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THE RECORD

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CONGRATULATIONS TO NEW NTMA STAR CHAPTERS

Four Chapters were recognized at the Fall Conference as new Star Chapters. —p13

NTMA FOUNDATION INTRODUCES FOUR 2014 SCHOLARSHIP WINNERS

Brock Babb Memorial Scholarship and Edwin Vobeda Memorial Scholarship recipients. —p13

GROB SYSTEMS DRAWS 2,500 VISITORS TO SEPTEMBER OPEN HOUSE

GROB Systems hosted an open house for 2,500 visitors at the company's North American headquarters in Bluffton, OH on September 20, 2014. —p15

NTMA RECEIVES AWARD FROM CENTER FOR AMERICA

NTMA is honored to have been selected as recipient of Honor Roll Recognition, Trade Associations by Center For America at their Delivering on the Promise Honor Roll Reception, October 23, 2014. —p21



NTMA CELEBRATES MANUFACTURING IN THE USA

AS PART OF MANUFACTURING DAY THE NEW MEXICO CHAPTER HOSTED ITS INAUGURAL EVENT, WITH INVITED DIGNITARIES INCLUDING GOVERNOR SUSANA MARTINEZ. — p8-12



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NTMA'S TOTH & ONE VOICE'S NASHASHIBI IN KANSAS CITY

The Kansas City Chapter enjoyed a visit by NTMA Chair Ted Toth in September. Among his tours, Ted visited Unitech, Inc. to set his sights on a new National Robotics League (NRL) competition arena being built there (and sponsored by the KC Chapter). Omar Nashashibi (One Voice) joined Ted at the Chapter's September meeting and plant tour at Ruco Products in Blue Springs, MO.



Kansas City Chapter President Roger Gubbels (K-Ter Imagineering) welcomes Ted Toth and Omar Nashashibi to the Kansas City Chapter.



Unitech owner Craig Schroer and Ted Toth inspect the framework of the NRL's newest arena.



HOT OFF THE PRESS!



70,000

NIMS has hit a new milestone – they have issued over 70,000 metalworking credentials to date. This is a major benchmark, as more companies, training providers and schools provide opportunities for their employees, trainees, apprentices and students to earn any of their 52 industry-written, industry-approved certifications. NIMS credentials are “the” common currency for communicating an individual’s skills and competencies to potential employers and career pathways.



CHAIRMAN'S CORNER

TED TOTH / NTMA CHAIRMAN OF THE BOARD

This month we will review IMTS 2014 and another member value tool, our National Associate Partners (NAMs).

This is the 20th IMTS show I have attended – and once again, it did not let me down!

NTMA's Tech Team started a new program at IMTS 2014: Member Tech Tours. I attended many of the tours and will note that the amount of specific information I learned was much more than from just visiting a booth during the show.

If you have never attended IMTS you cannot imagine the effects of being in such a huge crowd and trying to learn about new technology. Tech Tours gave our members specific focused details and a much smaller audience. Many of the NTMA Tech Tours were pre-show; each included key contacts or officers of the companies, such as company presidents or technology directors.

Because this was Tech Tours' first year, they were rather lightly attended. But those present thought the tours were very helpful and plan to attend more tours at IMTS 2016. Several members noted that as they only have one or two days to see the show, they found it hard to commit to a specific scheduled event. The Tech Team has two years to review and revise the Tech Tours program so to better meet our members' needs. If you attended any of the tours and have suggestions or feedback please contact the Team.

One of the biggest observations of this year's show was the advancement in new controls. Machines are still driven by the standard control hardware in the back, but most of the leading machine manufactures added more to the front end. The PC-

based front ends allow for more efficient utilization of the machine, as users are able to better monitor how the machine is performing through a single dashboard. One manufacturer added two touch screens and replaced the knobs, switches and keyboards with touch controls. It's starting to look more like Star Trek at every show!

I was also glad to see that most leading manufactures have accepted and implemented MTConnect. So now you can receive the same information in the dashboard on any computer or portable device.

As the challenges in hiring and training a skilled workforce have become universal, we see more and more ideas on automation, which reduces or even eliminates the labor. This year's IMTS provided many new solutions.

One morning I attended the Smartforce Student Summit that was part of IMTS. It was great to see hundreds of students having fun while learning about precision manufacturing. I noticed that many of them were filling their grab bags with all sorts of goodies. I would hazard a guess that once they got home, students went through their bags, showing their friends all the cool things they got and sharing their Student Summit experience – and that could very well fuel their or another's interest in our industry.

Additive manufacturing was also a big part of the show and we had a Tech Tour at one additive manufacture's booth. Every year we are seeing additional methods and additive technologies. At IMTS 2014, they even printed machined and assembled a sports car (see the story: [http://www.cnn.com/video/data/2.0/video/us/2014/09/14/](http://www.cnn.com/video/data/2.0/video/us/2014/09/14/dnt-illinois-3d-printed-car.wgn.html)

[dnt-illinois-3d-printed-car.wgn.html](http://www.cnn.com/video/data/2.0/video/us/2014/09/14/dnt-illinois-3d-printed-car.wgn.html)).

I will close my comments as I began: As in past years, IMTS 2014 did not disappoint me. I just wish I had more time to spend at the show!

Now for one of the more under-utilized tools of the NTMA, our National Associate Partners. They are actually National Associate *members*, but I see them as our partners. We can place these partners into a few categories: Discount Programs; Service Partners; and Machine, Tooling and Equipment Partners. I am not going to explain how each partner can help you, but rather how you can use these partners as tools.

DISCOUNT PARTNERS

These programs range from cutting tools and products, to shipping services, and even to office supplies – all that support our businesses. NTMA members need to sign up directly with each program to participate in the partner program. In many cases, chapters' local associates are also eligible to participate. A few of the programs provide not only discounts, but also free shipping. A few provide our association and chapter rebates. In some cases the programs provide rebates when a chapter's usage is greater than the previous year. While this could discourage the chapters, they should promote the program to assure a larger return for the next year. Each year we add more of these programs and expand on the ones we currently have.

SERVICE PARTNERS

Service partners are those that help operate our businesses, from HR, to R&D tax credits to software and employee coaching

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THE RECORD

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and recruitment. Many of these programs also provide discounted fees for our members. These partners know our industry, they know our issues and they know our challenges. Make them a part of your business team.

MACHINE, TOOLING AND EQUIPMENT PARTNERS

While many of these partners do not provide discounts for their products, they do provide a great service. Many are large event sponsors and our events would be twice the cost without their generous support. They may be under utilized as part of your company's team. If you have a manufacturing or process issue, call them in, let them help resolve your problems. If you need special attention we can link you up with the specific contacts in their compa-

nies; we will help you get to the right person to help.

Most National Associate Members are also generous event sponsors. Please review the following list. Do you use them, or even know about them? Do you know what programs or discounts they can provide? You can go to the NTMA website for a current directory of National Associate Members with links to their websites.

Did you know that NTMA members use only 10% of the tools and programs that our association provides and still see value in their membership? Just think how much more value your company would receive if you took advantage of even 15-20% of the opportunities available!

CONTINUED ON — P6

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In the Chairman's Corner next month we will review our Fall Conference and a few other NTMA tools.

On a final note this month, on behalf of the entire organization I would like to offer our very best wishes to both Jeff Walmsley and Emily Lipovan as they depart NTMA to pursue other career options. Thank you, Jeff and Emily, for your dedication, time and talent shared with us so generously.

