process. But, I've since found out that there are a lot of people not using cutter compensation to adjust the size of their features. So, I thought it was time to write something about it.

What is cutter compensation? Cutter compensation (Cutter Comp) as most people use it can also be called Cutter Diameter Compensation (CDC). Cutter Comp provides a way for the tool path to be adjusted at the machine to compensate for tool size, tool wear and tool deflection. When I originally started programming by manually writing G-Code I utilized Cutter Comp to offset the tool by

types later.

Most CAM systems offer different compensation types. See Figure 2 for the list Fusion 360 offers. "In computer", "In control", "Wear", "Inverse wear" and "Off" are the common compensation types. "In computer" and "Wear" are the most common compensation types I see being used in industry. Here is a basic run down of the different types and why I would use them.

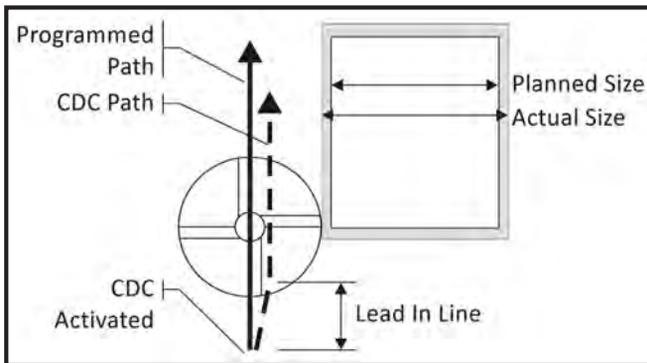


Figure 1

the radius. This allowed me to program tool paths centered along the part features rather than having to offset the tool path geometry to compensate for the tool size. Figure 1 shows how CDC Right (G41) causes the tool to move to the right of the programmed path to adjust the feature size.

Note: Cutter comp must be turned on or off with a line move, never an arc. Commanding G40/G41/G42 with an arc move will cause a diameter compensation error that will stop the program. Notice the line move labeled "Lead In Line" in Figure 1 as cutter comp is activated. The line move needs to be longer than the radius of the tool in the diameter offset table of your machine control. Remember this as I talk about "In control" and "Wear" compensation

In computer- The toolpath is offset from the feature geometry by the radius of the selected tool in the CAM software. I mostly use this when roughing, or when machining features I don't plan to adjust the size. Examples: When roughing I may have a .010" stock to leave allowance, but my tool size typically only varies less than .001". So, there is no need for tool compensation. Also, roughing cycles don't typically offer tool compensation options. When no compensation type is offered the default is "In computer" as the CAM system will offset the toolpath by the radius of the selected tool. I also use "In computer" when chamfering because I buy quality tools that have accurately defined tip diameters, I use consistently accurate tool offset measuring and rarely need to adjust my chamfer size.

In control- The toolpath centerline is output to follow the feature geometry. The output code includes a G41 (right comp), or a G42 (left comp) to offset the tool by the tool radius pulled from the diameter offset table in the machine control. Offset table example: A 1/4" tool should have .250 listed in the diameter offset table in the machine control. The output code also includes a G40 to cancel the compensation when the tool path is complete. "In control" is an older method of cutter comp. As I mentioned earlier I and many others used this type of cutter comp when programming parts by manually writing G-Code. This

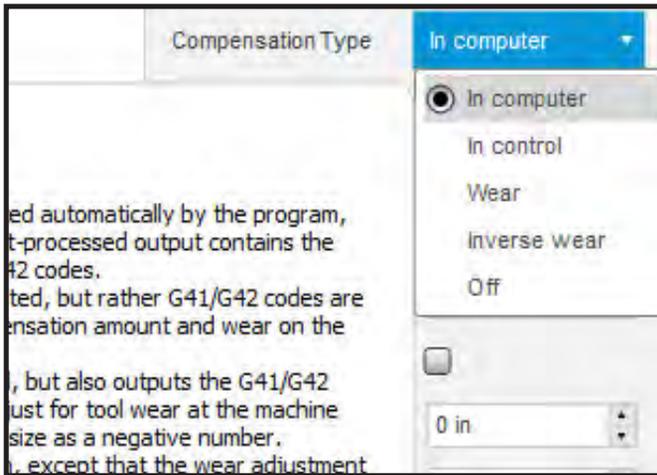
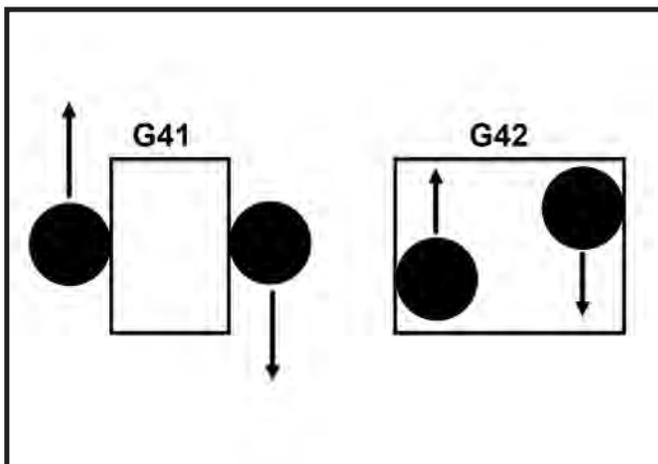


Figure 2

method saved a lot of time in having to manually calculate offset tool paths. It makes sense for shops to still use this method when they use both CAM software and manually write G-Code programs. Remember that the line move to turn on/off cutter comp needs to be at least the radius of the tool. This means that the lead in/out lines need to be at least .1251" for a 1/4" dia tool. To adjust the part feature size for a boss or a bore you would incrementally change the diameter offset table by the positive or negative amount you want to adjust the size. Example: A target of boss of 1.000" measured at 1.001" would require an incremental adjustment of -.001".

Wear- The toolpath centerline is output to be offset from the feature geometry by the radius of the selected tool in the CAM software. Just like with "In control" compensation type the output code for "Wear" comp includes a G41 (right comp), or a G42 (left comp) to offset the tool by the tool radius pulled from the diameter offset table in the machine control. The output code also includes a G40 to cancel the compensation when the tool path is complete. The difference is that the diameter in the offset table in the machine control is typically set to zero or the small difference between the programmed tool diameter and the actual measured diameter. Offset table example: a 1/4" diameter tool could measure .251" and the diameter listed in the offset table in



the machine control would be .001". Most shops that strictly use CAM software to generate toolpaths use "Wear" compensation as it gives more flexibility with smaller lead in and lead outs. If your 1/4" diameter tool measured .251" and your tool offset table had a .001" diameter you would only need a .0006" lead in/out to turn on/off your cutter comp. This allows you to get into smaller pockets and other confined areas. Adjusting the part feature size is done the same way "In control" is done as explained earlier. A common work flow to set up your tool for wear comp is to probe the length and diameter of your tool and then back out the programmed tool diameter from the offset table in the control, leaving only the difference between the programmed tool diameter and the measured diameter. With a well calibrated tool probe it's common to get very accurate parts with no compensation needed. One trick that is nice for people who have tool probes in their machines is to edit the tool probe macros to back out the tool diameter automatically. This requires a fairly good understanding of Macro programming and editing.

---LENGTH---		---DIAMETER---		FLUTES	DIA
GEOMETRY	WEAR	GEOMETRY	WEAR		
4.2694	0.	0.	0.	2	0.
4.1427	0.	0.0009	0.	2	0.
4.8647	0.	0.	0.	2	0.
3.4314	0.	0.0008	0.	2	0.
4.5873	0.	0.	0.	2	0.
4.5250	0.	0.	0.	2	0.
3.6343	0.	0.0004	0.	2	0.
4.6528	0.	0.	0.	2	0.
4.6822	0.	0.0006	0.	2	0.
5.4806	0.	0.0008	0.	2	0.
3.7383	0.	-0.0001	0.	2	0.
0.	0.	0.	0.	2	0.
8.0439	0.	-0.0013	0.	2	0.
4.7440	0.	0.	0.	2	0.
3.2019	0.	0.	0.	2	0.
5.5200	0.	0.0011	0.	2	0.

Years ago, Henry Llere from Selway helped me edit my macros to automatically do this. It's a small thing that has saved me hours over the years. This is a great example of why you should have a good relationship with your machine tool partner.

Inverse wear- This is identical to "Wear", except that the wear adjustment is entered opposite of wear. Example: If you needed to make a boss .001" smaller you would change the diameter offset table incrementally +.001. This is driven by settings in the machine control and is less common than standard wear comp.

Off- The tool path centerline follows the feature geometry on center. The output code has no compensation codes. This is commonly used for things like tracing text with an engraving tool.

Nothing I'm writing here is revolutionary or hasn't been written about countless times. My hope is to get people that aren't using cutter comp, or don't have a solid understanding to learn more about it and consider using it. Beyond cutter comp, we all have details about our trade that we could and should learn more about.

Precision Workholding System Extends Machine Capabilities

According to HAINBUCH America Corp., although precision workholding systems are customarily purchased to ensure accuracy in the manufacture of complex parts with demanding tolerance requirements, users are increasingly discovering that their systems can generate not only improved performance but significant cost savings in other areas.

As manufacturing has become more competitive and purchasing justification parameters have changed, both job shops and OEMs are finding themselves caught between a rising demand for precision performance and the high cost of the machines that can deliver it. The company reports that a number of HAINBUCH's customers who originally purchased the system to improve workholding have discovered that its inherent capabilities have enabled them to achieve significant capital expenditure savings by buying entry-level or lower-cost machines and subsequently increasing their capability through the addition of precision workholding.

Michael Larson, marketing director at HAINBUCH America Corp., said, "In manufacturing, it is the results that count. End users do not care whether their part was turned on an expensive machine or a more economical one, as long as it meets their standards for metrics and quality. By replacing a standard chuck with a HAINBUCH system, users achieve the tolerances they desire with the added benefit of greater flexibility. Our fast-change feature improves productivity by eliminating long changeover times, and our MANDO Adapt ID expanding device delivers high precision I.D.

performance. By upgrading a conventional turning center with our system, the customer not only adds higher precision but greater versatility in both I.D.

and O.D. machining over a wider range of parts sizes."

Another area in which HAINBUCH users are discovering unplanned economies involves the replacement of standard chucks with HAINBUCH systems on

older turning centers. In many cases, customers who experience dramatic improvement with the installation of their first HAINBUCH system, have opted to retrofit other existing machines in the shop with additional HAINBUCH systems-sometimes varying the size range so as to accommodate larger or smaller parts than the original installation. In a number of cases, planned machine replacements have been postponed or cancelled.

An especially dramatic cost saving application involves the development by HAINBUCH, Okuma and other members of the Okuma Partners in THINC network of a discrete 5-axis machining system that could be removed from the machining center when not in use. Michael Larson stated, "With 5-axis fast becoming the standard of the industry, many shop owners are experiencing sticker shock at the cost of dedicated 5-axis machines. Our team solved

this problem by developing 5-axis capability that could not only be used with an entry-level or older machining system, but that could be easily removed when not in use or transferred to another machine.

"The result of their efforts was prominently featured at the Okuma Winter Showcase in December of 2017. Team members pointed out that the advantages of the discrete 5-axis system derived from not only savings on a dedicated machine but from the ability for any number of shops to extend their machining capabilities into areas such as aerospace and defense, medical and energy applications."

Innovation in precision workholding systems seems to know no bounds.

Mr. Larson observed, "At present, we are working with a number of shops that want to adapt our rotational workholding system for applications on machining centers and multi-purpose machines. They have come to appreciate the multiple benefits of our systems that extend beyond workholding and encompass greater flexibility, lower cycle times and increased production."





U S Shop Tools *Direct!*



PART-OFF TOOL SETS



NEW ITEM!



- Buy the kit and save time and money!
- Compatible with industry standard brands
- Sets include tool block, part off blade and (10) CVD coated gen. purpose carbide inserts, suitable for steels/stainless with 0° lead angle

SAVE **10% OFF**
Mfg's List Price!

Blade Size	Blade Ref #	Insert Size	Block Ref #	Part Number	Mfg's LIST	SET Price
1.02" 26mm	26-3	GTN-3	19-5	BI-6895-903	\$ 206.25	\$185.63
	26-4	GTN-4	3/4" shank	BI-6895-904	\$ 209.00	\$188.10
	26-5	GTN-5		BI-6895-905	\$ 216.15	\$194.54
1.26" 32mm	32-3	GTN-3	25-6	BI-6895-923	\$ 217.80	\$196.02
	32-4	GTN-4	1" shank	BI-6895-924	\$ 220.55	\$198.50
	32-5	GTN-5		BI-6895-925	\$ 228.25	\$205.43

TOUCH OFF GAGE



EDGE TECHNOLOGY

NEW DESIGN!



