

2019: THE YEAR YOUR BEST IDEAS BECOME A REALITY.

Maximize your benefits to make it happen.

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THE MFG MEETING

March 6–10, 2019 | www.theMFGmeeting.com

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LOOK FOR THIS SYMBOL THROUGHOUT THE ISSUE FOR STORIES
RELATED TO THIS MONTH'S FEATURED TOPIC.



WELCOMES NEW MEMBERS

ALLOY DIE CASTING CO.
Los Angeles Chapter
Rick Simpson
6550 Caballero Blvd.
Buena Park, CA 90620-1130

COMPETITIVE ENGINEERING INC.
Arizona Chapter
Don Martin
3371 E. Hemisphere Loop
Tucson, AZ 85706-5011

**COPP INDUSTRIAL
MANUFACTURING, INC.**
Los Angeles Chapter
Sanjaya Amarasinghe
2837 Metropolitan Place
Pomona, CA 91767-1853

KREMER PRECISION, LLC
Arizona Chapter
Doug Kremer
2205 West Lone Cactus Drive,
Suite 19
Phoenix, AZ 85027-2651

**LATROBE FOUNDRY MACHINE &
SUPPLY CO.**
Pittsburgh Chapter
Ted Steiner
P.O. Box 431
Latrobe, PA 15650-0431

LEAR MACHINING & WATERJET
Indiana Chapter
David Bauerle
4056 North Long Road
Columbus, IN 47203-9057

RCR MANUFACTURING SOLUTIONS
General
Michael Brown
45 Industrial Drive
Welcome, NC 27374

SIAM PRECISION, INC.
Arizona Chapter
Pinya Smith
21421 North 14th Avenue
Phoenix, AZ 85027-2851

T & C STAMPING, INC.
General
Mark Coleman
P.O. Box 1559
Athens, AL 35612-6559

TERAFLEX, INC.
Northern Utah Chapter
Nathan Davis
5680 West Dannon Way
West Jordan, UT 84081-5676



FEATURE

MAKING THE MOST OF YOUR NTMA WORKFORCE DEVELOPMENT BENEFITS



2019 is here! To start off the year, NTMA would like to remind you of the amazing benefits that come with your membership, in regards to educating and training your employees, and partnering with your local communities.

THE NTMA OFFERS THESE KEY PROGRAMS AND TOOLS:

- An online, four-section mechanical aptitude test – perfect as part of the interviewing and screening process for candidates, and for determining where to place current employees in our NTMA-U online training program
- NTMA-U, our flagship online program designed to train the next generation of precision machinists and tool and die makers. Twenty-two courses, each rated at 35 – 45 contact hours, and fully approved by the Federal Bureau of Apprenticeship Training and the Department of Labor.
- A full suite of textbooks and instructor guides, written by industry experts. Most are designed to accompany our NTMA-U courses, but they are also perfect to build blended curriculum at schools or companies for internal training programs.
- A NEW pre-apprenticeship program that packages access to

SEE "NTMA-U" PAGE 5





PRESIDENT'S UPDATE

DEAN BARTLES / NTMA PRESIDENT

75 YEARS MADE STRONG NEW YEAR, NEW YOU: OPTIMIZE VALUE

Happy New Year!! I hope you all had a wonderful Holiday Season.

If there are two words that I want to stress in 2019, they would be Optimize and Value. Let's take a look at each of those words and how they can be applicable to your membership.

While there are many definitions of value depending on the context, according to Merriam-Webster, the definition we are looking for is "relative worth, utility, or importance." Value comes in many forms to different people, and you, our members are no different. Each of you has an idea of what would bring value to your membership, and look to different pillars of the organization to fulfill that value. Whether it be

advocacy, and having our collective voices heard over the noise of partisan politics, or learning through seminars and workshops, or networking through the connections made in the association, all of you have different needs that have brought us together.

Optimize is a little more singular in definition according to Merriam-Webster with the sole definition being "to make as perfect, effective, or functional as possible." That is exactly our mission. We will strive to make your membership as perfect, effective, and functional as we possibly can, delivering in the value that each of you desire. In order to accomplish this, we need your voice. We need you to call the staff, or engage the staff at an event, and answer the following two questions:

- What is your idea of a perfect trade association?
- How can we execute on this?