THEODORE O. TOTH, JR. (TED) /
NTMA CHAIRMAN



NTMA AND GRAINGER ANNOUNCE FIVE YEAR EXTENSION OF PARTNERSHIP AND ENHANCED BENEFITS FOR NTMA MEMBERS

NTMA and Grainger are pleased to announce a five year extension of their partnership program as well as enhanced benefits for NTMA members. The NTMA-Grainger partnership has provided a range of benefits for NTMA members including exclusive product and service discounts.

"We are pleased to not only continue our partnership with Grainger, a partnership that has provided great value to our membership, but to also announce a range of new, exclusive benefits provided by Grainger for NTMA members," said NTMA President Dave Tilstone. "For example, we are launching a new NTMA Customized Catalog on Grainger.com where NTMA members can log in and see a special catalog specifically designed for them that includes merchandise discounted beyond the current minimum 10% on all catalog items."

"We look forward to continuing to provide NTMA members with exclusive discounts on our products and services," said Eugene Kim of Grainger. "Our partnership with NTMA has been mutually beneficial and we

are pleased to be able to provide and enhance our offerings for the next five years, including for the first time offering free shipping on all orders."

THE NTMA-GRAINGER PARTNERSHIP INCLUDES THE FOLLOWING NEW BENEFITS FOR NTMA MEMBERS:

- An NTMA Customized Catalog on Grainger.com where NTMA members can log in and see a special, customized catalog specifically designed for them and denotes commodities that are above and beyond the standard 10% off catalog price.
- Free shipping on all orders is also a valuable update of the program.
- Specific commodity discounts include:
 - Air Filters: Discounts of 45% off catalog price on 3,500 Air Handler Brand Air filter products
 - Motors: Discounts of 28% off catalog price on 47,000 Dayton, AO Smith, and Browning Brand Motors, Power Transmission Engines and Generators
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by Milwaukee, DeWalt, Blackhawk by Proto, Stanley, Proto and Westward hand tools, power tools and accessories

- Lighting: Deep discounts on GE Lamps/Ballasts, Acuity Lighting fixtures, Waldmann Machine/Inspection/Project Area Lighting and RecyclePak Lamp Recycling Products
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NTMA Celebrates MFG Day 2014

In just three years, National Manufacturing Day has achieved more than 1,600 manufacturing plant tours and events with an estimated 100,000+ attending. On October 2nd, President Barack Obama issued a presidential proclamation declaring October 3, 2014 National Manufacturing Day. The President stated the following in his proclamation: “On National Manufacturing Day, more than 1,600 American manufacturers will open their doors and take up the important work of inspiring our young people to pursue

careers in manufacturing and engineering. Today’s science, technology, engineering, and math graduates will power the next chapter of American production and innovation, and harnessing their potential is an economic imperative. When our manufacturing base is strong, our entire economy is strong. Today, we continue our work to bolster the industry at the heart of our Nation. With grit and resolve, we can create new jobs and widen the circle of opportunity for more Americans.” (from the Manufacturing Day 2014 web site)

Manufacturing companies, schools and partners embraced the vision and opportunities of Manufacturing Day 2014. NTMA supported the day as a Silver Sponsor. While there were many models across the country – over 1,400 events nationally – we will feature a few illustrative stories.

Learn more about MFG Day and see the full list of registered events on the MFG Day website (www.mfgday.org).



MANUFACTURING DAY: 600+ STUDENTS AT SOUTHWESTERN ILLINOIS COLLEGE

St. Louis and NTMA national educational member, Southwestern Illinois College (SWIC) hosted another great Manufacturing Day. Over 600 high school students from 15 area high schools attended this year’s event. The day involved a tour of SWIC’s Industrial Technology Center in Granite City, IL and tours of local manufacturers. The students could also visit with more than 25 companies from the St. Louis region in the school’s Commons, including St. Louis NTMA Chapter members Bachman Machine Company, Chelar Tool and Die and Ehrhardt Tool and Machine. These member companies also opened their shops for student tours.

Participating students received a free Manufacturing Day t-shirt (“From Hand Made to High Tech”), safety glasses and a lucky few received machined key chains from the Precision Machining de-

CONTINUED ON NEXT PAGE



Manufacturing Day Opening Ceremony – U.S. Congressman Bill Enyart, D-Ill., served as the keynote speaker for the Southwestern Illinois College Manufacturing Day Celebration Oct. 3. From left, Enyart poses with SWIC Industrial Technology Coordinator Mark Bosworth, SWIC Dean of Technical Education Brad Sparks and SWIC President Georgia Costello, Ph.D.; and Ehrhardt Tool and Machine Inc. retired President Bob Roseman is in the background. The college presented Enyart with a clock made in the Precision Machining Technology Lab. More than 600 Metro East high school students and members of the community attended the event held at the SWIC Sam Wolf Granite City Campus. The event included hands-on demonstrations of new technology in the Industrial Technology Center, tours of six local manufacturing facilities and displays from more than 25 area manufacturers. The event was presented in partnership with the IMEC – Illinois Manufacturing Excellence Center, the Southwestern Madison County Chamber of Commerce and the Illinois Department of Commerce and Economic Opportunity. SWIC Photo by Aaron Sudholt 10/3/14

partment. “The more students are exposed to manufacturing the better this region will become in the future” said Mark Bosworth, SWIC’s Industrial Technology Coordinator.



Above: SWIC students and their mascot welcomed over 600 high school students to their campus to show them “From Handmade to High Tech.”

Left: SWIC program Director Mark Bockhorst is checking out Manufacturing Day exhibits.

MFG DAY: SUCCESSES ARE IN THE STORIES

Investments in Manufacturing Day events show returns – real impacts on students’ lives in helping shape their future and real impacts on a company’s and an industry’s future. Ask Shannon Sweatman of Southern Manufacturing Technologies, who shared this story: After touring Southern Manufacturing Technologies (SMT) while juniors in high school, Allison, now a high school senior, and Austin, a freshman as a local community college applied for part-time jobs. Allison and Austin started at SMT in inspection, learning how to measure parts and use inspection equipment and are now CNC machine operators. Austin has told some of the recent student tours that he had not planned on a career in engineering until he toured SMT and then started working there. Now he thinks being a process engineer is in his future.

Allison shared, “To be com-

pletely honest, I didn’t think much about manufacturing before I took the trip to Southern Manufacturing Technologies. Manufacturing was one of those things I knew took place but I was completely oblivious about how it happened. Our class tour there last year opened my eyes, giving me the opportunity to take the first step in my career. The tour made me aware of a company in the area that hires part-time workers in a field related to my course of study. Working here at SMT is giving me one of the greatest experiences that I could not get anywhere else. I am learning skills that I will be able to utilize for my engineering career, and I look forward to expanding my knowledge in manufacturing.”

So do Manufacturing Day events have an impact? You bet they do!



Southern Manufacturing Technologies’ employees Austin and Allison – two who share the impact of MFG Day on their lives.

NEW MEXICO CHAPTER HOLDS INAUGURAL EVENT

The New Mexico Chapter of the National Tooling and Machining Association (NTMA) held its Inaugural Event on October 16th at Bogue Machine Company (Albuquerque, NM) to recognize and celebrate its inception as the 38th Chapter of the NTMA.

In honor of National Manufacturing Month, and to acknowledge this significant event, Governor Susana Martinez and members of her cabinet – Secretary of Economic Development, Jon Barela; Secretary of Workforce Solutions, Celina Bussey, and Secretary of Public Education, Hanna Skandera – were in attendance. NTMA was represented by Vice President Ken McCreight, who heads up NTMA-U.

“As we celebrate National Manufacturing Month, I am pleased that New Mexico is recognized by the manufacturing industry as a welcoming place for their businesses,” said Governor Martinez. “Manufacturing jobs pay well and have a great multiplier effect on our economy. We are thrilled they know New Mexico is serious about growing this industry because of our tax competitiveness and education reforms.”