- Accurately establishes tool length offsets for CNC milling machines
- The contact face is lightly spring loaded to protect against overrun
- Contact face diameter is 0.250"
- Offset height 4.000 in (101.6mm)
- Large 2.2" indicator face
- Gage graduations 0.001"
- Repeatability 0.0002"
- Body and contact face are red anodized 6061-T6 aluminum
- Base: 2.4" W x 1.3" D x 4" H

TOUCH OFF GAGE
Part # **EDGE-52000**
Mfg's List: \$124.99
\$99.99 ea



L-WRENCH SETS

ColorGuard™ BALL END

SAVE OVER **21% OFF!**
Mfg's List Price

- Color-coded tools can be distinguished at a glance
- Superior rust protection finish
- Sizes are stamped on the tool
- Ball End inserts into screw at a 25° angle



MADE IN USA

No. of Pieces	Includes Sizes:	Part Number	List Price	OUR PRICE
13	.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, (Inch)	BO-69637	\$ 35.76	\$ 27.93
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm	BO-69699	\$ 28.98	\$ 22.64
22	Inch & Metric Sets	BO-69499	\$ 61.48	\$ 47.95

WORK GLOVES



- Leather palm, forefinger and thumb
- Safety cuff protects wrist
- Keeps your hands safe
- **20% OFF** 12 pairs or more

WORK GLOVES
Part # **GLV-1160**
1-11 Pairs **\$2.99/pair**
12 or More **\$2.39/pair**

QUANTITY DISCOUNTS!

EXL DEBURRING WHEELS

- The top choice for high performance and durability
- Use to clean, finish, debur or polish all types of metals and composites
- SC-Silicon carbide
- AO-Aluminum oxide

Scotch-Brite

Take An Extra **10% OFF!**

Mention Code "3M-2018"



OD x W x AH	Density	Mineral Type	Grade	Max. RPM	Part Number	Reg. Price	SPECIAL PROMOT!
6" x 1/2" x 1"	8	SC	Fine	6,000	3M-09548-6	\$ 53.58	\$ 48.22
1"	9	SC	Fine		3M-05790-3	\$ 53.58	\$ 48.22
6" x 1" x 1"	8	AO	Medium	6,000	3M-13617-2	\$ 75.01	\$ 67.51
	8	SC	Fine	6,000	3M-09549-3	\$ 75.01	\$ 67.51
	9	SC	Fine		3M-05132-1	\$ 75.01	\$ 67.51
8" x 1" x 3"	8	AO	Medium	4,500	3M-13619-6	\$ 93.81	\$ 84.43
	8	SC	Fine	4,500	3M-09551-6	\$ 93.81	\$ 84.43
	9	SC	Fine		3M-05135-2	\$ 93.81	\$ 84.43



5C COLLET STOP



- Fits standard 5C collets with internal threads
- 6 hardened steel stop rods included-1/16", 1/8", 3/16", 1/4", 3/8", 3/4"
- 3/4" stop rod keeps parts square to spindle axis
- Proprietary locking system prevents the possibility of the stop rod slipping in the body
- Body made from red anodized 6061-T6 aluminum
- Body fits a 7/8" wrench

5C COLLET STOP
Part # **EDGE-45000**
Mfg's List: \$49.99
\$29.99 ea

NEW ITEM!



BENCH GRINDERS

- Heavy duty capacitor motors
- Extended wheel-to-wheel clearance
- Large, adjustable tool rests
- Adjustable eye shields and spark guards
- Single port dust collection system on selected models
- OSHA compliant

PEDESTAL GRINDER STAND:
Part #: **PALM-70101**
\$129.00 each

Wheel Dia	Shaft Dia	Description	Part Number	Price
6"	1/2"	1/3HP, 115/230V*	PALM-82061	\$116.00
6"	1/2"	1/3HP, 115/230V	PALM-82062	\$133.00
8"	5/8"	3/4HP, 115/230V	PALM-82081	\$232.00

*no dust collection

INDEXABLE CHAMFER MILLS

- Can be used for countersinking, ID chamfering and facing, as well as exterior chamfering
- Features Weldon shank
- Metric sizes also available
- 16mm parallelogram insert provides for extra length of cut
- Additional sizes available
- Insert for steels/stainless

Min Dia	Max. Dia.	Chamfer Angle	Included Angle	Depth of Cut	Part Number	Price Each
3/4" Shank-2 Flute						
0.750	1.303	30°	60°	0.479	CHM-750-30-ET	\$101.05
0.688	1.414	41°	82°	0.418	CHM-688-41-ET	\$101.05
0.688	1.471	45°	90°	0.391	CHM-688-45-ET	\$101.05
0.500	1.458	60°	120°	0.277	CHM-500-60-ET	\$101.05



MADE IN USA



U S Shop Tools
CALIFORNIA • MICHIGAN

Distributor Program Available. Please Call For More Information.

GET YOUR FREE COPY OF OUR ALL-NEW 2019 MASTER CATALOG

Order TOLL FREE: (800) 243-7701
Fax TOLL FREE: (800) 342-3311
Email: sales@usshoptools.com
www.usshoptools.com

Industry News



Jergens Inc. Partners with Machining Cloud

Jergens Inc. announces that over 6,500 workholding products are now available on MachiningCloud. Included in the offering is a broad range of the company's core products including FixturePro®, Drop & Lock™, Zero Point System (ZPS), Ball Lock® and OK Vise®. MachiningCloud is a product data provider for cutting tools, CNC machines and workholding.

The Jergens MachiningCloud partnership utilizes the convenience of cloud-based technology, which enables customers to optimize the way they gather information for their manufacturing operations without having to search through catalogs. The integration will help Jergens' customers increase their productivity by providing instant access to up-to-date 3D CAD models for the company's line of workholding products.

"Jergens is thrilled to partner with MachiningCloud to further syndicate our product data to the marketplace electronically. Jergens has tremendous product breadth and depth and MachiningCloud can facilitate numerous options to the shop floor. This platform will allow us to support more customers towards their goal of manufacturing efficiency", states Bob Rubenstahl, general manager for Jergens Inc.



RÖHM Products of America Announces Acquisition of Master WorkHolding

Rohm Products of America Inc., has announced that it has acquired Master WorkHolding Inc. The acquisition enables Rohm to combine its 100 years of workholding experience with Master WorkHolding's 30 years of experience to deliver a truly complete range of standard and custom workholding products and automation solutions for all CNC equipment.

Established in North Carolina in 1988, Master WorkHolding has specialized in the design and manufacture of custom prismatic workholding for manufacturers across the continent and around the world. Following the acquisition, the company will serve as Rohm's North American manufacturing entity and provide the company with prismatic clamping fixtures.

Heller Machine Tools Wins the General Motors 2017 Supplier of the Year Award

For the second year running Heller Machine Tools has been awarded the prestigious General Motors 2017 Sup-

plier of the Year within the category of Indirect Material and Machinery.

The award was presented for the Heller RFK and DRZ ranges of crank shaft machinery, engineering and applications which are being used by GM in many global manufacturing plants, it's also interesting to note that Heller was the only metal cutting machine tool company chosen for an award this year.

Since the machine installations, GM has seen significant reductions in crank shaft production costs along with consistency of accuracy and reliability, all of which contributed to the receiving this award.

General Motors has over 20,000 suppliers globally and this year only 132 of these suppliers were presented with awards within 11 different categories, the requirements for the awards being very detailed with a major focus on quality, innovation, delivery, performance, safety, commercials and customer support.

Stephen Pegram, vice president of Sales for Heller, said "GM are using the very latest technology to produce several ranges of crank shafts, our teams have worked and ensured our projects have been successful and to the original timelines, our thanks to GM for the recognition and award.

Methods Machine Tools Announces Partnership With Niigata

Methods Machine Tools, Inc., has announced it has entered into an agreement to represent Niigata Machine Techno USA, Inc. throughout the U.S., Canada and Mexico. Niigata is a world leader in horizontal machining centers.

"We are very pleased to announce this partnership," said Jerry Rex, presi-

Industry News

dent and CEO of Methods Machine Tools, Inc. “The superior precision and dependability of the Niigata HMC line makes it an excellent addition to our high performance machining solutions.”

Niigata’s highly precise, four and five axis HMC’s and boring mills range from the heavy-duty, geared head, box-way HN and HN-D series to high production, roller guideway N7 and SPN series to the large work envelope, hybrid guide system, HN-S series. Machines that provide long reach quill / bar spindles and the ability to perform turning operations on large stationary parts (FC-Facing Center) are a hallmark of Niigata’s HN-D series. Next size-up pallets, field expandable ATC and pallet magazine systems are available through-out the line.

The new Niigata N7 model HMC has a stationary and ultra-rigid “box in box” column design, providing optimum cutting performance over the entire Y-axis stroke. The HN-S Series from Niigata has a large work envelope and features high rapid traverse rate and long axes strokes. A new hybrid guideway system has a large, ultra-rigid roller guide block on X and Z axes. The Y-axis has a hardened and ground box-way system.

The box-way HN, HN V guideway and HN DII series feature super-high torque spindles and up to 126” max work swing diameter. Niigata HN-5X five axis series HMC’s offer a highly rigid, heavy-duty box-way design solution for 5-axis, high precision machining of complex parts.

The HN-FC Facing Center Series, provide heavy-duty W-Axis and U-Axis spindles (combined) for long tool / long reach and large stationary part turning operations. The HN-BAR and HN-S-BAR Series configurations provide unique, application driven,

5.12” diameter bar / quill spindles in a true machining center format.

The Niigata SPN Series features a double box design and offers innova-

tive T-shaped casting and a stationary column for accurate, consistent machining.

VERICUT® CNC Machine Simulation Software

Running your first part without VERICUT...



- **Optimize** feed rates for faster cycle times
- **Test** alternative machining strategies virtually
- **Speed up** new CNC machine implementation
- **Reduce** collisions, scrapped parts & prove-outs

Right the first time. Every time.
9000 Research Dr, Irvine, California 92618
(949) 753-1050 • info@cgtech.com

30 YEARS
CGTECH.com

Industry News

CNC Software, Inc. Appoints New Western U.S. Territory Manager

CNC Software, Inc., the developers of Mastercam, announced that

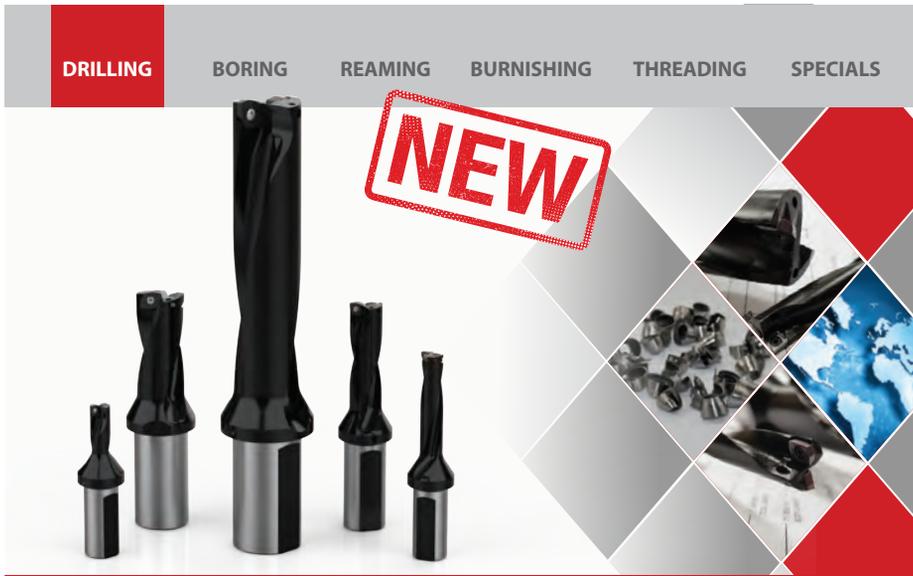
Mike Bebout has been hired in the new role of Western U.S. territory manager to further develop the company's distribution channel and identify areas for growth and improvement.



Bebout comes to CNC Software with experience managing large corporate accounts, and with a wealth of experience within the CAD/CAM industry, gained in roles with PTC, Vero, Autodesk, and more recently, Tebis. Based in southern California, he joins CNC Software as the Western U.S. territory manager to continue the success that the company has had within that region.

"I am excited to start a new challenge at CNC Software, working with the sales team and the distributors in the Western U.S. to further grow an already strong territory," said Bebout. "I look forward to bringing my background in manufacturing to the Mastercam customers and the channel partners to expand our reach within the Western U.S."

Doug Nemeth, director of sales, Europe and the Americas, commented, "As we continue to grow our brand and presence, we are thrilled to have Mike join our ever-expanding team. He comes to us with not only a very solid background in CAD/CAM software sales and programs, but with experience that will help benefit CNC Software worldwide."



4TEX™ Drill

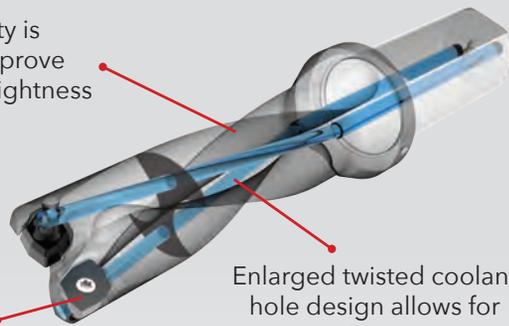
The PROOF is in the CHIPS

Ø 0.472" - 1.850" (12.00mm - 47.00mm) | 2xD, 3xD, 4xD Lengths

Holder rigidity is designed to improve hole size and straightness

4-sided indexable inserts reduce your cost-per-hole

Enlarged twisted coolant hole design allows for superior chip evacuation



Competitor



4TEX™



CONTACT US TODAY

Let us help you find the best solution to your most challenging holemaking applications.