As we are now in a new year, it's time to stop the reflecting we did at the end of last year, and time to start putting ideas into action. We look forward to serving each of you and bringing this association to a point where it optimizes your value, whatever that may be.

DEAN BARTLES / NTMA PRESIDENT



NEW YEAR, NEW STRUCTURE



Your national staff is committed to providing continuous member value. In an effort to maximize the staff's effectiveness, we are happy to announce there have been some internal changes that allow for new alignment with the organization's mission. Realigning the staff roles provides our members with better visibility of what's going on in the national office and ultimately allows your voice to be heard. You'll have stronger connections, more responsiveness and greater control over the direction of your organization.

• Doug DeRose has been promoted to the Chief Operating Officer. Doug is responsible for the overall operations of the association, including accounting, membership and human resources.

• James Mayer has been promoted to Business Development Manager. In that role, he oversees both the Affinity Partners and National Associate Members, marketing, the Events Team, and The Record.

• Kelly LaMarca has been promoted to Membership and Chapter Support Manager. She's responsible for member re-

cruitment and retention along with chapter support and new chapter development.

• Rich Basalla is now providing inside member support and will continue to work closely with all members and chapters.

Your NTMA national staff is here to support you. The role of the staff is to add value to your organization, but also to your individual businesses. As always, we welcome your comments, ideas and suggestions.



THE RECORD

OPERATIONS & EDITORIAL

Dean Bartles, President

Molly West, Editor

NTMA EXECUTIVE COMMITTEE

Mark Lashinske, Chairman

Modern Industries Inc. - Phoenix, AZ

Alan Ortner, Vice Chairman

Sirois Tool Co., Inc. - Berlin, CT

Samuel Griffith, Board Member

National Jet Company - Cumberland, Maryland

Herb Homeyer, Board Member

Homeyer Precision Manufacturing - St. Louis, MO

Mark Vaughn, Board Member

Vaughn Manufacturing Co., Inc. - Nashville, TN

Tom Sothard, Board Member

Gillen Young, Board Member

Custom Tool, Cookeville, TN

ADVERTISING INQUIRIES

To advertise in *The Record*, or for information on publishing your corporate newsletter or sales literature, contact NTMA at (216) 264-2847 or jmayer@ntma.org for advertising, mwest@ntma.org for editorial content.

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dave@DaveZgraphics.com



NATIONAL TOOLING & MACHINING ASSOCIATION

1357 Rockside Road

Cleveland, OH 44134

1-800-248-6862

www.ntma.org

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FEATURE

"NTMA-U" CONTINUED

five NTMA-U courses, the relevant pages from our textbooks, and new hands-on activities with accompanying blueprint blocks and a precision measuring exercise piece, or the 2D and 3D files to manufacture the parts yourself. This is a great way to build a stronger connection with your local high schools, community and technical colleges, workforce development boards and other community entities.

• Guidance on apprenticeship programs. NTMA's staff includes two journey workers, one of whom helped develop the NTMA-U program. We have the experience and knowledge to guide you to the right local resources to set up an ap-

prenticeship program – plus we have the approved “related technical instruction” – NTMA-U!

Your NTMA membership provides you with so many benefits: free shipping on textbooks, the best prices on textbooks, courses and the mechanical aptitude test.

Membership matters.



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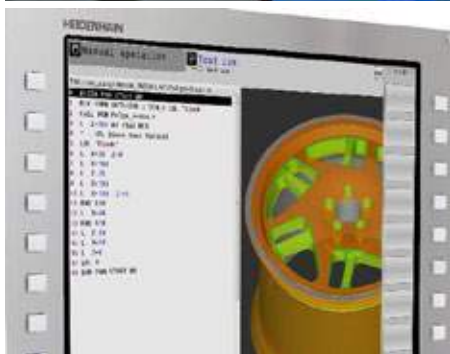
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NTMA

TECHNOLOGY TOUR 2019 "MUNICH to MILAN" MARCH 31 – APRIL 6


SOLD OUT!


Break away from your routine and get inspired!

Reserve your spot on the NTMA 2019 Tech Tour and gain a fresh perspective when you go behind-the-scenes at world-class manufacturing facilities in Germany, Switzerland and Italy. Share experiences and exchange ideas with peers and National Associate Members. Gain insight and ideas that will improve your day-to-day operations in ways you can't even imagine. Leave your worries behind as your sponsors take care of the details from your arrival in Munich to departure from Milan at the end of the tour.