“Over the last three and a half years, New Mexico has worked hard to create an environment that welcomes manufacturing as it moves from a federally-dependent state to a more diversified private-sector economy,” said Barela. “As a result of our efforts, New Mexico is ranked best in the West for manufacturing businesses according to Ernst & Young.”

The New Mexico Chapter was officially established on March 8 during the NTMA General Session of the 2014 MFG Meeting, held in Scottsdale, AZ. The Chapter has grown to 31 NTMA member companies and 11 associate members across the state. Together these companies represent over 1,300 manufacturing jobs.

Chapter members and associates recognize the importance of manufacturing in New Mexico. The Chapter, like NTMA chapters throughout the U.S., is engaged in not only building up its members’ businesses, but also focuses on building the manufacturing industry overall. This is achieved through partnerships and advocating for key issues that face the industry: a business-friendly environment, education, workforce develop-

ment and supply chain development. Manufacturing jobs are significant contributors to an economy because they are typically higher paid positions. And they generate new business dollars/investment from outside of the state. According to reports from the Manufacturing Institute, manufacturing leads all other industry sectors in economic multipliers adding \$1.33 cents for every \$1.00 spent and 1.6 additional jobs for every manufacturing job created.

The New Mexico Chapter has met bi-monthly since January of 2014 to develop its priorities and agenda in order to synergize the talent and capabilities of its membership and to raise awareness of the fact that New Mexico is open for business in the manufacturing arena.

Mark Bogue, the New Mexico Chapter President said “we as a state have a lot to offer and we are just now beginning to realize how much talent we have in this state as well as in our chapter. If we want to bring more opportunities to the state we must work as a team.”



Ken McCreight of NTMA noted that “the New Mexico Chapter of NTMA is already leading the way nationally in best practices for membership recruitment and board governance. With strong leadership and good involvement, NTMA here in New Mexico is bolstering local business development and strengthening relationships with the local Manufacturing Extension Partnership and other state programs. And it is the strength of local chapters that helps NTMA work beyond the local level to help shape the industrial policy for our country.”

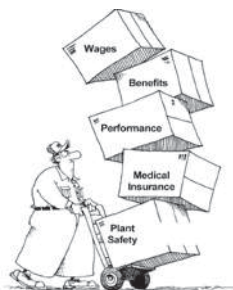
This year’s top priorities for the New Mexico Chapter are business development, educational and workforce development, and political advocacy. The Chapter has established six committees to focus on chapter priorities and goals: Business Development, Educational Development, Chapter Concerns, Political Advocacy, Membership Value and Recruitment.



ARE YOU OVERPAYING/UNDERPAYING YOUR EMPLOYEES?

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Deadline Extended to November 30!



The NTMA Wage & Fringe Benefits Survey can help you keep from overpaying or underpaying your employees, and make sure you are offering your employees a competitive health care package. Your time investment in completing the confidential survey by the deadline means that you will receive a free copy of the NTMA Wage and Fringe Benefits Report to be distributed after survey data has been analyzed. Depending on your Chapter’s response rate, you might even have data analyzed for your region/city/state. If you have questions or to obtain copy of the survey contact Kelly LaMarca (klamarca@ntma.org) or call (216) 264-2838.



MFG DAY 2014 IN MICHIANA: TRULY A COMMUNITY EVENT

Manufacturers throughout the Michiana region were part of a community-wide push for visibility and education about the vast opportunities available. According to the St. Joseph County Chamber of Commerce, 422 students and 19 manufacturers participated.

Other participants included a group of organizers comprised of manufacturers, the St. Joseph County Chamber of Commerce, the Michiana Chapter of the NTMA, Ivy Tech and South Bend Community School Corporation Career & Tech Education.

Fifteen manufacturers welcomed students to their facilities, where they gave tours and talked about what kind of education is necessary to be a part of their team. Additional manufacturers were on-site at Ivy Tech, where students also toured training facilities and spoke with instructors.

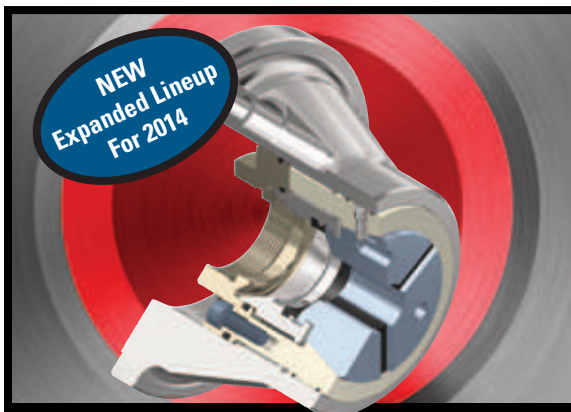
And just in case you were wondering "what is Michiana?" – north central Indiana and southern Michigan. Home of the NTMA Michiana Chapter.



Above: Kevin Grewe, of Manufacturing Technology Inc., talks to a group of South Bend students about manufacturing on Friday during Manufacturing Day at the South Bend plant. (SBT Photo/ROBERT FRANKLIN)



Left: Jonathan Barra, of Manufacturing Technology Inc. in South Bend, gives a tour to a group of South Bend students Friday as part of the local Manufacturing Day event. (SBT Photo/ROBERT FRANKLIN)



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FLATE TAKES MFG DAY BY STORM

Florida Advanced Technological Education Center (FLATE) is a National Science Foundation Center of Excellence in manufacturing, supporting high-tech manufacturing/manufacturing-related careers and technical education in Florida.

FLATE, in conjunction with regional manufacturers associations, industry and educational partners across Florida took Manufacturing Day in Florida by storm. Among the companies involved in this state-wide effort was NTMA member Southern Manufacturing Technologies.

FLATE's Manufacturing Day outreach strategy enabled statewide participation. This strategy not only helped build in-roads for communities across Florida to create sustainable partnerships and outreach between regional manufacturers associations, school districts and manufacturers, but enabled re-

gional manufacturing teams to independently organize tours, proclamations and sponsorship for official manufacturing day t-shirts.

2014 marked the second year FLATE led a statewide outreach campaign to celebrate National Manufacturing Day in Florida. This year 3,000 middle and high school students from 36 counties toured 112 high-tech manufacturers as part of National Manufacturing Day/Month in Florida. A total of 165 events were planned throughout the state. This marked a rise not only in the number of tours compared to last year, but also number of students and industries opening their doors for National Manufacturing Day in Florida.

On a local, regional and/or statewide level, Manufacturing Day dominated the headlines with Florida Governor Rick Scott declaring October 3 as the official



kick-off day for Manufacturing Month in Florida.

This year FLATE also developed curriculum for elementary as well as 7th-10th grade students. Several schools across Florida are currently piloting these lesson plans as part of

Manufacturing Day 2014.

For more information visit FLATE's webpage (www.madeinflorida.org/manufacturing-day).



WIN-TECH SEES MFG DAY AS A "WIN"

On Friday, October 3, Win-Tech worked with Career, Technology, and Agricultural Education (CTAE) at Cobb County School District to host an event to celebrate Manufacturing Day. See short video produced: <https://www.youtube.com/watch?v=ACjBkXoahvc&feature=youtu.be>

Led by Allison Giddens, Win-Tech's Office Manager, in conjunction with Richard Greaves (Win-Tech's Sales Rep) and John Hudson (Win-Tech's Shop Manager), the Kennesaw, GA precision machine shop worked to include students and make them aware of many manufacturing career options.