Holemaking Solutions for Today's Manufacturing

1.330.343.4283 | www.alliedmachine.com

Industry News

Fanuc America to Expand Headquarters with New Facility

Fanuc America Corporation has announced plans to construct a new facility in Auburn Hills, MI, that will be used for engineering, product development, manufacturing and warehousing. “Robotics and automation are key drivers of manufacturing competitiveness,” said Mike Cicco, president and CEO, Fanuc America. “We are looking forward to expanding our facilities here in Oakland County to keep pace with the growing demand for automation.”

Fanuc America’s North Campus is scheduled to open in the fall of 2019.

Mitsui Seiki Marks 90th Year

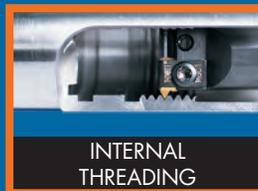
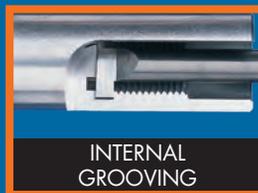
Mitsui Seiki, world-renowned for its ultra-precise machine tools providing high volumetric accuracies, celebrates its 90th anniversary this fall, and one of the ways the company will mark it was with a champagne toast during IMTS 2018.

“Looking back on our history, the very foundation of precision measurement – gage blocks – were among our first products,” said Robb Hudson, CEO of Mitsui Seiki USA, Inc. Indeed, in 1928, the company manufactured measuring devices, such as gage blocks and micrometers. By 1935, the company developed its first jig boring machine. It was the first in Japan, sparking the machine tool industry there. Industrialists referred to it as Japan’s first “mother” machine because other machine tool builders used it to make their critical precision components. Jig boring machines are often referred to as “mother” machines to this day. Flash ahead to 2018, and the company continues to design and build jig borers, jig grinders, 3-, 4- and 5-axis CNC vertical and horizontal machining centers – including hybrid variations – and internal and external thread grinders.

Mr. Okuda, president of Mitsui Seiki Kogyo Co., Ltd. in Japan, looks upon this milestone anniversary as an opportunity to focus on “internal reformation” to continue to raise quality, productivity and reduce lead times from the headquarters factory, located on the outskirts of Tokyo. He also has goals to expand into other markets, such as mold and prototype sectors.

“It was the perfect time to have this significant milestone anniversary to celebrate,” continues Mr. Hudson. “Manufacturing is abuzz with activity, and we have many opportunities to develop new and efficient machine tool solutions for our sophisticated customer base. At IMTS this year launched a new VMC that also finish grinds and we are also pursuing the Blue Arc™ technology in a significant and dedicated manner with GE. The way I look at it is we are positioning ourselves right now for the next 90 years.”

With over a million standard tools, we’ve got the “ings” covered.



THINBIT®

888 - THINBIT • 888-THINFAX
THINBIT.COM

Made in the U.S.A.
Since 1964

Industry News

Mastercam Retains Top Ranking Worldwide

According to CIMdata's latest report, Mastercam is the number one CAM software used worldwide. CIMdata also ranked Mastercam's global support network as the largest in the field of CAM.

Mastercam topped the list in both the educational and industrial categories, with nearly twice as many installed seats as the nearest competitor*. Meghan West, President and CEO of CNC Software, Inc., stressed the importance of Mastercam's leadership in both categories.

"Mastercam provides incomparable access and support for shops and programmers. As a manufacturer, if you're looking to expand, you can find

experienced talent, and as a programmer, you can always find a shop that uses Mastercam.

"With more shops using Mastercam and more schools teaching Mastercam, students are being prepared for a fluid transition to the job market with practical skills and reduced learning curve. This is a win-win situation for education and industry to contend with the skills gap and fill the glut of jobs available in manufacturing."

West also shared that Mastercam's dominance in the educational market, more than the next two competitors combined*, is a strong indicator of continued leadership in the field of CAM software.

"When we say that Mastercam is Shaping the Future of Manufactur-

ing™, we are talking about more than technological advancements. We are talking about our commitment to an incredible array of schools, educators and organizations, working with our global support network to make sure students of all ages are introduced to opportunities in manufacturing and taught the programming skills necessary for meaningful employment."

Toyota Racing Development Names GF Machining Solutions an Official Technology Partner

Toyota Racing Development (TRD), U.S.A. has named GF Machining Solutions, as an Official

NEW KOMA PRESETTERS

Ergonomic design allows for easy use when measuring larger tooling.

Larger tool capacity & the ability to capture a multitude of data about the cutting tools.

New state of the art tool management software. Complete with PC on board, and full capability to communicate directly with CNC machines.



Tool wear & complex geometric features are easily measured & exported in a variety of formats.

Large HD screen & user friendly interface allow operators of all skill levels to set tooling.

From entry level to advanced models, Koma Presetters are designed to reduce set up time & optimize manufacturing performance at a price every shop can afford.



VISIT OUR WEBSITE to see the full line up

KP
KOMA PRECISION

Industry News

Technical Partner. After adding GF's high-performance manufacturing and automation technology, TRD has accelerated production of key aluminum and cast-iron components for their 800-horsepower racing car engines — including the engines used in the #78 Furniture Row Racing Toyota Camry of Monster Energy NASCAR Cup Series driver and 2017 series champion Martin Truex Jr.

Approximately 200 TRD employees in Costa Mesa, California design and build race engines for NASCAR teams that field Toyota Camrys in the Monster Energy NASCAR Cup series. To keep pace with a grueling 38 race annual schedule, strict series regulations, and a highly-competitive racing environment, TRD designs, develops, manufactures and builds more than 300 engines in-house, annually. Precision, quality and speed of manufacture are the pillars of performance for TRD's manufacturing operation.

TRD began their initial relationship with GF Machining Solutions in 2014 when they added a fully-automated production cell to their manufacturing facility. Comprised of seven 5-axis machining centers (six MIKRON HPM 800 U HD machines and one MIKRON HPM 1350 U) connected to a shared pallet pool system, the system uses a rail-guided robot to load the machines from more than 80 open pallets along a 32-meter track.

EZset LLC Names Hi-Speed Corp. Exclusive West Coast Manufacturer's Representative

EZset LLC announces it has officially named Hi-Speed Corp. (Thousand Oaks, CA) as the exclusive West Coast manufacturer's representative for its high-precision, German-built line of tool presetting machines. Hi-Speed has representatives available to

assist machining customers with any and all presetting needs throughout California, Arizona, Nevada, Washington, Oregon, Utah, Idaho, and Montana.

EZset tool presetting machines use an advanced vision system and image-processing software to measure cutting tools in order to meet highly accurate machining needs. The results for manu-

facturing organizations are a notable rise in final-part quality and process efficiency, including extended tool life. Four models are available with a variety of measurement ranges, and image-processing variations: ICbasic, IC1, IC2, and IC3.

“The Hi-Speed Corp. sales team has already completed their factory training and are working with custom-



Expert high-speed & 5-axis software
AUTODESK®
POWERMILL®

www.autodesk.com/products/powermill/free-trial

Expert Machining Software

RAMLAB and Autodesk have manufactured a ship propeller thanks to a new hybrid process combining wire and arc additive manufacturing using industrial robotic arms and subtractive machining and grinding techniques. As a main software partner, Autodesk has played a key role in developing this innovative hybrid manufacturing approach.

Both teams have mainly relied on Autodesk PowerMill's extensive CAM know-how to develop this new technology.

See what's new in PowerMill 2019.1
<https://www.autodesk.com/products/powermill/new-features>

Industry News

ers to help them achieve cost savings and productivity goals by measuring tools offline and maximizing production time on their machine tools,” says Harold Wall, Hi-Speed Corp. general manager. “The time savings customers experience by avoiding the need to measure tools on the machine is dramatic, and there is no better presetter to accomplish this than EZset.”

EZset tool presetters are made in Germany and feature top-quality componentry such as Heidenhain glass scales, Bosch pneumatics, and THK guides. EZset LLC has highly skilled field service engineers spread out across North America to provide the best possible service to its customers

AMF Marking and Cleaning Tools Now Available From Heimatec USA

Heimatec Inc., the North American importer of precision live tools, angle heads and multi-spindle drill heads, announces immediate availability of marking and cleaning tools from its European partner Andreas Maier, under the AMF brand. The announcement was made by the president of Heimatec Inc., Preben Hansen. “This development brings additional products to our current customers and responds to the market needs for quality marking and cleaning tools for workpieces in CNC machining,” he observed.

AMF marking tools are used for the permanent marking of workpieces made from all types of metal and thermoplastic substrates. They are typically mounted in Toolholders for use in the spindle of a CNC machine tool. Marking surfaces is achieved by a combination process of pressure and material displacement. These tools can function with or without rotation and usually without height adjustment on the spindle. Very thin material as well as cylindrical workpieces can be easily marked, using AMF tools.

AMF cleaning tools are used for the cleaning of workpieces, tooling and the interior of CNC machines. They are typically clamped in Toolholders and mounted directly onto the machine

The Global Leader in Manufacturing Innovation

ADVANCED TOOLHOLDERS



High productivity **Advanced Toolholders** have greater rigidity and higher accuracy which allows more aggressive material removal and part precision.

QUICK CHANGE FLEX COLLETS



A wide selection of **Quick Change Flex Collets & Chucks** to handle any work-holding challenge. Can be switched within 10 seconds.

MODULAR CNC MACHINE TENDING PLATFORM



ASK US ABOUT OUR NEW 10DER MODULAR CNC MACHINE

ASK US ABOUT OUR POST-IMTS SPECIALS!



847.367.4800 | sales@lyndexnikken.com
www.lyndexnikken.com

Connect With Us!



Industry News

spindle. Using through spindle coolant or compressed air, the cleaning tool removes swarf and other debris from workpieces, clamping tools, rotary tables and other fixtures before the next workpiece blank is loaded. The machine spindle can remain stationary or in slow rotation mode during the cleaning process. Models are available in horizontal or vertical styles. Kits can be furnished complete with tools, gauge and all fastening hardware or sold separately.

Kitagawa-NorthTech Acquires Exclusive Distribution of Kawatatec

Kitagawa-NorthTech, Inc. has acquired the exclusive distribution, sales

and marketing rights for Kawatatec Nobel branded chucks for North America. "Due to their rugged build and extremely large size, the Nobel brand of chucks now available from Kitagawa-NorthTech have become synonymous with oil and gas industry applications over the last three decades. Nobel chucks are popular in oil and gas country applications because of their unique features, forged steel bodies, large bore size, time-tested performance and reliability in these demanding applications," said a Kitagawa spokesperson.

The Nobel large power, manual and special VTL face plates and chucks are designed for large bearing, aerospace, power generation and large commercial work, while the Nobel oil country chucks are suited for

down-hole drilling, instrumentation, fracking and refining.

Kevin Bennett, VP of sales and marketing, said, "Kitagawa and Kawatatec are two like-minded companies. We both share a similar heritage and approach to design, manufacturing principles and quality standards, so we believed the Nobel brand to be an excellent addition to join our family of workholding solutions. Our comprehensive family also includes standard, advanced and engineered workholding and custom engineered workholding solutions for rotational, stationary, grinding, turning and milling.

Acquiring the Nobel brand distribution rights for North America also reinforces our vision and promise to customers to be their turn-key workholding supplier in North America."



Nikon Inspection Performance & Reliable Workholding Solutions



Improving your productivity, together.

R&R's range of modular and custom designed fixturing for use with CMM and vision systems, allows you to create and set-up parts for inspection within minutes. R&R Fixtures provides a solution which can improve the throughput, reproducibility and accuracy of your inspection process.

Nikon Metrology technology, combined with R&R Fixtures expertise in metrology fixturing, will help you to increase your efficiency, reduce fixturing costs and become more competitive.



Nikon Metrology

nikonmetrology.com

(800) 552-6648

sales.nm-us@nikon.com

New Products

Mitutoyo America Corporation Introduces U-Wave fit

To Data Management Systems Product Line Mitutoyo America Corporation announces the release

of U-Wave fit to its data management systems product line.

The U-Wave fit is a new, compact attachment for Mitutoyo calipers and micrometers that transmits measurements wirelessly to a PC using the



digimatic protocol. The elimination of long, cumbersome data cables help improve measurement efficiency and speed while maintaining precise accuracy. The unit's user-friendly interface allows data to be loaded into any software product that accepts keyboard input.

Named for its comfortable, ergonomic design, the U-Wave fit quickly and easily installs for over 1,600 different Mitutoyo calipers and micrometers. The unit's design allows the operator to handle and use the tool with comfort and confidence without sacrificing accuracy.