Preliminary Schedule for 2019

SAT 3/30 Departing flights from U.S. & Canada.

SUN 3/31 Arrivals day! Relax & enjoy Munich before a casual Bavarian welcome dinner. **[Munich hotel]**

MON 4/1 Visit & tour HEIDENHAIN world headquarters in Traunreut, Germany. **[Munich hotel]**

TUE 4/2 Tour & machining demonstrations at GROB Systems in Mindelheim. Head to Switzerland in the afternoon. **[Zurich hotel]**

WED 4/3 Visit the Swiss manufacturing/R&D facility of BIG KAISER. Enjoy an afternoon walking tour of Zurich before continuing south to Burgdorf. **[Burgdorf hotel]**

THU 4/4 Spend the morning at the laboratory and technical center of Blaser Swisslube. At lunch time, take a direct train from Bern, Switzerland, to Milan, Italy. **[Milan hotel]**

FRI 4/5 Tour the manufacturing facility of Speroni tool measuring systems. In the afternoon, enjoy free time in Milan before a farewell dinner party. **[Milan hotel]**

SAT 4/6 Flights departing Milan arrive in the U.S. & Canada same day.

HEIDENHAIN

GROB

BIG KAISER

Blaser.

SWISSLUBE

speroni

Your hosts will provide:

- Ground transportation & airport transfers in Europe
- Hotel for 6 nights
- Most meals & activities

NTMA members are responsible for the \$495 NTMA Registration fee & flight to Munich/from Milan.

Questions? Contact Brittany Belko, bbelko@ntma.org, or Dana Super, d.super@us.bigkaiser.com.

Space is limited – Reserve today!

THE NTMA TECHNOLOGY EXCELLENCE AWARD

Guided by Team Leader Kevin Beach in Phoenix, Arizona, the NTMA Technology Team delivers value to NTMA members in the areas of manufacturing technologies and best practices. The NTMA Technology Excellence Award is designed to recognize and share excellence shown in these fields, strengthening the precision contract manufacturing industry.

The Technology Team focuses on two award categories: **The Arthur Tilstone Technology Award** (advanced development/integration or lead time reduction through flow, safety and organization) and **Business/Cultural Award** (Leader/Associate partnerships or goal/visual management system deployment that has yielded world class performance). Each award recipient receives a nominal cash award.

The Association for Manufacturing Technology's (AMT) Technology Issues Committee (TIC) is a proud sponsor of this award that demonstrates a best-practice or best-use of NTMA member's products and services. AMT has underwritten the NTMA Technology Excellence Award in the amount of \$5,000.

HOW IT WORKS:

- NTMA members who demonstrate advanced application of a technology or business practice which results in improved business performance are eligible for nomination.
- Nominations are submitted to the Technology Team by the Chairman, Chapter Executives, regular members and/or associate members.
- Nominations are to be electronically completed and submitted on the NTMA website.
- Winners are selected by the Technology Team with input consideration from AMT's Technology Issues Committee as judged against selection criteria: business impact, innovation, longevity, etc.
- Winners are presented during the NTMA general assembly meeting at The MFG Meeting in Tucson, Arizona March 6-10, 2019.
- Recipients will present a brief description of their awarded technology or practice at the MFG Meeting following the NTMA general assembly.

NOMINATE NOW!

Nominations are being accepted for NTMA members now through January 25, 2019. For a background description of the award, questionnaire and nomination form, visit <http://www.ntma.org/resources/documents/technology-award-program/> or contact Christine Benco at 216.264.2835 or via email at cbenco@ntma.org.



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- Compensates for oversized or undersized bar stock



Most Compact Chucks in the Industry

- Ultra-compact lengths maximize z-axis capacity
- Super slim nose diameters provide outstanding tool clearance

NEW YEAR, NEW PARTNERS

BY JAMES MAYER, NTMA, BUSINESS DEVELOPMENT MANAGER



As we kick off 2019, I want to take the opportunity to announce and welcome three companies to the NTMA, one as a new Affinity Partner and two as new National Associates, and announce another company that has made the transition from National Associate to an Affinity Partner. This is going to be a year of measuring each of the Affinity Partners to ensure we have the correct programs in place to serve our members, as well as targeting and recruiting National Associates that are engaged and provide value to you.