Manufacturing Day works to address the common misperception about manufacturing. It's not an old, outdated industry –

it's an industry filled with various careers in demand, fascinating state-of-the-art technology and the need for skilled workers.

Representatives Richard Goble, Director for Business & Industry Economic Development at Chattahoochee Technical College, and Bill Ritsch, North Metro Region Manager of the Georgia Tech Enterprise Innovation Institute came with co-workers to help answer high school students' questions about their continued education after graduation and the possibility of a career in manufacturing.

The 100+ students from marketing and IT classes at Kennesaw Mountain High School visited in small groups through the day. They even had a home schooler visit from

Tifton, GA. Students participated in a full-shop tour and then watched a video presentation featuring interviews with Win-Tech employees about how they got started in manufacturing. The video also included a brief history of manufacturing and explained why the industry is vital to our nation. The groups wrapped up their visit with questions to the Chattahoochee Technical College and Georgia Tech on-site representatives. They discussed salaries of careers in manufacturing, as well as how to get there: course-loads, tuitions and scholarships.



Resources from MFGDay.com were used in an effort to educate students on the exciting reality that is manufacturing in Georgia! For more information on Win-Tech, Inc. go to www.win-tech.net





NTMA FOUNDATION INTRODUCES FOUR 2014 SCHOLARSHIP WINNERS

BROCK BABB MEMORIAL SCHOLARSHIP AND EDWIN VOBEDA MEMORIAL SCHOLARSHIP RECIPIENTS (\$2,000/SCHOLARSHIP FOR A TOTAL OF \$4,000 TO EACH RECIPIENT)

Ashley Robinson, studying precision manufacturing technology at Southwestern Illinois College; sponsored and employed by Ehrhardt Tool and Machine, Granite City, IL (St. Louis Chapter)

Hallie Overschmidt, studying precision machining technology at Ranken Technical College; sponsored and employed by G H Tool and Mold, Washington, MO (St. Louis Chapter)

BROCK BABB MEMORIAL SCHOLARSHIP RECIPIENTS (\$2,000 TO EACH RECIPIENT)

Darren Raker, studying to be a journeyman tool and die maker, in apprenticeship training at NTMA Apprenticeship Training School-Greater Toledo Chapter. Sponsored and employed by Dundee Manufacturing Company, Dundee, MI (Toledo Chapter)

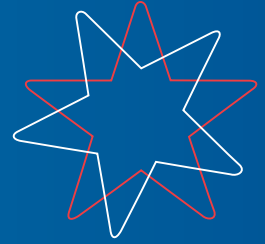
John Dillon Barry, studying for a degree in chemical engineering at California Polytechnic State University; intern at and sponsored by ThermoFusion, Hayward, CA (San Francisco Bay Area Chapter)

Congratulations and best wishes to all the scholarship winners.

The Brock Babb Memorial Scholarship is an annual tuition scholarship created by the NTMA in support of students advancing their education and pursuing careers in manufacturing. The Edwin Vobeda Memorial Scholarship is an annual tuition scholarship created through a charitable donation to the NTMA Foundation from the Edwin F. and Mildred Vobeda Charitable Remainder Trust in support of students residing in the Central Time Zone advancing their education in a tool and die apprenticeship program to pursue careers in the tool and die industry. Applications packets for both scholarships are available by contacting Ken McCreight (kmccreight@ntma.org). Completed applications are due April 1, 2015.



NTMA STAR CHAPTERS



Congratulations To New NTMA Star Chapters

Four Chapters were recognized at the Fall Conference as new Star Chapters:

Akron Chapter – accepted by Steve Schler, Chapter President



New Mexico Chapter – accepted by Mark Bogue, Chapter President



Rocky Mountain Chapter – accepted by Scott White, Chapter Trustee



San Francisco Bay Area Chapter – accepted by Nils Kjell, Chapter Trustee



These four chapters join the current 2014 Star Chapters, as presented at last spring's MFG Meeting in Phoenix: Arizona Chapter, Boston Chapter, Connecticut Chapter, Kansas City Chapter, Los Angeles Chapter, Michiana Chapter, North Texas Chapter, Northwest Pennsylvania Chapter, Pittsburgh Chapter, Rock River Valley Chapter, St. Louis Chapter and Western Massachusetts Chapter. Additional recognition at the MFG Meeting was awarded to Rock River Valley Chapter (Most Improved Chapter 2014) and Michiana Chapter (Chapter of the Year 2014).

The NTMA Star Chapter program recognizes Chapters, their leaders and staff for outstanding achievements in advancing the NTMA and the manufacturing industry. Star Chapter status is determined by achieving a high score on the annual Chapter Organizational Questionnaire conducted each year. This survey measures chapters' level of organizational excellence, local influence and engagement with NTMA on a national level – all determined to be best practices indicators in NTMA Chapter operations.

In order to accommodate the trends in conference programming, Star Chapter Awards will now be presented at each Fall Conference. NTMA will announce a new 2015 Star Chapter class as well as Most Improved Chapter and Chapter of the Year at the 2015 Fall Conference in St. Louis.

Congratulations to all the Star Chapters on their achievement. NTMA looks forward to continued enhancements to the Star Chapter program to further promote growth and specific engagement with national programs and organizational excellence with enhanced incentives to match pillars of growth – to advance NTMA chapters and to deliver value to NTMA members.



THE PREMIER NATIONAL ROBOTICS COMBAT LEAGUE

Join us for an action packed event that will test students' ingenuity as they go head to head with their own mechanical creations in duels of robot combat.

This event, brought to you by the National Tooling and Machining Association, demonstrates how this powerful program is aligning industry and education to introduce students to the benefits of high-tech careers.

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WHEN & WHERE

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GROB Systems draws 2,500 visitors to September Open House

GROB Systems hosted an open house for 2,500 visitors at the company's North American headquarters in Bluffton, OH on September 20, 2014.

GROB's 390,000 square foot Ohio facility is one of few full-scale machine tool manufacturing facilities in the U.S. Customers and prospective employees were intrigued by the tour of many specialized departments. The largest casting machined in-house is 19 feet long, 12 feet wide, and 8 feet high, with a weight up to 25,000 pounds. After machining, GROB has various departments for sheet metal, full component subassembly, electrical (UL) and hydraulic systems, automa-

tion design and integration, and more.

This full vertical integration of processes – from design to machining and assembly – is important to achieving GROB quality standards. The machines are built for critical manufacturing operations, and the company is responsible for performance of every component and software system.

The Open House drew a staggering number of visitors in part due to interest in GROB's apprenticeship program, which has more than 250 graduates to date. In 2012, the program was updated from a skilled trade program to a four-year work and study program accredited

by the local university. GROB apprentices earn their associates degree in Manufacturing Engineering Technology from Ohio's Rhodes State College while earning full-time pay. Admissions testing for the next class will be held in November.

GROB Systems has been a major supplier of machine tools to the automotive industry for decades, but is relatively new to manufacturers in other industries. Since 2012, GROB has offered a stand-alone version of its G-Series machining center designed for 5-axis applications in die/mold, aerospace and other industries. Demonstrations on two such Universal Machining Centers

attracted more than 1,000 visitors to the GROB booth during IMTS.

GROB Systems is a subsidiary of GROB-Werke GmbH & Co., located in Mindelheim, Germany. Machines are produced in Germany and the U.S., with all service and replacement parts available from the Ohio location. For more information about this NTMA National Associate Member, go to www.grobgroup.com/en/company/grob-group/production-plants/bluffton-usa.html.



TAKE ADVANTAGE OF THE FEDEX PACKAGE LAB

If you're shipping products that require special packaging, it can become cumbersome to find the right fit and prevent damages. The good news is that FedEx Packaging Services offers customers a variety of design, testing and engineering information services that can improve your packaging strategies.