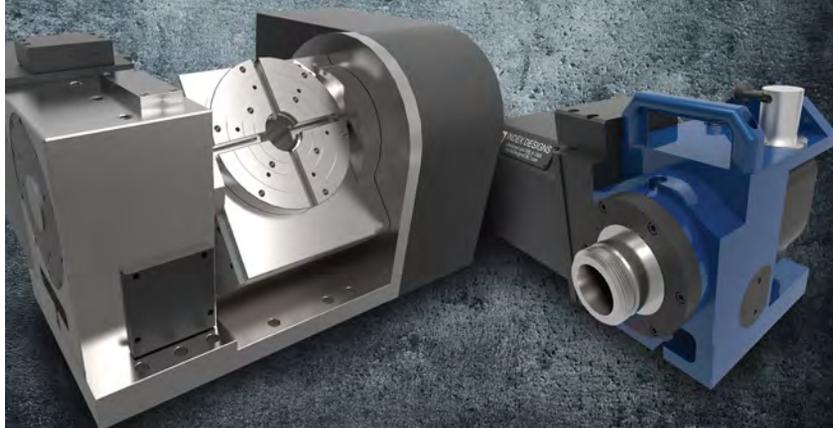
The U-Wave fit is available in models including IP67 and buzzer types for 4", 6", 8" and 12" IP67 calipers, standard calipers and coolant-proof (IP65) micrometers. During standard operation, the U-Wave fit has a wireless range of 60 ft. and its 220mAH battery lasts for over 400,000 transmissions. The Digimatic2 communication format is high resolution and sends polarity and the unit of measure.

Free Promotional Items Standard with UNI5X-400 5 axis CNC VMC —Chevalier

As 2018 comes to an end, Chevalier will include free set up and training and a 2-year factory warranty on the machine and control. In addition to these items, the Chevalier 3-year^[1] preventative maintenance program is also included. A Chevalier technician, every

The Affordable Solution

Rotary Tables & Indexers, built to order with brand-name motors and cables to match your CNC machine.



Whether your CNC control has AC or DC drives, uses Fanuc, Mitsubishi, Yaskawa, Glentek, Siemens, Baldor, etc. we can build your rotary table with a compatible motor for just about any 4th axis-ready machine on the market! If you need help getting a machine 4th axis ready, we also supply the parts you need; such as amplifiers, drives, cables and connectors.

If your application does not require simultaneous 4th axis cutting, we offer an easy-to-program, single-axis control box that can be M-function interfaced to your CNC machine. Got Questions? Give us a call.



www.IndexDesignsCNC.com

American made ingenuity.

818-280-8120 — We answer every call.

21720 Marilla Street, Chatsworth, CA 91311

New Products

6 months, will calibrate axis travel and perform scheduled maintenance to insure the life and quality of the UNi5X-400. Chevalier customers will get this free promotional package if the machine is purchased before Dec. 31, 2018. The 40-taper, high-speed VMC, integrated with a 4th and 5th axis table, is designed for high-speed, high-precision, high-productivity machining.

The UNi5X-400 comes standard with Chevalier's iMachine Communications System™, with the ability to connect to MT-LINKi for performance data, which includes anticipating potential issues and preventing costly downtime. The ability of remote monitoring and service functionality of UNi5X-400 from anywhere eliminates

having direct physical contact during inspection. This software identifies and reports lags in productivity on a 24/7 basis.

A two-axis rotary trunnion table with a heavy-duty, three-piece, cross-roller bearing provides excellent part loading and machining capability and $\pm 10''$ accuracy for the A-axis. The 12,000 rpm (optional 15,000 rpm), 25 HP, CT-40 spindle includes a large-diameter, BIG-PLUS® spindle design that uses four-piece, P4 Class, high-precision, angular-contact ball bearings. A direct drive spindle is standard. The series provides fast interpolation, with a high-linear rapid speeds of 1,417 / 1,417 / 1,181 ipm.

The machine is heavy-duty and constructed with high-quality Meeha-

nite cast iron, has an inverted Y-shaped column design with single-piece construction, pre-tensioned Class C3 ball screws for all three axes. All servomotors are directly coupled to ball screws.

The table size is 12.6" with a 220 lbs. table load. X, Y, Z axes travel are 20.5" x 15.8" x 15" and A/C Travel: (+30°/-120°) / 360°. Maximum part dimension is 15.7" L x 13.7" W. It offers 12,000 RPM max. spindle speed with 30 tool capacity. It weighs in at 15,510 pounds.

It comes with a Fanuc 0i-MF control for 4+1 applications, a 10.4" color LCD, Linear-circular-helical interpolation and Manual Guide i.



THE NEW MITSUBISHI EDM...
BURNING CIRCLES AROUND THE COMPETITION.



- CYLINDRICAL DRIVE TECHNOLOGY
- 19" TOUCHSCREEN CONTROL
- FIBER OPTIC SERVO CONTROL
- INDUSTRY LEADING AUTO-THREADING

MC MACHINERY SYSTEMS, INC.
a subsidiary of Mitsubishi Corporation



NEW M800 CONTROL



REMOTE MONITORING

TRADE-IN
TRADE-UP
TRADE-IN PROGRAM

CALL TODAY! 562-690-7616 | BRIAN@NORTHSOUTHMACHINERY.COM | WWW.NORTHSOUTHMACHINERY.COM | f @ t v

New Products

Mikron MILL P 500 U Launched —GF Machining Solutions

The new Mikron MILL P 500 U enables continuous machining of complex forms and tough materials while shortening process time. Its advanced thermal stability ensures reliable precision over long machining periods.

The Mikron MILL P 500 U offers 1.7 g acceleration, 36 kW Step-Tec Spindle, rotary tilting table capacity of up to 600 kg and workpiece diameters up to 707 mm.

The rotary tilting table is available in several variations: T-slot tables accommodating a payload of 200 kg, 400 kg or 600 kg, as well as pallet tables accommodating a payload of 200 kg, 400 kg or 600 kg. Incremental, direct

angle measuring systems are mounted on the swiveling and circular axes. Both axes are driven via water-cooled torque motors: one for T-slot tables, two for pallet tables on the A-axis and one on the C-axis. These direct drives bear optimal characteristics for precise, simultaneous operations. For heavy-duty machining, the rotary and swivel axes can be clamped and—for best machining stability—the swiveling axis has clamping on both side supports.

With the 20,000 rpm Step-Tec HPC190 spindle with HSK-A63 tool interface, manufacturers extend their flexibility and benefit from the best universal spindle selection. Also available is Step-Tec's 36,000 rpm HVC150 motor spindle with HSK-E50

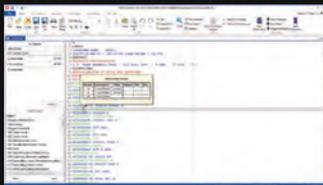
tool interface.

The Mikron Mill P 500 offers GF Machining Solutions' Industry 4.0 supporting smart modules such as Machine Spindle Protection (MSP) and Customer Services' rConnect modular digital services including Live Remote Assistance (LRA).

MSP protects the spindle and machine geometry. MSP protects the machine and spindle during job setup by making it possible to absorb axial and lateral collisions and then restore perfect accuracy. The spindle can return to normal operations without any specific maintenance or recalibration.

Users' productivity, flexibility and autonomy are further accelerated by the Mikron MILL P 500 U's rConnect readiness. Manufacturers simply

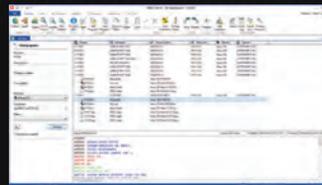
ONE SOLUTION SEAMLESSLY INTEGRATED



 EDIT



 DNC-MAX



 NC-BASE



 CNC-CALC

MDC-MAX

THE COMPLETE MACHINE DATA COLLECTION SOLUTION

- ✓ Collect and report on exactly the data you want
- ✓ Real-Time Manufacturing Data Collection
- ✓ Instant productivity reports and charts
- ✓ Live screen for optimized workflow
- ✓ Supports input from various sources
- ✓ Built-in customizable report functionality



Machine ID	Part Number	Operator	Start Time	End Time	Status
HMC-204	541-4636	Marv	03:52	03:50	Running
HMC-518	543-6460	Wallace	00:07	03:40	Running
VMC-3Axis	Ingen	Patrick	00:00	00:00	Running
HMC-48	1404	Roark Jr	03:21	03:50	Running
HMC-48	507-5420	Stan	06:24	06:20	Running
HMC-48	509-0159	Dwight	00:08	02:45	Running
VMC-S	Ingen	Esther	00:00	00:00	Running

Want to know more?

WWW.CIMCO.COM or call (888) DNC-7858



New Products



choose the GF Machining Solutions digital services that best fit their needs. LRA, for example, delivers highly secure, direct, customer-authorized real-time remote assistance by connecting the customer with the local diagnostics center and GF Machining Solutions' Technical Units. With LRA, customer services can inspect a machine tool remotely, with diagnostics carried out by the customer's own technician or a GF Machining Solutions expert.

New Products Released —Lyndex Nikken

Lyndex Nikken continues to stay committed to developing and bringing products that improve manufacturing efficiency and productivity. During IMTS 2018, Lyndex Nikken introduced a series of new products that address set up time reduction and increased cutting performance, two important and necessary aspects to meet the critical tolerances and high production demands in our industry today.

Lyndex Nikken introduced advanced products for both machining and turning centers. Amongst the vast products that were showcased, some of the most notable are new fourth and fifth axis rotary tables with improved brake clamping force and workholding adaptability to minimize set up times. A dynamic robotic part handling system called 10Der demonstrated its ability to accommodate low-volume, high-

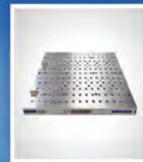
mix part handling and long run job production as well. Specifically for turning centers, a new quick change collet chuck system that allows set up changes to occur under 10 seconds was displayed. Improved live tools that

incorporate features only offered by Lyndex Nikken such as the patented internal coolant live tool system that can be operated both dry and wet or the innovative SK high-torque, high-precision collet chuck system were also exhibited.

WHAT'S YOUR NEXT CHALLENGE?

JERGENS CUSTOM DESIGN AND BUILD WORKHOLDING

Jergens' custom design & build expertise will take your fixturing needs to the next level, gaining efficiencies from the shop floor. We start with industry-proven standard and custom products to create a solution that is "unique to you." Your next challenge is Jergens' next accomplishment.



15700 South Waterloo Road, Cleveland, OH 44110
877-426-2504 216-481-6193 workholding@jergensinc.com
jergensinc.com/workholding

Jergens
MANUFACTURING EFFICIENCY

New Products

New Vision Corner Block —Phillips Precision

Phillips Precision's Products Division announces its new Vision Corner Block as part of the Inspection Arsenal® LEAN, Quick-Swap inspection fixture system.

This unique corner block for vision inspection allows complete access to the entire edge of the part without interruption. Use the pin-ball like spring feature to nudge the workpiece away from the corner block to a repeatable distance. The dock is slotted for a universal fit to most any vision stage. Simply shift in any direction to catch the hole pattern. Add more than one corner block to the stage or to Open-Sight™ fixture plates to inspect multiple parts.

According to the company, Inspection Arsenal® complements

other fixturing you may have and the value makes converting from other techniques very cost effective. Plates with air-glide feature are made to order. Standard Loc-N-Load™ product is ready-made and the company has a same-day shipping policy.

Rigid Two-Axis Turning Center

—Tsugami/Rem Sales

Tsugami/Rem Sales offers its newest machine, the Tsugami M08J, a 2-axis turning center with a manual tailstock, programmable quill and A2-6 spindle nose.

“The addition of the Tsugami M08J to the Rem Sales universal product line offers the increased options and

flexibility that we pride ourselves on,” explained Michael Mugno, vice president, Tsugami/Rem Sales.

The Tsugami M08J CNC lathe features a rigid construction using boxed ways for the X-axis with oversized linear guides for the Z-axis for heavy-duty machining. Thermal displacement compensation comes standard on the M08J, which allows for a high level of machine accuracy by measuring the thermal displacement using the touch sensors installed on the X-axis slide.

All of this is packed into a small footprint - 67” x 66” x 63”. The Tsugami M08J is a suitable lathe for a number of applications such as turning, drilling, boring and thread cutting. Options for the Tsugami M08J include the addition of high pressure coolant, foot pedals and a chip conveyor.



PROVIDING HIGH QUALITY PRECISION
MACHINE TOOLS FOR OVER 45 YEARS.

Phone: 951-277-8885 — email:webbmachinery@aol.com

LATHES, MILLS, CNC, NEW AND USED

**Introducing... The Webb
CNC Mini Mill VMC 2414
Compact Machining
Center - Made by First Mfg**



*Special Factory Direct
Price \$42,900*

**WEBB TW-QIF-32 Bed
Mill**

Loaded \$37,900.00



- Travel 32"x18"x18"
- Spindle: 7 1/2HP
- 6000 RPM
- 40 Taper

**WEBB Champ CNC
Knee Mill**

*WEBB Champ CNC Knee Mills
starting at \$24,395*



- 3HP to 5HP
- R8 to 40 Taper
- 9"x42" to
10"x54" Table
- Available w/ New
Acu-Rite 3500i
CNC Package

New Products

Three-Axis Milling Machine Offers High Precision, Stability

—GF Machining Solutions

GF Machining Solutions offers its Mikron MILL P 900 3-axis vertical milling machine especially beneficial to mold and die manufacturers. The robust machine features a polymer concrete machine base designed to deliver stiffness, while its thermal management, contour accuracy and precise positioning contribute to enhanced part surface finishes. A symmetrical portal design and effective chip management heighten operational efficiency.