The first company I would like to welcome to the NTMA is a new Affinity Partner, SafestHires. Under the partnership, SafestHires will provide criminal and civil background checks, driving records, verifications, drug testing and other occupational health services at special rates for NTMA members only. Additionally, SafestHires will provide NTMA member companies with background checks compliance training. NTMA members will be able to take advantage of SafestHires RapidHire™ screening technology, which was developed in partnership with 500 HR and Talent Acquisition professionals to be the easiest, fastest and most accurate background checks platform for busy hiring teams. RapidHire™ has built-in compliance filters, uses data science to maximize accuracy and integrates with courts and other background data sources to

provide industry leading turnaround. To learn more about SafestHires, you can contact their managing partner via email: andy@safesthires.com or call Andy Andersen at 214.548.3919. You can also visit their website at <https://www.safesthires.com/>.

I would also like to announce that CBIZ Retirement Plan Services is transitioning from a National Associate to an Affinity Partner, providing our members with a 401(k) program. In synergy with the association, CBIZ RPS has developed a comprehensive and cost effective offering for plan sponsors in the precision manufacturing industry. Their proprietary process helps you mitigate the risks and maximize the benefits of your 401(k) plan.

The first of the new National Associate Members is Markforged, a manufacturer of 3-D printing machines. From their website, “Markforged is transforming manufacturing by addressing 3D printing as a holistic problem. Our process innovations are only possible by a combined effort in advanced cloud computing, cutting-edge materials science, and industrial design. Over our five years of existence, we’ve consistently pushed the boundaries of additive manufacturing—printing with new materials, developing novel platforms, and constantly iterating on our technology and processes. Our vision is to increase manufacturing system efficiency through better and faster ways of mak-

ing functional prototypes, tools and fixtures, and end use parts—at scale.” Markforged’s believes that additive manufacturing is a complementary process to the precision manufacturing that our members do, even providing us with an article on how to save time and money by printing the fixtures you will need for jobs.

Last, we have added Legacy Advisors Network to the National Associate Member lineup. Legacy Advisors Network is a national succession planning group with 15 offices across the country. Legacy Advisors advise owners of closely held and family businesses across the country-- including many manufacturers, on business succession and continuity planning strategies to assist current and future generations of owners as they work on transitioning the business. They customize their approach to best fit each potential customer, to ensure each customer gets the best financial outcome they desire and one that is sustainable based on the company’s available resources.

2019 will be an exciting year. Be on the lookout for more partners. Please do not hesitate to provide suggestions on new partners that you believe would be a good fit for the NTMA.



PMTS
2019

SAVE THE DATE!

APRIL 2-4, 2019

C L E V E L A N D

See you in
Cleveland!
2019

PRESENTED BY:



CO-PRESENTED BY:



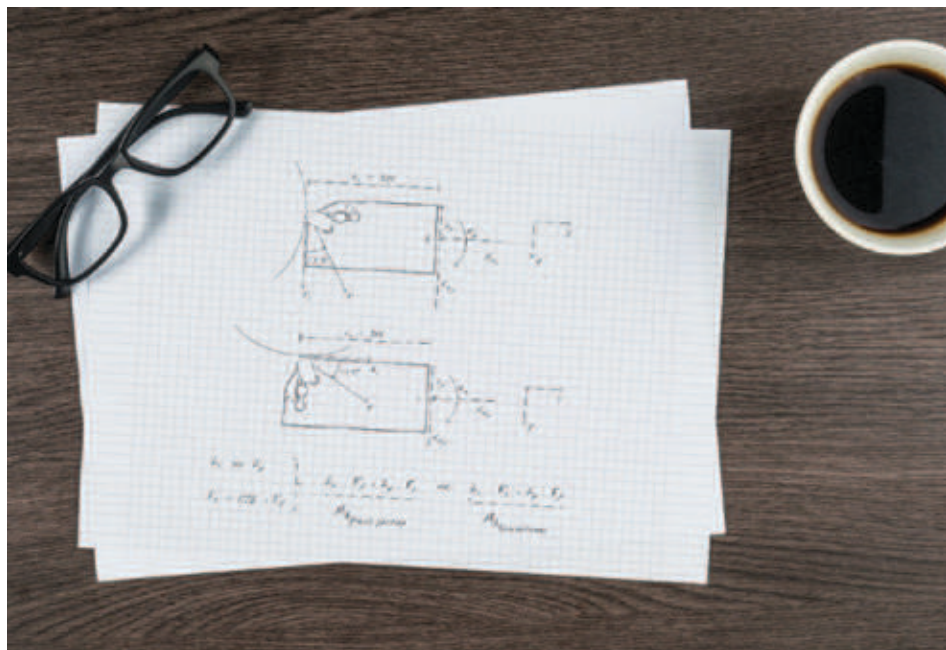
INCREDULOUSLY SIMPLE PRINCIPLE – THE SECRET BEHIND Y-AXIS PARTING

SUBMITTED BY SANDVIK COROMANT

The Y-axis option has broadened the possibilities to use rotating tools in multi-task machines and turning centres. Now this capability has inspired a great innovation in one of the original missions of these machine tool types: Y-axis parting. Implementing this new tool and method brings significant machining improvements in potentially any parting operation.

Adding rotating tools to turning centres means you can combine several set-ups in a single machine for a more streamlined and productive machining process. To accomplish this, turn-mill machines were introduced in the 1990s. The initial idea was to enable driving a milling cutter, drill or threading tap on one or more tool positions in the turret to eliminate limitations of polar interpolation and other related programming difficulties. To improve reach, an extra set of ways was added to move the rotating tool across the spindle face. This was accomplished by mounting the tools on revolver sides or on its face, by installing the Y-axis ways on a slanted bed or by using an independent milling head. Both machine tool makers and manufacturers soon recognized the benefits of integrating both milling and turning operations. Today, the Y-axis option has become a standard feature in most multi-task machines and optional in many new turning centres.

As a potential tool breakage risks leading to costly machine downtime or scrapped components, parting off is a stage of the machining process where manufacturers don't compromise on security. To meet the high demands put on these type of tools, the system CoroCut® QD was developed by Sandvik Coromant in 2013. While considering how to improve this high-performing system even further, the tool developers started looking at these modern machines with Y-axis capacity. This resulted in an innovation that involved more than just the tool design but also a completely new method: Y-axis parting.



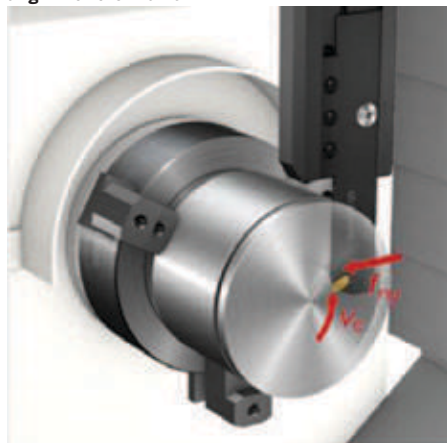
The force calculation principle behind y-axis parting.

THE Y-AXIS PARTING PRINCIPLE

The principle behind Y-axis parting is incredibly simple. While conventional parting off tools align with the X-axis of the machine tool, the Y-axis tool has simply been rotated 90 degrees anti-clockwise to align with the Y-axis. In a conventional tool configuration, the relatively long and slender parting blade and holder is fed at a 90 degree angle into the rotating workpiece. The largest cutting

force is generated by the cutting speed and the rest by feed motion. The consequence is a resultant force vector that is directed diagonally into the tool at an angle of roughly 30 degrees, in other words across a very weak section of the blade. To avoid tool breakage, this is compensated by reducing the blade overhang and by increasing the blade height, which in turn sometimes compromises the usability of the tool. By turning the tip seat 90 degrees and utilizing the Y-axis, the tool can cut its way into the workpiece essentially with its front end, which nearly aligns the resulting cutting force vector with the longitudinal axis of the blade. FEM analyses performed by the Sandvik Coromant R&D team confirmed that the new solution eliminates critical stresses and increases the blade stiffness by more than six times compared to conventional blade design.

DAM ID 43354: While conventional parting off tools align with the X-axis of the machine tool, the Y-axis tool has simply been rotated 90° anti-clockwise to align with the Y-axis.