FedEx recently opened a brand new package laboratory to test and design packages for a wide variety of products that customers may ship – perishables, glass, electronics, and any other items that require special attention. The lab's unique features include:

- Altitude chamber (Site level to 100,000 feet)
- Temperature chamber (-90°F to +350°F)
- Humidity chamber (within 2% tolerance)
- Two drop testers
- Three vibration tables
- Compression table
- Automated sample table
- 5-ton crane for testing skidded freight
- Forklift course for testing skidded freight
- Material testing laboratory



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Wood shop

Other specialty design and testing equipment

NTMA members enrolled in the NTMA Shipping Program and using FedEx for their small package shipping can take advantage of this new facility by submitting package samples for testing or requesting a unique package to be designed and customized specifically for your products.

This tip is brought to you by PartnerShip, the company that manages the NTMA Shipping Program. For more information or to enroll, email sales@PartnerShip.com or call 800-599-2902.





OKUMA OPEN HOUSE

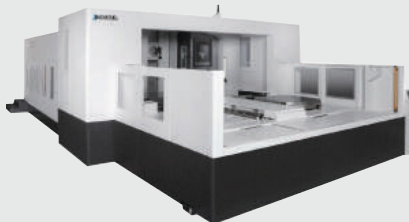
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Okuma's Technology Showcase, being presented December 9-10, 2014, will show you how simple technology upgrades can help you leapfrog the competition, get better productivity from your people and your machines, and improve your bottom line.

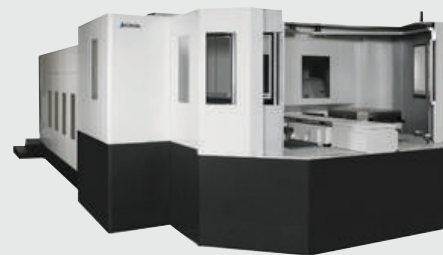
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[Side-by-side cutting demonstration of the LB EXII and LU EX lathes.](#)

➡ VMC VS. HMC

Learn how a horizontal machining center can actually increase overall throughput, improve quality and reduce required labor, WIP and floor space – all without significantly increasing your capital budget.

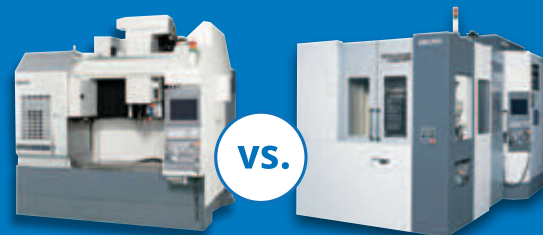
[Side-by-side comparison on GENOS M560-V and MB-5000H.](#)

➡ THE OKUMA APP STORE

Find out how machine tool apps can significantly impact the effectiveness and efficiency of your machine tool – yes, there IS an app for that!

[Improved communication.](#) [Enhanced use of labor assets.](#) [Reduced set-up times.](#)

VMC VS. HMC



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GENOS M560-V (SKELETON)

MB-4000H W/ PALLETACE

MB-5000H

MU-6300V W/ PALLETACE

VTR-160A

GI-10

2-AXIS VS. 4-AXIS



RSVP

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WHO IS REALLY BEHIND THE CURTAIN AT FLOHR?



Flohr Machine Company, a family owned and operated full-service precision contract machining company may be in Barberton, Ohio, but this state of the art, quality-focused operation has humble beginnings that can be traced back to over 45 years ago. Jerry and Pete Flohr are the second generation to carry on the family's legacy of manufacturing.

"We share our father's vision and plan of re-investing in the company, continuing to upgrade equipment, tools and improving processes," says Jerry Flohr, the company's President.

Like many machine shops, Flohr Machine Co. was founded by a patriarch, Ivan Flohr, and his brother Charlie in 1966. Ivan, who was working at Goodyear Aerospace, was talking to Charlie one day and came to basic conclusion, "Hey, if these guys are making money at this, why can't we do the same?" The company began in Ivan's multi-bay garage at his home in West Akron, Ohio. His wife, Judith Flohr, borrowed money from her father to purchase their first machine. A third brother, Paul, wanted nothing to do with the management of the new business, but he was willing to work with them.

Flohr Machine's first actual paying job, according to Pete, was for a company in Cleveland called Machine Tooling, which is still in operation. They debated about what invoice number they should send them, and they decided they should make it number 100, rather than number one. The Flohrs didn't want Machine Tooling to know they were their first real customer. Another early customer was a company that made children's coloring books, and Flohr Machine made parts for their presses.

Eventually, business picked up enough that the neighbors began to complain about the oil and steel trucks coming down their residential street, so Flohr Machine moved their operation.

All of Ivan's sons worked either some or all of their summers at Flohr Machine. Pete was 14 when he began, and after high school he transitioned to full-time. Jerry joined the company full-time after he graduated from Malone College in Canton, Ohio.

In the mid-1980s, one day a gentleman, who had no appointment, wandered in with

drawings in his hand and asked the Flohrs if they wanted to do some work for his company. Flohr Machine has been doing work for Goodyear ever since.

Ivan's five sons eventually bought the business from him. Over the last four years, there were several buyouts, and Flohr Machine Company is now owned and operated by Jerry and Pete Flohr. The third generation has already started at Flohr Machine. Pete's son, Ryan, is currently working full-time at the company while Jerry's younger sons, Anthony and Chris, are beginning to learn the basics.

"We've turned the company completely around in the last 18 months with the purchase of some amazing machines, meeting over 98% of our ship dates, and developing many new business partners," says Pete. "We have created good operating procedures and are still adding on to the building to accommodate more machines and more employees – and we still have room to grow."



From left to right: Mike Vinay (Barberton Ohio Service Director), Barberton Ohio Mayor William Judge, Pete Flohr, Jerry Flohr, and Melisa McFadden (Barberton Ohio Administrative Coordinator).

"I hope the next generation is willing to carry on our father's legacy," adds Jerry.

This second generation manufacturing legacy at Flohr Machine continues with the same work ethic of decades ago starting with Ivan Flohr. But the difference now is that it's with a new and open minded entrepreneurial spirit built from first-hand experience of solving problems, meeting ship dates, state-of-the-art technology and the commitment to quality.

Clearly, the Flohrs aren't wizards, but both Jerry and Pete are the ones behind the curtain and in charge of their father's legacy ... and their destiny.



IN MEMORIAM – RALPH CIACCO

Long-time member, manufacturing advocate and friend, Ralph Ciacco, President and CEO of Penn State Tool and Die, passed away unexpectedly Saturday on October 18, 2014 at UPMC-Presbyterian Hospital, Pittsburgh, PA.

Ralph only took one day off following his high school graduation in 1968 from Southmoreland High School before beginning his apprenticeship for tool and die maker at Penn State Tool & Die Corporation. He followed in his father's footsteps, who was also a tool and die maker. Ralph continued from tool and die maker to manufacturing engineering and eventually was named President of Penn State Tool & Die Corporation on February 16, 1998, followed a few years later by President and CEO. He spent a total of 46 years and 5 months with this company.

Ralph was a Board Member for the Pittsburgh Chapter of NTMA and served as a Trustee of the Foundation. He was also a member of the Society of Manufacturing Engineers.

Ralph is survived by his loving family: his wife of 42 years, Cheryl A. Cramer Ciacco; his daughter, Roslyn Karstedt and her husband Rick of Jacksonville, FL and his beloved grandchildren, Katie Belle and Alex Jonathan Karstedt. Donations are being accepted in honor of Ralph's legacy through the Pittsburgh Chapter of the National Tooling and Machining Foundation, Inc. specifically for the apprenticeship program (www.pghntma.org).