The machine uses the Fanuc FS3iB CNC. Within the control are multiple

machine optimization modules and smart machine features designed to increase productivity and reduce energy consumption.

To reduce cycle times, the machine features a high-speed 20,000 RPM StepTec spindle that delivers 120 Nm of torque. The spindle features an advanced V3D vibration monitoring system that uses three vibration sensors to provide a complete visualization of spindle performance. An available 36,000 RPM spindle delivers enhanced surface finishes due to its axial stability, making it suitable for high-end molds with tight finish and size tolerances.

The Mikron MILL P 900 comes standard with a 30-position tool maga-

zine and automatic tool changer, and a 60-position tool magazine is also available. With easy access via a side door on the machine, operators can change out tools with ease. The tool changers also deliver a 4.2 second change time and a 7.4 second chip-to-chip change time.

Available integrated automated pallets that handle maximum payloads of 440 lbs. (200 kg), as well as chip control options, lights-out production capabilities and GF Machining Solutions' rConnect technology for process monitoring all contribute to optimize the overall machine utilization and output of the Mikron MILL P 900.

GF Machining also announced its North American debut of the new Mi-

Complete Vacuum Workholding Systems



VAC-U-LOK™
Vacuum Workholding

WWW.VACULOK.COM



for the
Aerospace & Defense
Industries

Ph: (815) 758-1822 • Em: marketing@vaculok.com

BARTON

NEW! TRIDENT 4 Diamond Cutting Head

Revolutionary TRIDENT technology delivers a direct, adapter-free replacement for Flow* Paser* 4 cutting heads, plus:

- Perfect orifice-to-nozzle alignment for superior accuracy
- Extended nozzle life for greater productivity
- Reduced abrasive consumption for lower operating costs



Don't settle for less.
800-741-7756
store.barton.com

BARTON

BARTON and TRIDENT are trademarks of Barton Mines Corporation.
*Flow and Paser are trademarks of Flow International Corporation.

PORTABLE CONVEYORS & ACCUMULATORS

Ideal for unattended, lights-out parts removal.
Ask for quote.

sales@mini-mover.com
800-586-4585



MADE IN THE USA
MINI-MOVER CONVEYORS



New Products

kron MILL P 500 U high-performance milling solution. “With its powerful and dynamic material removal capabilities and high stiffness, the Mikron MILL P 500 U takes precision and part surface finish to a new level. It also enables continuous machining of complex forms and tough materials while shortening process time,” said a company spokesperson.

6061 Aluminum Jaws —Dillon

Dillon full grip jaws, machined from 6061 extruded aluminum, provide added options for full grip jaw

customers who have traditionally used cast aluminum jaws. Available from 5 to 24” in diameter, these jaws can be modified to heights of 10” and provide widths that extend beyond the chuck face diameter.

Dillon chuck jaws can provide both standard and special pie jaws in 1.5 mm x 60°, 3.0 mm x 60°, 1/16th x 90° and 3/32 x 90° styles plus standard tongue and groove and key style jaw. Most special jaw modifications have less than a one week lead time.

Dillon chuck jaw products are made in the USA and are ISO 9000-2015 registered.

New Robotic Automation Demonstrated Several Quick-Change Workholding Systems at IMTS —Jergens

Jergens Inc. demonstrated how the company’s products can be located and relocated via a robotic demonstration that was running every day of the show. With these demo’s, Jergens continues its push for reduced set-up and changeover time by combining automation technologies with standard quick-change solutions such as base plates, risers, top tooling and pallets, including Quick Loc™ hydraulically-actuated pallets.

Machine flexibility **starts here**



Machine
Control
Technologies, Inc.



CNC Grinding Machines for:

- PCD & Carbide Inserts
- Rotary Tool & Cutter
- Special Profile Inserts
- Custom Tool or Part



Call:
951.808.0973

or visit:
MachineControlTechnologies.com

America's Most Cost Effective And Flexible Tool Grinding Machines

New Products

The demonstrations were performed on a Toshiba TVL 700 robot and a Lyndex-Nikken five-axis rotary table. Numerous operations were programmed to highlight dramatic improvements in time savings, machine uptime, unmanned applications and ergonomics in cases where operators are managing one or more machining centers.



Brother USA Native Protocol Added to FactoryWiz Monitoring —Refresh Your Memory

Refresh Your Memory, Inc. developer of FactoryWiz Monitoring and DNC announced the latest addition to its Native FactoryWiz Monitoring protocol suite. The Brother USA CNC protocol for Brother B00 and C00 machines has been released to industry and employed in practical applications.

FactoryWiz™ Monitoring is MT-Connect compliant but also supports the most direct native protocol connections in the monitoring space. Included native protocols such as Fanuc FOCAS, OPC/UA, Kitamura, Siemens, Mazak, Okuma, Haas, Fagor, Heidenhain, are standard with FactoryWiz Monitoring. There is no need for additional hardware/middleware for most modern Ethernet equipped machines.

In addition to having the most NATIVE direct connections, FactoryWiz™ Monitoring and DNC also

supports legacy RS-232 machines using readily available non-proprietary hardware for DNC and monitoring data collection.

New 4TEX Drill Engineered for Toughest Jobs —Allied Machine

Allied Machine & Engineering announces the new 4TEX drill, ideal for making shallow 2xD, 3xD, and 4xD holes in the .472" – 1.850" range.

The drill is also a great choice for making interrupted cuts, or drilling on an incline or angled surface. The new

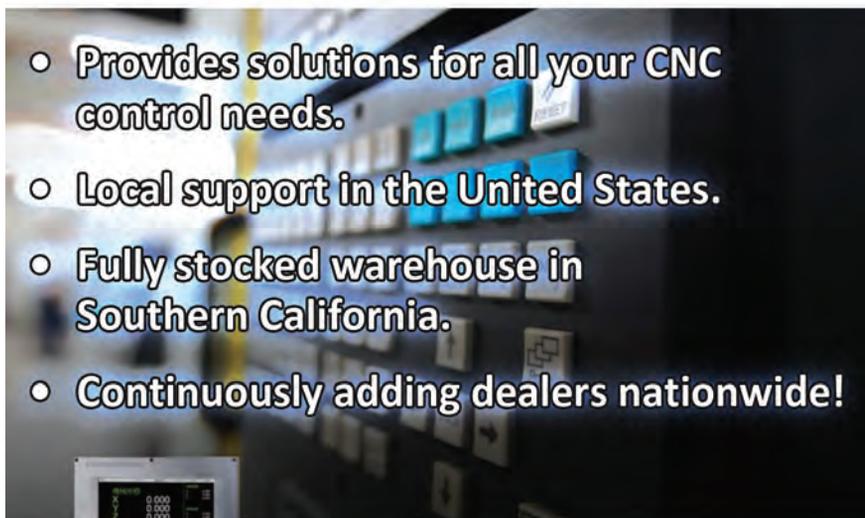
design means certain operations can be performed without having to first mill the surface.

Allied reports the 4TEX drill's single effective cutting edge provides higher penetration rates than standard twist drills for light duty machines. The center coolant outlet was eliminated to increase the drill's core strength in this design, resulting in improved hole size and straightness. Instead, twisted coolant outlets were added to improve hole straightness and penetration rates by enhancing coolant flow and superior chip evacuation.

Insert geometries for standard



www.syntecamerica.com
(909) 551-0187



- Provides solutions for all your CNC control needs.
- Local support in the United States.
- Fully stocked warehouse in Southern California.
- Continuously adding dealers nationwide!



HIGH-SPEED & HIGH-PRECISION
CONTROLLER



New Products

ISO material categories improve hole quality and penetration rate, while eliminating issues from chips wrapping the tool.

4TEX inserts are 4-sided, lowering customers' cost per hole. The unique insert shape improves surface finish, hole diameter, and hole straightness by providing a superior balanced cut compared to ISO inserts.

The drills will be stocked in both imperial and metric shanks with standard fractional diameters, as well as every 1/2 mm diameter up to 26mm and every 1mm up to 47mm.

New MTSB Mini Mill-Thread —Carmex

Designed for applications involving small and deep threads, Carmex's new MTSB mini mill-thread is equipped with coolant bores that facilitate chip removal through the use of high pressure coolant. Constructed of solid carbide with advanced PVD triple coating, the MTS works at high machining parameters for increased productivity. An increased number of flutes shorten cycle times and, combined with coolant, improve tool life.



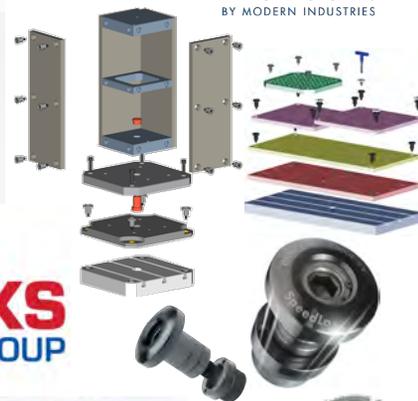
Although designed specifically for deep thread milling operations, the MTSB can be used on any operation requiring better performance and high thread quality. Thread sizes range from M1.2 to M16 and 0-80 to 7/16-20UNF.

Jim White, national sales manager for Carmex USA, comments, "The new MTSB is ideal for use in thread milling operations on horizontal machining centers or in complicated applications where external coolant cannot wash

WORKHOLDING IN THE NORTHWEST???



5th AXIS



New Products

the chips away. It is also useful where the tool collet is in close proximity to the prehole and blocks the external coolant. It excels in high-heat resistant materials and delivers a smooth finish.

“Carmex’s extensive experience in virtually all aspects of thread milling has enabled us to identify problem areas and define the correct solution. The increasing use of Swiss-style machining and applications requiring smaller tools have made our Mini Mill-Thread line extremely popular. Customers will find that the MTSB is a welcome addition for improved accuracy, longer tool life, and efficient chip evacuation is required.”

Reusable Quick Change DoveLock Jaws —Kurt

Kurt DoveLock master jaws are designed to be installed in replacement of standard cap screw jaws and create a quick-change capability.

Once the DoveLock master jaws are installed into the vise, they perform as a receiver for the replaceable jaws and are installed or removed by loosening three quick clamps in the top of each master jaw.

“Changeover of jaws can be completed in under one minute and really saves a lot of time where frequent set-ups are required,” said Steve Kane, global sales and marketing manager

for Kurt Industrial Products. “Most machinists get accustomed to the system really fast and complete the changeover in 10-15 seconds.”

DoveLock features reusable, machinable jaws that are precision manufactured from 6061 aluminum or 4140 pre-hard steel. They are designed for repeatable use after the part profile has been machined into the jaws.

DoveLock jaws also can be flipped 180° to accommodate a second part profile for an additional set-up.

DoveLock master jaws come equipped with a unique workstop located on the side of the jaw providing quick and repeatable location of up to ±0.001”, without measuring. The



ROYAL PRODUCTS
Optimize everything.

ELIMINATE MIST AND SMOKE IN YOUR SHOP

With more than 150,000 units operating in over 50 countries worldwide, the Royal Filtermist is the metalworking industry's leading mist collector.

- Continuous high-efficiency – even in high-pressure applications that produce sub-micron sized particles.
- Low cost, simple installation, and minimal maintenance requirements.
- Clean, healthy shop air helps attract and retain top talent.

www.mistcollectors.com

Pacific Swiss & Manufacturing, Inc.

Multi-Axis CNC Swiss Turning

CNC Swiss Micro Machining



CNC Swiss Micro Machining

CNC Swiss Turning

With our specialized combination of CNC Swiss Turning and CNC Swiss Micro/Miniature Machining, Pacific Swiss and Manufacturing has the world class capabilities of a large organization plus the strong focus of a small company. Serving the manufacturing industry since 1978, we offer the customer service and quality you demand.

MIL-I-45208A / MIL-Q-9858A Certified ISO/FDA Compliant

Send your online RFQ to get started.

INDUSTRIES SERVED:
Medical
Dental
Aerospace
Lock and Hardware
Electronics
Automotive
Semiconductor
Recreation
Telecommunications
Plastic Molding
Interconnect
Linear & Motion Control
Fiber Optic

Part Sizes .005” Dia. To 1-1/4” Diam with 7 Axis of Machining Capability

Pacific Swiss & Mfg., Inc.
503-557-9407
15423 S.E. Piazza Ave., Clackamas, OR 97015
sales@pacificswissmfg.com * www.pacificswiss.net

New Products

workstop also ensures high repeatability even after the jaws have been stored, which saves the cost of having to machine new jaws for every production order. DoveLock master jaws fit all Kurt industry standard 3.5", 4", 6" and 8" vises.