Ralph will be dearly missed by this his many NTMA friends and all who knew him.



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NTMA receives award from Center for America



NTMA is honored to have been selected as recipient of Honor Roll Recognition, Trade Associations by Center For America at their Delivering on the Promise Honor Roll Reception, October 23, 2014.

NTMA recognizes the training and talent of members of the U.S. military and works to connect returning American service men and women with good jobs in the manufacturing sector. NTMA President Dave Tilstone is a member of the American Jobs for America's Heroes (AJAH) Campaign Advisory Council and has been an unwavering advocate for the campaign, encouraging NTMA member companies to post jobs with the campaign and to hire National Guard members, reservists and veterans. NTMA member companies have shown a strong commitment to veterans and their families by hiring veterans whenever possible.

As a leader in its industry, NTMA has actively promoted the AJAH campaign on the NTMA website, in newsletters and on social media. It has also offered employers opportunities to gain special insight into effective techniques to recruit and hire ser-

vice members by promoting a webinar to its members that was produced by AJAH on military hiring.

Going forward, employment of veterans in the manufacturing sector is likely to increase as a result of NTMA's participation in a national dialogue about the skills gap in manufacturing and the unique opportunities it may create for veterans. To that end, NTMA participated last spring in a newsmaker event at the National Press Club in Washington DC, alongside AJAH and other panelists to explore various aspects of the skills shortage and potential solutions from increasing educational opportunities by recruiting military veterans and members of the U.S. National Guard.



As part of their effort to address the lack of skilled workers in the manufacturing sector, NTMA is collaborating with employers, job training center, educators, the armed forces and others to promote the hiring of veterans. AJAH is a key partner and a staunch supporter of this effort.



THE MFG MEETING. MANUFACTURING FOR GROWTH.

The fifth edition of The MFG Meeting, March 4-7, 2015, will bring together the manufacturing community to learn, network and be inspired. This year's meeting will focus on the power of manufacturing, which is driven by innovation, design, insight and people.



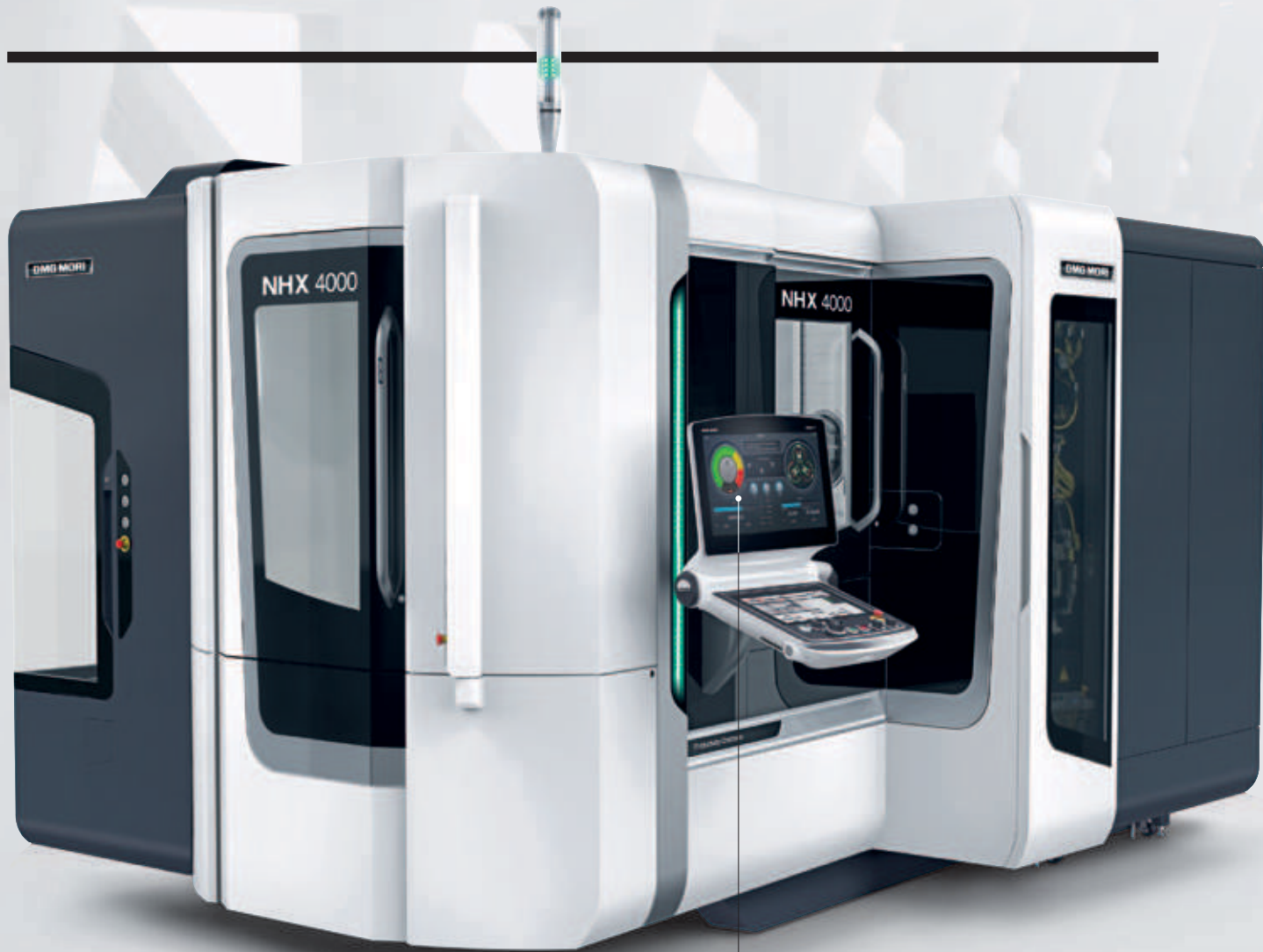
Presentations from industry leaders will provide creative ways to optimize the drivers of manufacturing and provide solutions to strengthen your business. The event is organized by AMT – The Association For Manufacturing Technology, the National Tooling and Machining Association (NTMA) and the Precision Metalforming Association (PMA).

"THE MFG MEETING CONTINUES TO BRING THE TECHNOLOGY LEADERS OF THE WORLD TOGETHER WITH THOSE, LIKE NTMA MEMBERS THAT UTILIZE IT TO BECOME MORE COMPETITIVE. NETWORKING SESSIONS COUPLED WITH THE NATIONALLY RENOWN SPEAKERS PROVIDE FORUMS FOR OUR MEMBERS TO BECOME BETTER INFORMED AND PREPARED FOR THE OPPORTUNITIES AND CHALLENGES AHEAD."