Line of Alberti Angle Heads

—Koma Precision

Koma Precision, Inc. has introduced the new Index Line angle heads from Alberti. With the aim of meeting the need of performing machining operations in several directions, Alberti has developed a combined system made by a swiveling module and a standard angle head. "This angle head is the first with the capability to index output at virtually any angle," said a company spokesperson.

The main characteristic of the system is the possibility of rotating and then positioning the head automatically, using the controlled axis of the machine spindle. The technology inside the module allows the anchoring of the head with the machine spindle to achieve an automatic position in the machining direction and operate like a standard angle head using the spindle rotation.

The system is operated by 6-bar compressed air through the stop pin or by a closed hydraulic circuit controlled by a piston. The entire system can be automatically exchanged by the tool changer and can mount heads with collet capacity up to a diameter of 10 mm. Now it is possible to use a single head for multiple operations, to avoid additional workpiece set-ups or tool changes and to carry out various machining processes with a single solution.

Versatile New M4258 Modular Helical Milling Cutter

—Walter

The M4258 modular helical milling cutter from Walter, the most recent addition to its M4000 family of high-performance helical milling cutters can be used for ramping, pocket milling, shoulder milling and circular interpolation as well. Versatility also extends to materials, handling ISO material groups P, M, K, and S effectively.



Tiger-tec® Gold and Six Tiger-tec® Silver grades are available, covering nearly all ISO groups. The modular design of the M4258 features an exchangeable front-end piece that can be replaced when this section of the body is worn or damaged. Precise and safe positioning of the front-end is assured due to its tongue and groove connection with the register pin.

Process reliability is enhanced by several features. Starting with a half-effective design and highly positive insert geometry, lower power requirements and costs that offer a strong advantage. An internal coolant supply in the standard offering adds versatility, along with superior chip removal. Operating under low cutting pressure, its compact length and effective design promotes smooth operation. This reduces oscillation and vibration, making it a solution for a variety of unstable machining conditions. The M4258 has

STATEMENT OF OWNERSHIP MANAGEMENT, AND CIRCULATION (Required by 39 U.S.C. 3685)

- Title of Publication: CNC-West
- Publication Number: 0747-3362
- Date of Filing: October 2018
- Frequency of Issue: Bi-Monthly
- No. of issue published annually: 6
- Annual Subscription price \$10.00
- Complete Mailing Address of know office of Publication: 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
- Complete Mailing Address of the Headquarters or General Business Offices of the Publishers: 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
- Full Names and Complete Mailing Address of Publisher, Editor and Managing Editor. Publisher: Shawn F. Arnold, 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
Editor: 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
- Owner: Arnold Publications, Inc., (a corporation), 16835 Algonquin Street # 158, Huntington Beach, CA 92649 Shawn F. Arnold, President, 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
Linda M. Arnold, Sec'y, Treasurer, 16835 Algonquin Street # 158, Huntington Beach, CA 92649-3810
- Known bondholders, Mortgages and other Securities holders owning or holding 1 percent or more of total amount of bonds mortgages, or other securities: (None)
- Not applicable.
- Publication Name: CNC-WEST
- Issue Date of Circulation Data Below: August/Sept. 2018
- Extent and nature of circulation:
 - Total number copies (Net Press Run). Average number copies each issue during the preceding 12 months, (16,606) actual number copies of single issue published nearest to the filing date, (16,500)
 - Paid and/or requested Circulation —
 - Mail Subscription. Average number copies each issue during the preceding 12 months, (13,088), actual number copies of single issue published nearest to the filing date, (13,643).
 - Total paid/and or requested circulation: Average number copies each issue during the preceding 12 months, (13,088); actual number copies of single issue published nearest to filing date, (13,643).
 - Outside County Nonrequested Copies: Average number copies each issue during the preceding 12 months (3,449) actual number of copies of single issue nearest to filing date, (2,461).
 - Total Nonrequested Distribution: Average number copies each issue during the preceding 12 months, (3,449) actual number copies of single issue published nearest to filing date, (2,461).
 - Total distribution: Average number copies each issue during the preceding 12 months, (16,537). Actual number copies of single issue published nearest to filing date, (16,104).
 - Copies Not Distributed Average no copies each issue during the preceding 12 months, (69). Actual number copies of single issue published nearest to filing date, (396).
 - Total: Average number copies each issue during the preceding 12 months, (16,606), actual number copies of single issue published nearest of filing date, (16,500).
 - Percent Paid and/or Requested Circulation Percent Average(79%) Actual (84%)
- This statement of ownership will be printed in the October/November 2018 issue of this publication.
- I certify that the statements made by me above are correct and complete.

Shawn Arnold
Publisher
October 1, 2018

New Products

an approach angle of 90° and a diameter range of 2.0, 2.5, and 3.0 in. (50, 63, and 80 mm). Interfaces are Walter Capto C6 and C8.

New 130MM Self-Centering Vise and Narrow Vise —Jergens

Jergens Inc. introduces two new vises to its range of quick-change workholding systems – a 130mm self-centering vise and a new narrow vise. Both vises offer numerous features and provide reliable performance for general purpose machining.

The 130mm self-centering vise – part of the Fixture Pro® line of modular five-axis workholding – features a pull-down jaw design to actively reduce jaw lift caused by flex and raising up during the clamping process. The unique vise has an easy centering / re-centering adjustment and quick-change jaws that require no tools. Jaws are reversible and available in step jaws with serrated inserts, aluminum soft jaws, steel soft jaws and hardened step jaws.

Versatile mounting options are compatible with several Jergens platforms including Fixture Pro®, Drop & Lock™, Quick-Loc™, Lang Quick

Point® and 5th Axis RockLock™. Maximum clamping force is 3,600 lbs @ 50 ft*lbs. In combination with the full-line of Quick Loc™ pallet systems, the new vise offers versatility and quick-change on vertical, horizontal and multi-axis machining centers.

Jergens new narrow vise is ideal for mounting to Jergens Ball Lock® fixture plates to provide solid performance in numerous general-purpose applications. The single station vise features a cast iron base and interchangeable jaws (common industry styles). Made in the USA, it weighs 70 lbs. and includes the handle.

RECRUITING SPECIALIST

FOR THE MACHINE TOOL INDUSTRY

**Immediate Need for
Sales, Service &
Application Engineers**

No fee to Applicant

GEORGE SCHORTZ

818 706-2635

Email: George@iscnc.com

INTERNATIONAL SEARCH CONSULTANTS
30827 MAINMAST DRIVE, AGOURA HILLS, CA. 91301

Visit Our Web Site

www.iscnc.com

CME WORKHOLDING

**Horizontal Workholding
400mm to 1,000mm**



-2 sided
-4 sided
-6 sided

-Cross type
-T-Style
-Standard Column
-Box Style

-Vibration Damping
-FEA Rib Designs
-3 Levels of Finish

CALL 1-909-428-0166

Commercial Machine & Engineering Corp.
Fontana, CA 92335 (909)428-0166

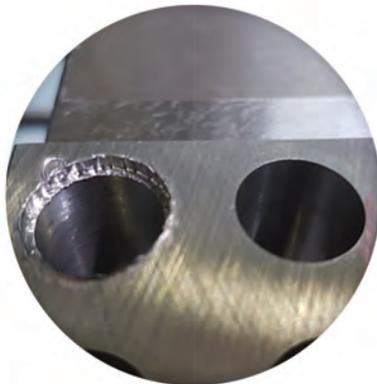
New Products

Wohlhaupter NOVITECH Vibration Dampened Modules

—Allied Machine

Allied Machine & Engineering, announces the availability of their new Wohlhaupter NOVITECH vibration dampened intermediate module, which increases boring operations productivity, surface quality, and process reliability while extending the insert and machine center's spindle life.

Mounted inside the patent-pending NOVITECH system, the viscoelastically mounted damper modules reduce vibrations during the machining of diameters ranging from 1.97" – 8.07" up to 10xD.



The NOVITECH intermediate modules feature Wohlhaupter's Multi-Bore system (MVS), making it simple to use with existing Wohlhaupter components and is compatible with any machine spindle.

Air Rest Buttons Detect Proper Workpiece Loading

—Carr Lane

Carr Lane reports that air rest buttons allow using pneumatic position control to detect proper workpiece loading in a machining fixture. Made in USA, these modular units consist of a threaded body installed in a fixture, which holds a precision floating plunger. The plunger has a reamed hole, available in a choice of three diameters, that accepts any height of Carr Lane's standard press-fit-type rest buttons. Proper placement of a workpiece on the Air Rest Button assembly




See Our Free Demo & Guided Tour at:
HenningSoftware.com

"We partnered with Henning Software over 21 years ago. Their evolution of products continues to increase our Efficiency, Productivity, and Growth in our business."
Mark Erickson, President - Highland Products, Mentor, OH

ERP Shop Management Software

For Job Shops & Precision Manufacturers
Your Job Just Got Easier!

- Fast & Efficient Estimating/Quoting
- Visual Scheduling
- Bar Code Routers
- Real-Time Job Costing
- Integrated Quality
- Gauge Management
- Touch Screen Scheduling Board
- **Visual Books™** Integrated Accounting or **QuickBooks™** Interface

LIVE ACCESS ANYWHERE!

- **iVET™** Mobile APP for Smartphones & Tablets
- Executive Dashboard
- **Information Shop Kiosk™**



Incorporated
Manufacturing & Accounting Solutions Since 1990
330.650.4212
www.HenningSoftware.com

JLD CNC MACHINING

- Cnc Lathe & Mill Precision Machining
- Lathe and Mill Conventional Machining
- Aerospace & Commercial Parts
- Prototype & Production Work
- General Machining
- Short & Long Runs

David Arenas
714-495-5290
davidA@jldcncmachining.com
www.jldcncmachining.com
13572 Pumice St. Norwalk, CA 90650



FOR YOUR PRODUCT'S PERFECTION

Dimensional Measurement Services & Products

since 1987

AS9100:2016
ISO 9001:2015
CERTIFIED

13765-E Alton Pkwy
Irvine, CA 92618
949.380.7758
qpluslabs.com

Measured Right the First Time, On-Time

- 3D CAD Model Based Inspection •
- Scanning & Reverse Engineering •
- Multi-Sensor DCC & CNC CMMs •
- Contract Inspection & Layout •
- Precision Roundness Testing •
- Equipment Sales •




New Products



New Rotary Product Line —Forkardt

Forkardt is now offering rotary tables, indexers and trunnion products. “These solutions offer increased productivity with innovative capabilities and features. The advanced technology can accommodate all standard tooling without an adapter, improving accuracy and repeatability. The robust spindle design can also handle multiple part set-ups and heavy loads with ease, which improves output rates. Precision gear sets consist of an aluminum bronze gear and a hardened and ground steel worm for longer life and load carrying ability. A fast clamp and release

system on most models increases efficiency while maintaining rigidity,” said a company spokesperson.

The systems are designed with increased spindle clearance and better tool accessibility. They also have options for travel limits to reduce the risk of damaging parts and tooling. Diagnostic capabilities have been expanded to allow for faster troubleshooting and part program debugging.

causes the plunger to fully retract into the body. This seals off air flow, which increases the overall pressure of the system.

This pressure value can be read using an analog or digital pressure sensor which can then be tied into a PLC or control system. Patent pending.

Contract First Article Inspection Service

Quality dimensional inspection performed using coordinate measuring machines and non-contact video equipment.

DIMENSIONAL INSPECTION LABS

DIL

(510)744-4100

WWW.D-I-L.COM.



Empowered by Precision

BISON - Market Leader in Clamping Solutions.



Independent, Self Centering or Power Operated... We Have it **CLAMPED!**

info@bison-america.com

513-713-0513

www.bison-america.com



U S Shop Tools

Quality Machine Shop Tools & Supplies

- Chuck Jaws
- Lathe Workholding
- Mill Workholding
- Retention Knobs
- Toolholders
- Cutting Tools
- Measuring Tools
- Abrasives

Greg Stoddard
Sales & Marketing Manager

1340 S. Allec Street
Anaheim, CA 92805
Telephone: 714-772-9011
Fax: 714-772-1270
Email: greg@usshoptools.com
www.usshoptools.com

New Products

HP High Productivity HMCs

—Doosan

Doosan Machine Tools has introduced its new NHP horizontal machining center (HMC) series, built from the ground up for rapid metal removal rates.

The 400 mm pallet NHP 4000 and 500 mm pallet NHP 5000 are configurable for a range of applications.

The NHP machines come standard with a 15,000 RPM spindle with 140 HP and 169 ft-lbs. of torque. For heavy cutting, a high-torque 15,000 RPM spindle with 223 ft-lbs. is available and a 20,000 RPM spindle is in develop-

ment for customers with higher speed precision applications.

Up to 1G acceleration/deceleration on X-, Y- and Z-axes enhances productivity, delivering productivity increases as high as 25% over the previous model. Ball screw shaft and bearing cooling systems keep the temperature of fast moving axes stable, ensuring precision machining.

The new random access disc-type tool magazine allows high-speed 0.9 second tool-to-tool and 2.3 second chip-to-chip times. In addition to minimizing non-cutting time, this design also reduces vibration.

In optimizing the construction of

the machine, the footprint of the NHP has been reduced by 15% compared to the previous model, yet the machining area has been expanded by 18%. The three-point leveling design makes machine installation and maintenance much more convenient, and the center-through bed evacuates large volumes of chips efficiently.

The pallets can accommodate loads of up to 880 lbs. for the NHP 4000 and up to 1,100 lbs. for the NHP 5000 and both through-pallet and overhead hydraulic fixturing options are available. Additionally, the APC has been refined to achieve a 27% faster indexing time.



Bring us your challenges.

We create as many custom probe styli as you have applications for them.

Highest quality.
Assured compatibility.
Fast delivery.



RUBY & DIAMOND PROBE STYLI
Because Precision Matters

Q-Mark styli can be found at:



IMTS BOOTH 135501
www.cmms.com
An American Company

AEROSPACE | AUTOMOTIVE | BIOMEDICAL | METROLOGY

Machines & Methods, Inc.
Machine Tools, Systems and Automation

Your ideal choice for 5 Axis Gantry HBM VTL
TC Cylindrical Surface Grinders, EDM & Fine Waterjets
Extrusion Machines, Mill/Turn and Big Lathes

'when you need a better way...' Give us a call... 425 746 1656
Arif, James, Tony, or sales@machinesandmethods.com

www.machinesandmethods.com

The Industry's Most Trusted Source to Buy, Sell, and Trade-In Used CNC, Plastics, and Sheet Metal Fabrication Machinery.

800.922.1674
www.kdcapital.com

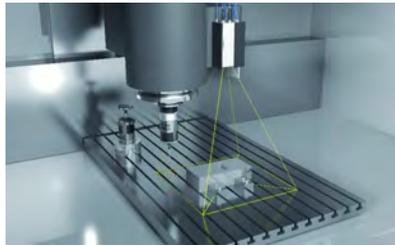
USED MACHINERY SALES
AUCTIONS | APPRAISALS | LIQUIDATIONS

New Products

VS 101 Camera System For Automatic Machine Setup Monitoring —HEIDENHAIN

In order to automatically monitor the setup situation and machining result with HEIDENHAIN's flagship TNC 640 mill-turn control, the innovative accompanying VS 101 camera system is now available.

The TNC 640 is HEIDENHAIN's versatile contouring control, especially well-suited for HSC and 5-axis machining on machines up to 18 axes. The new VS 101 camera system now enables the TNC operator to not only monitor setup and machining result,



but also view faulty situations that are displayed on the control. Visual Setup Control (VSC) is an effective means of preventing faulty parts because it is setup to identify incorrectly positioned workpieces and incorrectly mounted or missing fixtures.

To detect faults, the operator can use the camera system to run nominal-to-

actual value comparisons. After starting the VSC function, the cover of the camera is opened and the camera starts recording images. The data is transmitted to the control that compares the images to a reference image. If a wrong setup is detected, the process is stopped and the faults are displayed. If everything is alright, the camera lens is closed and machining is continued.

The camera has a 12V to 24 V voltage supply and a LAN connection for image data transmission to the control. The camera's hardware components were specifically designed for HEIDENHAIN controls and rough ambient conditions in the machine's working space.

Please email us
to request your
2019 CNC-West
Media Kit
Sarnold@cnc-west.com

VAC-U-LOK™ Complete Vacuum Workholding Systems

- Vacuum Chucks - Custom & Standard Designs
- Complete Vacuum Systems
- Automatic Coolant Return Systems
- Vacuum Safety Systems
- Accessories & Maintenance Kits

WWW.VACULOK.COM
Ph: (815) 758-1822 • Em: marketing@vaculok.com

New Products

Part Inspection Simplified with Software

—Marposs

Marposs Corporation's Ready2Probe software application is designed to assist CNC users when programming cycles for measuring and checking components and tools using Mida spindle probes, lasers, tool breakage detector (TBD) and visual tool setter (VTS). Using simple-to-understand icons and menus, Ready2Probe assists users in commands and codes to generate the measurement cycle within seconds, based upon the machine tool part program.

Ready2Probe is a Windows based application that is compatible with the

CNC control interface or a computer. Upon initiation of the Ready2Probe program, users can interact with all of the Mida products. The user then selects from a calibration, automatic or manual cycle. The software then prompts the user to input cycle time information along with an option to input additional requirements. A macro string is then generated from this information, which the user can copy or automatically transfer into a part program. If needed, the user can also write the macro directly into the CNC by clicking a single button.

The software is intuitive. In addition to Windows availability, the software application is being developed for use

on smart phones and tablets.

Mobile applications are already available for Fanuc CNC users running Android 4.1 and up and iOS 10.0 or later.

CNC Pilot 640 Lathe Control Offers Exciting New Functionality

—HEIDENHAIN

Heidenhain's top-of-the-line lathe control, the CNC PILOT 640, has been impressing customers for many years with its numerous advantages and is now available with even newer upgrades. Most notably, the company reports a new TURN PLUS feature is



Drop-N-Go

Vise Jaws Redefined



Inventor: Michael Near
Mechanical Engineer
Burbank, California

"I solved the problems of vise jaw efficiency."

After putting up with vise jaw problems for many years, I finally decided to design a product that really works. Drop-N-Go is a new industry standard for a bulletproof method that saves time and eliminates costly errors. This product solves the following everyday issues:

- Registration
- "Zero" reference
- Repeatability

Make it fast, make it easy, Drop-N-Go.

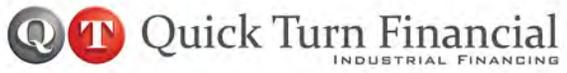
Michael Near (818) 415-4472

Check out my two minute YouTube video or go to my website at dropngovisejaws.com

Authorized Hydraulic Distributor
TOKYO KEIKI YUKEN
NACHI DAIKIN TOYO OKI



tel (714) 630-9111 fax (714) 630-9115
SALES@PACIFICMACHINE.COM



Call us today for your **FREE, NO OBLIGATION** finance proposal and **SEE HOW MUCH YOU CAN SAVE!**

www.qtfinancial.com

- New and Used Machinery Financing
- Simple one-page credit application
- Outstanding rates and terms
- Approvals within a day

480.385.1220

New Products



now standard on new purchases that allows the creation of a lathe program by the push of a button with up to 90%-time savings.

The new versions of the control software also include other improvements such as added Functional Safety (FS) features and expansions that pro-

vide the machine operator and the machine tool builder with more benefits.

The CNC PILOT 640 contouring control combines simple operation with reliable, high quality series production. It allows 5-axis simultaneous machining and combined turn-mill operation, full surface machining with B axis and counter spindle, as well as up to three channels for asynchronous multi-side machining.

Multitouch operation allows swiping and zooming in and out, and high resolution 3-D simulation graphics have been added. Machining operations with one or several setups (multi-channel operation) can be programmed separately through structured programming. The maximum number of controlled axes and spindles has

been increased to 24 using appropriate options.

The CNC PILOT 640 lathe control is available with two screen formats: 19" and 15.6" with up to 25 configurable fields. It also now works with HEIDENHAIN's display handwheels HR 520 (FS) and the HR 550 FS radio handwheel system. New CFRCompactFlash memory cards and SIKs are also available.

For those interested in connected machining, the CNC PILOT 640 can be incorporated into such systems by utilizing HEIDENHAIN options Remote Desktop Manager (option 133) and StateMonitor for capturing machining data.



ROYAL PRODUCTS
Optimize everything.

Exclusive Risk-Free PERFORMANCE Guarantee

10-SECOND COLLET CHANGES

PLUS.....

- ✓ Ultra-Precision Accuracy – 0.0002" TIR
- ✓ Superior Grip Force Over Jaw Chucks
- ✓ Widest Gripping Range – 0.062"
- ✓ Most Compact Chucks in the Industry
- ✓ Exclusive Bolt & Go™ Mounting Advantage
- ✓ In-Stock for Same-Day Shipping

www.colletchucks.com

Proudly Made in U.S.A.

It's easy to say your tooling solves problems.

It's harder to prove it.

We prove it every day.



Stuck on a tough tooling challenge? Let us help.

Heimatec isn't just a world leader in live tools, angle heads and multi-spindle drill heads; we're your source for problem solving and tooling application expertise.

With years of hands-on experience and the most innovative tooling, we are your **TOTAL** solution source.

Put us to the test and send us your toughest tooling challenge.

heimatec®

Precision Tools

Prospect Heights, IL
847-749-0633
info@heimatecinc.com
www.heimatecinc.com

New Products

Rotary Axis Calibration Made Easy

—Renishaw

Renishaw offers its XR20-W rotary axis calibrator. CARTO 3.0 allows users to quickly capture and analyze machine performance data from rotary axes. For the first time, the Renishaw XM-60 multi-axis calibrator can be used with the XR20-W rotary axis calibrator, providing one easy to use and intuitive software solution for all Renishaw laser calibration products.

Combining the capability of XR20-W and XM-60 with CARTO 3.0 reduces the calibration of a 5-axis machine tool from several days to within half a day.

The new software allows multiple error types to be analyzed over different timeframes, building up a comprehensive overview of a machine's performance. CARTO 3.0 automatically stores complete datasets for each machine tool within a single database. By independently comparing the different errors associated with each axis, over different timeframes, users can plan preventative maintenance schedules.

With Renishaw's CARTO software suite, data is more visible, usable and actionable. This makes it a suitable platform for supporting smart factories with Industry 4.0 based technology.

High-Accuracy Micura CMM line Expanded

—Zeiss

Ideal for measuring small, intricate parts, the Micura CMM from Zeiss Industrial Metrology with active scanning and submicron accuracy, now includes a model with an even larger measuring range. The new system can handle bigger parts with a 40 percent larger measuring range of 500 x 700 x 500 millimeters and has a machine-mounted controller, saving floor space.

Zeiss Micura comes with the Vast XT gold or the Vast XTR gold active scanning sensor. The speed and precision makes it a valuable inspection solution for medical devices and



CNC WEST

**You know the old sayings.....
Dance Like No one is Watching and
Advertise in CNC WEST where
EVERYONE is watching**

**For advertising or subscribing
information contact us @
714-840-1300 sarnold@cnc-west.com**

New Products



implants, optics and electronics. The Vast XT gold sensor enables high-speed scanning featuring up to 200 measuring points per second. Angled features are best suited for the Vast XTR gold sensor. Its integrated swivel joint enables the stylus system to turn as far as possible in 15 degree increments and thus always positions the stylus in the direction of the feature being measured. This saves time and money because fewer stylus systems and modifications are required, and it minimizes the need for a rotary table.

Zeiss Micura is available with user-friendly Calypso metrology software that works with all Zeiss systems. This includes an extensive and expanding portfolio of coordinate measuring machines, optical systems, computed tomography machines and more.



High Speed Machining

High dynamic two axis rotary table
 Ø 630mm / 1.000 rpm

- latest generation of in-house developed direct drives
- ideal for mould and tool production
- various options

Made in Germany



CNC Matters
 Phone: 855-4CNC HELP / 855-426-2435
 Web: www.cncmatters.com



CyTec Systems USA
 Phone: 833-CYTECUS
 Web: www.cytec-systems.com

DTC DARMAK TOOL Co.

SPECIALIZING IN SOLID CARBIDE CUTTING TOOLS



- Boring Bars
- Broaches
- Half Rounds
- Hard to Find Swiss and Escomatic Tools
- Step Reamers
- Step Drills
- Spade Drills

Short Lead Time and Competitive Prices

Tel: 714-995-3688 • Fax: 208-664-8887

Darmaktool@gmail.com

WWW.DarmakTool.com

MACHINE SHOPS

INTERESTED IN HAVING
 CNC-WEST DO A STORY
 ON YOUR SHOP?

EMAIL US INFORMATION
 ABOUT YOUR SHOP TO
SARNOLD@CNC-WEST.COM

...Hotline Continued From Page 8

Faraday Future Moving Forward

Faraday Future welcomed 85 new hires to the FF HQ family in August, including 26 for Hanford, CA manufacturing, as the electric car maker moved one step closer to delivering the FF 91. Over the next year the company reports an estimated 1,000 jobs will be created in the FF Hanford factory with new employees undergoing business and teamwork essential training at the nearby College of the Sequoias (Visalia), inside the state of California's Hanford Training Resource Center.

New Mexico State University Lands Big Grant

New Mexico State University's SMART Grid Center has landed a \$20 million grant from the National Science Foundation for more research aimed at developing sustainable systems for distributing electricity.

The effort will link researchers and students from New Mexico State University, the University of New Mexico, New Mexico Tech and Santa Fe Community College with experts at Sandia National Laboratories and Los Alamos National Laboratory.

Boeing Acquires El Segundo's Millennium Space Systems

Boeing Co. has agreed to acquire Millennium Space Systems Inc., an El Segundo-based small flight system developer and satellite manufacturer.

Millennium Space was founded in 2001 and develops satellites for extracting missions. It employs an estimated 260 employees.