Dave Tilstone, President NTMA

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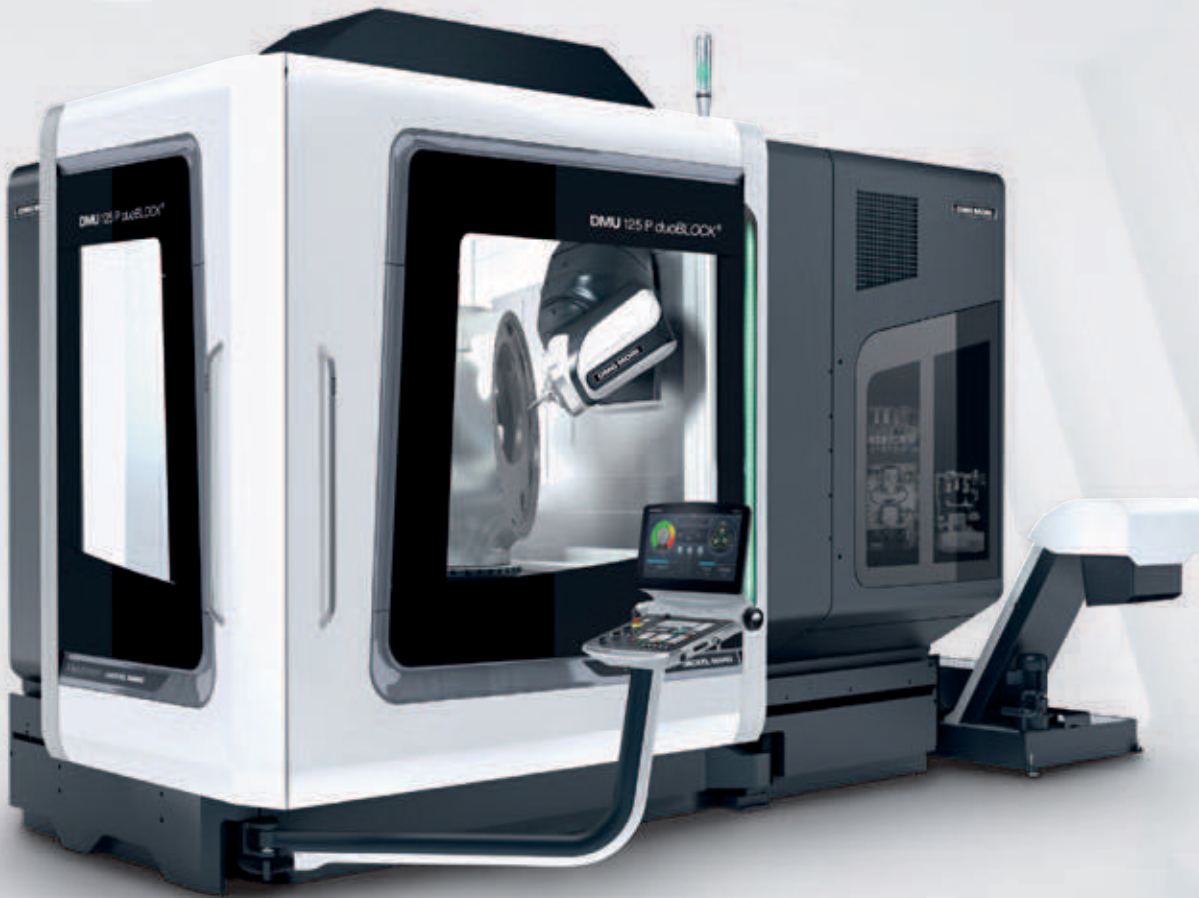


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3



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DMG MORI

TELL YOUR RESHORING STORY. HELP BRING EVEN MORE MANUFACTURING BACK!

BY HARRY MOSER



NTMA and The Reshoring Initiative are seeking your help to document the role that the contract manufacturing industry has played in reshoring. The loss of manufacturing jobs to offshoring has gone from about 150,000/year in 2003 to about zero in 2013. For the first time, the new reshoring balanced the new offshoring. The best way to maintain this momentum is for more customer companies to see more documented cases of reshoring, to see what others in their industry are doing and then decide to reevaluate their offshoring.

	Manufacturing Jobs Reshored / Year			
	2003	2013	% Change	Feasible 2016
New offshoring *	~150,000*	30-50,000*	- 70%	20,000
New reshoring	2,000*	30-40,000**	+ 1,500 %	70,000
Net reshoring	-148,000	~0	-100%	+50,000

*Estimated ** Calculated

About 95% of the cases of reshoring are based on press reports of OEMs bringing back product assembly, building new facilities, governors with golden shovels, etc. We believe that, on average, for each case of OEM reshoring there are a dozen or more contract and standard component manufacturers supplying material to these OEMs. These jobs are like the hidden portions of an iceberg.

WE NEED YOUR HELP TO DOCUMENT YOUR ROLE IN THE RESHORING TREND.

Reshoring at a contract manufacturer can have several forms:

-You have been offshoring and decide to reshore, e.g., dies bought by a stamper

-OEM has been assembling here and decides to shift some component or tooling sourcing from offshore to you

-OEM brings back assembly and shifts component or tooling sourcing from offshore to you

-OEM produces a product that takes mar-

ket share from a domestic or offshore competitor that had been producing or sourcing offshore.

NTMA and the Reshoring Initiative are soliciting cases – stories of

members reshoring work by any of the definitions above. Here is how you can help:

1. For any new work received in the last few years, ask your customers if the work meets the definition above.

2. Submit a reshoring case study – it's fast and easy.

a. Create an account at the Reshoring Initiative website:

<http://www.reshorennow.org/login.cfm>

b. Complete the fill-in-the-blanks template. Identifying the customer is optional.

c. Receive a link to download the resulting PDF of your case study.

Your case study will bring you on-going exposure on the Reshoring Initiative website and the NTMA website. Ideally, you also get your customer to post the PDF. Your case study may also be used as an example of reshoring during the Reshoring Initiative's media interviews and/or presentations to supply chain managers.

The first 50 individuals to submit a new case study will receive a free "Manufacturing is Cool" t-shirt.

NTMA is a long-time sponsor of the Reshoring Initiative and is convinced that documenting reshoring cases will motivate more companies to reevaluate reshoring. We look forward to your cooperation and to demonstrating that OEMs can reshore if they source from NTMA members.

For help reshoring, contact Initiative President Harry Moser, (harry.moser@reshorennow.org), call (847)726-2975 or go to www.reshorennow.org.



NATIONAL INSTITUTE FOR METALWORKING SKILLS LEADS GLOBAL CONFERENCE ON TRAINING WORKFORCE



National Institute for Metalworking Skills (NIMS) executive director, Jim Wall, participated in the first ever International

Congress on Vocational and Professional Education and Training in Winterthur, Switzerland. Joined by Dr. Jill Biden, Wall was one of three U.S. representatives to speak at the congress in September, representing the United States' precision manufacturing industry in a global dialogue about the importance of a skilled workforce for economic competitiveness.

Wall presented to an international au-

dience of specialists from economic, political and scientific circles, highlighting the NIMS' Competency-Based Apprenticeship System as a key tool in building a pipeline of talent for the manufacturing industry and one that can be replicated in other sectors. Other speakers included Mr. Guy Ryder, Director-General of the International Labour Organization (ILO) and Federal Councillor, Johann N. Schneider-Ammann.

The congress focused on building a positive image of vocational training, supporting bilateral exchanges between the private sector and policymakers, and presenting best practices in companies and schools.

Wall led a discussion about the impact of business-led training solutions to better

prepare the workforce for careers and connect employers directly to talented individuals. He used NIMS' participation in the National Network of Business and Industry Associations (National Network) as an example of the importance of business leadership in connecting learning to economic opportunities.

The congress is supported by the State Secretariat for Education, Research and Innovation (SERI), several cantons, professional organizations and the Zurich University of Applied Sciences (ZHAW).

For more information on NIMS or this program go to www.nims-skills.org.



Save the Date!

**7th Annual NTMA/PMA One Voice
Legislative Conference
April 21-22, 2015
Marriott Wardman Park Hotel
Washington, D.C.**

Have Your Voice Heard in Washington!

Manufacturers now have an opportunity to speak directly with the nation's leading lawmakers at the 7th Annual One Voice Legislative Conference. With tax reform looming on the horizon, Washington needs to hear from manufacturers now more than ever. Join together to speak with One Voice April 21-22, 2015.