Millennium Space Systems' expertise in vertically-integrated small-satellite solutions perfectly complements Boeing's existing satellite portfolio, and will allow us to meet the needs of a diverse customer set," said Leanne Caret, chief executive of Boeing's defense, space & security program.

The acquisition is expected to close by the end of the third quarter, according to Boeing.

Sempra to Sell Solar Assets for \$1.54B

Sempra Energy has agreed to sell its U.S. non-utility solar energy generation assets, one wind facility and certain battery stor-

age facilities to Consolidated Edison Inc. for \$1.54 billion in cash. The San Diego corporation made the announcement after the market closed on Sept. 20.

The San Diego business said the sale is part of a portfolio-optimization push announced in June. Sempra is also working with an activist investor group that is urging the company to focus more on its core business.

The sale to Consolidated Edison includes the following facilities: Mesquite Solar 2 and 3 in Arizona; Copper Mountain Solar 1 and 4 in Nevada; Great Valley Solar in California; and solar and battery storage development projects. Additionally, Consolidated Edison will acquire the facilities jointly owned with Sempra Renewables including: Mesquite Solar 1; Copper Mountain Solar 2 and 3; the Alpaugh, Corcoran and White River solar facilities in California; and the Broken Bow II wind facility in Nebraska.

The sale is expected to close before the end of the year.

Navy Chooses Boeing Over GA-ASI, Lockheed

The U.S. Navy awarded a six-year, \$805 million initial contract to build its MQ-25 Stingray aircraft to Boeing Co.

The program, which could ultimately be worth billions, was one that Poway, CA-based General Atomics Aeronautical Systems Inc. had hoped to win.

The MQ-25 will be an unmanned, carrier-based refueling aircraft. Lockheed Martin Corp. was also in the running to build it.

Northrop Grumman Corp., which bases its unmanned programs in San Diego, walked away from the competition in November, saying it would not be worth its investment. Northrop Grumman built two prototype unmanned aircraft that successfully took off from and landed on a carrier deck.

About \$12 million worth of subcontracting work on the Boeing project will be performed in San Diego, according to a Pentagon announcement. It was unclear which San Diego company would do the work.

The Navy sees the MQ-25 as an in-flight refueling aircraft that will extend the range of the manned fighters flying off the decks of aircraft carriers.

Under the deal, Boeing will design, build and support four MQ-25A unmanned air vehicles

Continued on page 90

50 YEARS of INNOVATION

HURCO

1968-2018

Introducing
3D Import



**Go from “solid to part” seamlessly.
Eliminate extra steps.**

- » Integrated CAD/CAM and tool path simulation
- » No need to enter feature dimensions – simply click and cut
- » Transform Planes created automatically for easy 5-sided conversational programming no data entry required

Hurco's 3D Import feature includes 3D DXF technology that now displays all CAD geometry, including splines and Z-depths.



Find out more at HURCO.com/50

Contact your local distributor to find out which one of our 65+ models powered by WinMax® will make your shop more profitable

D & R MACHINERY	FOOTHILLS MACHINERY	CNC SOLUTIONS	MACHINERY SALES COMPANY	ROSCO PRECISION MACHINERY	HURCO NORTH AMERICA
(480)-775-6462 dandrmachinery.com AZ	(303)-466-3777 foothillsmachinery.com CO, WY	(408)-586-8236 cncsolutions.biz N CA & N. NV	(626)-581-9211 mchysales.com S. CA	(253)-333-2439 roscoprecisionmachinery.com WA, OR	(800)-634-2416 hurco.com UT, ID, MT

...Hotline Continued From Page 88

Harley Davidson to Open R&D Facility in Silicon Valley

Harley-Davidson Inc. said in late September that will open a new research and development facility in Silicon Valley later this year, initially hiring about 25 people from the local market.

The Milwaukee-based motorcycle company intends to use the facility to support the development of its newest electric bike line, LiveWire, which will hit the market in roughly 12 months.

A Harley-Davidson spokesperson told to the Silicon Valley Business Journal that the company is "looking to lease property in the Silicon Valley area," but has "not selected a facility yet."

The company has already started hiring for the facility, though, which it says it plans to open in the fourth quarter of this year. Its careers website says it's currently hiring for electrical, mechanical and software engineers, as well as people to work in advanced manufacturing, program management and supply chain, in Silicon Valley.

The facility will "initially focus on electric vehicle research and development, including battery, power electronics and e-machine design, development and advanced manufacturing," Harley-Davidson said.

As the facility grows, it may expand its focus to an "increased range of advanced technologies," it said.

The company said it plans to hire from within the Bay Area, where it will have access to have a robust talent market.

3D Printing Plastics Market \$1,965.3 Million by 2023

According to the new market research report "3D Printing Plastics Market by type (Photo polymer, ABS, Poly amide, PLA), Form (Filament, Liquid/Ink, Powder), End-Use Industry (Healthcare, Aerospace & Defense, Automotive, Electrical & Electronics), Application, and Region - Global Forecast to 2023", published by MarketsandMarkets™, the 3D printing plastics market size is estimated to be USD 615.8 million in 2018 and is projected to reach USD 1,965.3 million by 2023. Factors such as increasing demand from the healthcare industry and growing demand in manufacturing activities

influence the 3D printing plastics market. Aerospace & defense, automotive, and electrical & electronics are the other major end-use industries of 3D printing plastics.

DuPont Opens Technology Center to Support Innovation in Silicon Valley

DuPont recently celebrated the opening of its Silicon Valley Technology Center, welcoming customers, community partners, industry groups and other guests to learn about the company's localized approach to innovation in the Bay Area. The site features DuPont's newest Innovation Center, a dedicated showcase featuring new and exploratory projects, labs to support ideation with on-site prototyping, and flexible meeting spaces that can connect customers to the company's global network of innovators and technical experts.

"Whether it's in consumer electronics, automotive, aerospace or other industries impacted by emerging technologies, innovation happens daily here in Silicon Valley," said Dalen Keys, DuPont Silicon Valley Technology Center site leader. "DuPont brings an enormous breadth of advanced materials and expertise to the table that can make the difference for today's innovators."

The DuPont Silicon Valley Technology Center will serve as a hub for the DowDuPont Specialty Products Division businesses to tackle customer challenges with applications support, rapid prototyping, testing and iterative design. On-site labs dedicated to fabrication, formulation, reliability and characterization are in daily operation to enable real-time collaboration. Through DuPont's global network of Innovation Centers and supporting teams, partners gain access to solutions enabled by the complete suite of capabilities, product offerings and ex



SAVE THE DATE

For further event details visit www.machinetool Expos.com



co-located with

NORTHWEST

FACILITIES



EXPO

MAY 8 & 9, 2019

Oregon Convention Center, Portland, OR

Northwest Machine Tool Expo, the ONLY machining and metal manufacturing event in the Pacific Northwest, will be held on **May 8 and 9, 2019 at the Oregon Convention Center**. Mark your calendar for this unique regional event that offers a convenient and efficient way to gain exposure to customers and prospects, generate leads, close sales, and introduce new products.



For exhibiting information contact
Joyce Lortz at 800-827-8009 x4424 or jlortz@facilitiesexpo.com

5th Axis 12	Heidenhain. .. Back Cover	Pierson Workholding .. 51
Acu-Rite Co. .. BackCover	Heimatec 85	Portland Show 91
Allied Mach & Engrg.... 62	Henning Software 80	Precision Tool 53
All AmericanSls&Serv 2	Hogue Prec Machy 14	Q-Mark Mfg Inc..... 82
Autodesk..... 65	Hurco 89	QPlus..... 80
Barton 73	Index Designs..... 68	QuickTurn Financial.... 84
Bison USA Corp..... 81	Int'l Search Conculants	Refresh YourMemory .. 39
CG Tech..... 61 79	Renishaw..... 25
Chevalier 41	Iscar 7	Roscoe Precision..... 89
Cimco 70	Jergens..... 71	Royal Products 77,85
Clark Manufacturers 76	JLD CNC Machining 80	R-Tec Machine..... 33
CME..... 79	Kaiser Tool Co 63	Selway Machine Tool..... 1
CNC Matters..... 17	KD Capital Equip 82	Southwestern Industries ...
CNC Solutions 89	King Machine..... 53 Inside Back Cover
Cytek 16,87	Kitamura 14	Star CNC 9
Darmak 87	Koma Precision 64	Syntec Technology 75
D & R Machinery 89	Lyndex Nikken 66	Takisawa Taiwan..... 33
DIL..... 81	Machines&Methods 82	Thinbit..... 63
Doosan Infracore..... 21	Machinery Sales 14,89	Tornquist Machinery ... 33
Drop N Go 84	Makino 28	Toyoda 13
Ellison Technologies 21	Mastercam..... 6	TQS 53
Factory Wiz..... 39	MCT..... 74	Tsugami/Rem Sales.... 29
Fadal 2	Methods MachineTls. 5	US Shop Tools.....
Fagor.	Mini Movers 73 15,37,59
..... Inside Front Cover	Mitsui Seiki 11	Vac U Lok 73,83
Femco..... 10	Nikon Metrology..... 67	Webb Prec Mach 72
Foothills Machinery..... 89	North South Machy..... 69	WesternMetrolgy Sls . .53.
Ganesh Machinery 40	Pacific Machine&Engrg ...	YCM.....55
Gosiger 19 84	Zeiss,Carl IMT 36,53
Hainbuch America 45	Pacific Swiss & Mfg.. .. 77	
Hanwha Machinery..... 54	PerformanceMachTls .. 33	

FOR ADVERTISING

Information in our Dec 2018/Jan 2019

Contact : Shawn Arnold 714-840-1300

sarnold@cnc-west.com

Introducing the *amazing new*

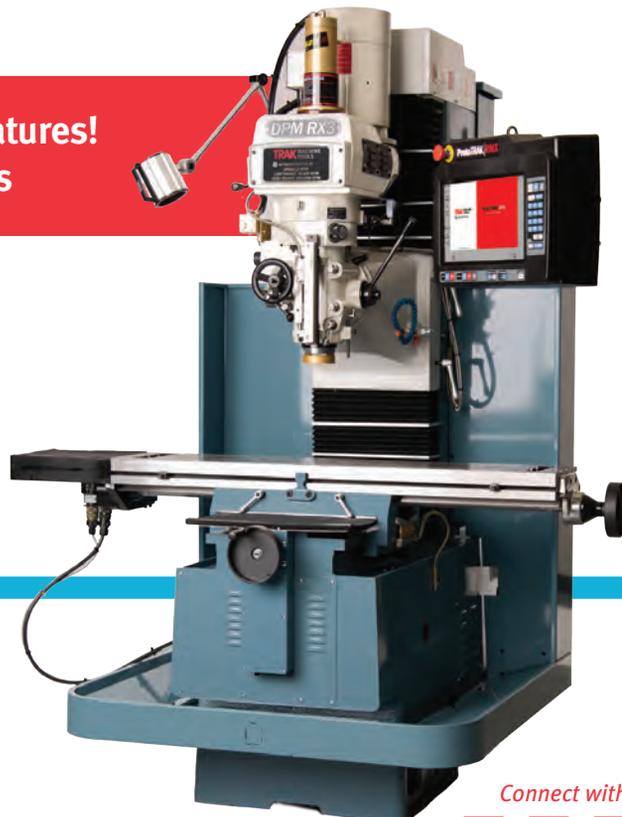
ProtoTRAK RMX CNC



Touchscreen
for an extraordinary
user experience

**Dozens of new, innovative features!
Exclusively on TRAK Bed Mills**

- Touchscreen
- Advanced Graphics
- Brushless Servo Motors
- Manual TRAKing™
...and more!



TRAK[®] MACHINE TOOLS



SOUTHWESTERN INDUSTRIES, INC.

www.TrakMT.com | 800-421-6875

2615 Homestead Place, Rancho Dominguez, CA 90220

Connect with us!

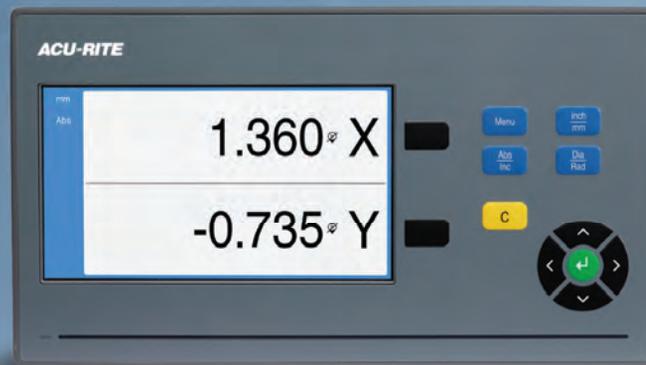


For details, complete
the "Contact Us"
form on our
website

ACU-RITE®

What's in your shop?

ACU-RITE's NEW complete line of performance-driven
Digital Readout Systems for all of your manual machine applications:
Milling, Turning, Grinding, Boring, EDMs



www.acu-rite.com



Digital Readout Systems | Precision Linear Encoders | MILLPWRG2 CNC Retrofit Packages for Knee and Bed Mill Machines

333 E. State Parkway, Schaumburg, IL 60173 | (847) 490-1191