Agenda

Monday, April 20, 2015

4:00p.m. – 5:30p.m. – Early Conference Registration
5:30p.m. – 6:30p.m. – Optional Early Arrivals Reception

Tuesday, April 21, 2015

8:00a.m. – 11:30a.m. – Conference Registration
11:30a.m. – 1:00p.m. – Conference Opening
Remarks, Briefing, and Lunch
2:00p.m. – 4:30p.m. – Capitol Hill Visits
5:30p.m. – 6:30p.m. – Networking Reception

Wednesday, April 22, 2015

8:00a.m. – 9:30a.m. – Breakfast, Issues Presentation
10:00a.m. – 4:00p.m. – Capitol Hill Visits

Additional information about registration is coming soon. For more information, visit www.metalworkingadvocate.org or contact onevoice@metalworkingadvocate.org or call 202-393-8250.



WILL THIS WINTER'S LAME DUCK CONGRESS HELP TAX PROVISIONS TAKE FLIGHT?

On September 19, the House and Senate left Washington for an unofficial fall recess that allowed members to hit the campaign trail leading up to the November 4th elections. They are due back in town the week of November 10th – after the make-up of the next Congress has been decided – with a host of unfinished business for the current cast of characters to address before the 113th Congress is dissolved.

The two main issues pending in this lame duck Congress are expired tax provisions and the need to fund the federal government beyond December 11th, when a temporary spending measure providing government funding for now is set to expire. Some conservative and Tea Party factions are calling for a one-year continuation of spending at current levels.

However, it is more likely, regardless of the election's outcome, that the House will pass an all-encompassing "omnibus" spending bill in early December, with the Senate following shortly. This massive bill would follow the pre-

viously agreed upon bipartisan budget spending limits – and it is this legislative vehicle that provides the best prospect for Congress to revive a number of critical tax provisions.

Back on December 31, 2013, Congress allowed over fifty tax provisions to expire, including the R&D Tax Credit, Bonus Depreciation, and the expanded Section 179 Equipment Expensing, which reverted the following day – January 1, 2014 – to a \$25,000 limit. House Republicans and Democratic Senators had begun negotiating during 2013 on how to address tax reform and the expired provisions, but ultimately failed to reach an agreement, leading to the expiration of these and other provisions.

The One Voice Washington advocacy team has led the fight to bring stability back to the tax code, and continues to support making these provisions permanent. Rumors circulating in Washington suggest that lame duck lawmakers may lean toward making the R&D Tax Credit permanent while extending dozens of other provisions for 2014

and 2015, including Section 179 Expensing (at a far higher deduction limit) and Bonus Depreciation. At the very least, we are hopeful that Congress will act to extend the provisions – and we will continue to press for more. Manufacturers deserve to plan for the future with full information about tax provisions and other important factors for their bottom lines.

Manufacturers can make a difference in Washington, but only if they participate in the process. NTMA members can give unlimited corporate or individual contributions to the NTMA Government Affairs Administrative Fund which supports the work done by The Franklin Partnership and Policy Resolution Group at Bracewell & Giuliani LLP. Additionally, NTMA members can make limited personal donations to the Committee for a Strong Economy (CFASE) PAC, which supports pro-manufacturing Congressional candidates.



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GUIDE TO MEMBER SERVICES

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Since registering its first machinist apprenticeship with the U.S. Department of Labor in 1956 and establishing a network of private training centers in the early 1960s, NTMA has been a leader in helping the industry develop and maintain a highly skilled workforce through the development and support of programs and initiatives in the area of workforce development.

NTMA TRAINING CENTERS AND PARTNERSHIPS

NTMA Training Centers and Chapter sponsored programs are located throughout the U.S. and are helping members with advanced technical training, such as apprenticeships.

NTMA EDUCATION AND TRAINING MATERIALS

Over the years NTMA has published and distributed a wide variety of training materials that have been used successfully by hundreds of schools and companies with thousands of students and employees.

NTMA-U ONLINE TRAINING PROGRAM

NTMA's six semester online training program was written by NTMA members, for NTMA members; offering flexible learning options and articulated college credits, with instructor access and national manufacturing best practices. New in 2014: module courses.

NATIONAL INSTITUTE FOR METALWORKING SKILLS (NIMS)

Founded in 1995 by NTMA and several other metalworking trade associations, NIMS is setting skills standards for the industry, certifying individual skills against those standards and accrediting training programs that meet their quality requirement; the only developer of American National Standards for the nation's metalworking industry and accredited by the ANSI.

NATIONAL ROBOTICS LEAGUE (NRL)

NTMA's national robotics program was developed to increase manufacturing awareness through robotics. Students partner with local NTMA manufacturers and work together to build machines designed to do battle and test ingenuity in a Plexiglas arena.

NATIONAL TOOLING AND MACHINING FOUNDATION (NTMF)

A privately funded 501 (c) (3) organization formed by the NTMA to address the shortage of skilled employees for the precision custom manufacturing industry by securing flexible and reliable sources of funding to support high-quality education, technical training, and leadership development for the next generation of career professionals in manufacturing technology.

NTMA ONLINE PRE-EMPLOYMENT MECHANICAL APTITUDE ASSESSMENT

A validated employment test and assessment tool that is skills-based as opposed to the standard personality or profile testing and comprised of four topics of mechanical aptitude testing in applied math, basic spatial relations, comprehension and communication skills.

ANNUAL SCHOLARSHIPS IN SUPPORT OF MANUFACTURING CAREERS

- Brock Babb Memorial Scholarship – Created by NTMA to support students advancing their education and pursuing careers in manufacturing.
- Edwin Vobeda Memorial Scholarship - Created through a charitable donation to the NTMA's Foundation in support of students residing in the Central Time Zone and advancing their education in a tool and die apprenticeship program to pursue a career in the tool and die industry.

WORKSHOP FOR WARRIORS

NTMA is the first association to support the effort of this non-profit organization that trains veterans in skilled trades.

AMERICAN JOBS FOR AMERICA'S HEROES (AJAH)

NTMA was one of the first trade associations to endorse AJAH, a national campaign designed to connect unemployed National Guard members and military veterans with manufacturers and other employers.

For information please on NTMA's Workforce Develop programs or initiatives, contact NTMA Vice President, Ken McCreight at 216-264-2834 or kmccreight@ntma.org.

CALENDAR OF EVENTS

CFO ROUNDTABLE

November 12, 2014
St. Louis, MO

TEAM LEADERS MEETING

January 18, 2015
Miami, FL

MANUFACTURING FOR GROWTH

March 4-7, 2015
Orlando, FL

HANNOVER MESSE

April 13-17, 2015
Hannover, Germany

ONE VOICE LEGISLATIVE CONFERENCE

April 20-22, 2015
Washington, D.C.

NRL COMPETITION

May 15-16, 2015
Cleveland, OH

EMERGING LEADERS CONFERENCE

May 15-16, 2015
Cleveland, OH

CHAPTER LEADERSHIP SUMMIT

June 11-12, 2015
Cleveland, OH

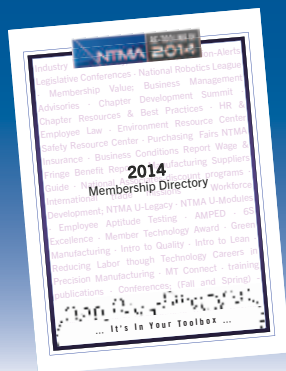
FALL CONFERENCE

October 21-24, 2015
St. Louis, MO



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<input type="checkbox"/> Inside Back Cover	7" x 10"	\$3,600
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For more information contact

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