MANUFACTURING NEEDS A NEW ROSIE THE RIVETER

BY DANIELLE APPLESTONE PHD, CEO
DAUGHTERS OF ROSIE

When I travel around the country and talk with manufacturers, labor is always their number one challenge. “I can’t find people,” they say. “Our jobs are good. We pay well, we offer benefits, and my company is a great place to work. But we just can’t get anyone to walk through our doors!”

This is no surprise to me because I’ve felt the labor crunch, too. When I was CEO of Bantam Tools, a small-scale CNC mill manufacturer, it was always a struggle to find the right people. Nobody who wanted to work for us had any existing manufacturing experience. We even struggled to hire entry-level technicians for our production facility. With a months-long order backlog, we had to get creative to survive.

At Bantam Tools, we solved our labor problem in an unconventional way: with unconventional people. We hired people with no manufacturing experience but with all the raw skills they needed to be successful. Then, we trained them ourselves. Our manufacturing techs had previous careers in customer service at hardware stores, stocking shelves at a zoo, and even far out things like acupuncture. What we saw in them was their reliability, attention to detail and capacity for learning and growth. And, of course, they all had the fine motor skills necessary to do the work.

We had a hunch that if we invested in them, we could teach these hires how to do precision manufacturing. Of course, they also had to invest in us. After all, a career change is something that no one takes lightly. We had to prove to them that their new jobs would give them a sense of purpose and opportunities for growth. We also had to compensate them fairly with good wages and medical benefits.

But our hunch—that great people could learn quickly on the job—was correct over and over again. In just six to eight weeks, these new hires were up to speed. They became very effective contributors to our production line. Some of them, because of their diverse backgrounds, gave us new ideas and even helped us improve our manufacturing processes. Believe it or not, over the course of a couple of years, these same people became the product managers, design engineers and supply chain



managers we needed as our business grew.

But as we all know, the problem of manufacturing labor is much bigger than my small hardware company. With 500,000 open manufacturing jobs in the United States right now, our labor problem is massive. I care deeply about our country and manufacturing, so I rolled up my sleeves and founded a new company: Daughters of Rosie.

Why Rosie? We were in this situation in World War II and we closed our labor gap with Rosie the Riveter. It wasn’t just a marketing campaign—it was a systematic approach to bring more women into the manufacturing workforce. Now it’s time for a new Rosie, one updated to the realities of manufacturing of 2018 and beyond.

So how do we create 500,000 new Rosie the Riveters in 2018? Despite being all around us, women often don’t see themselves as part of the manufacturing industry. So, we need to invite them in. To start, this means talking

about manufacturing jobs in terms that are more familiar to people without technical training, and conducting on-site, paid training programs that teach new workers the basics.

Daughters of Rosie is currently partnering with manufacturers in the biggest market for manufacturing: California. We recruit teams of women and our partners provide on-site, paid, all-women training programs that turn into full-time jobs. We’re bringing new workers into the manufacturing economy, and hopefully growing the sector along the way.

If you’re interested in hiring a team of entry-level women for your company, I’d love to hear from you. Or, if you have found other creative ways to solve your labor challenges, please share. Please reach out to me at partners@daughtersofrosie.com or sign up for our newsletter at daughtersofrosie.com/contact.



REASONS TO ATTEND:

NETWORK

Make a connection that impacts your company—creatively, structurally and financially.

LEARN AND ACQUIRE NEW IDEAS

It can be difficult to keep up with all of the changes when you are busy with the day-to-day operations of running a company. Let NTMA be your source for knowledge.

INVEST

Invest your time in an NTMA event, and invest in the future of your company.

GROW YOUR BUSINESS

We have the resources and programs that are proven to make manufacturing companies successful. Take advantage.

OPTIMIZE

Let NTMA help you be as effective, productive and profitable as possible. Whether it's a nationally recognized expert in Industry 4.0 or a class about 6S/ LEAN, we've got you covered.

2019 NTMA

CHAPTER LEADERSHIP SUMMIT

January 30 - February 1 |
Nashville, TN

Connect, Learn, Lead. Chapter Leadership Summit is all about maximizing your NTMA membership at the local level. Learn ways to engage your chapter and build your regional coalition for stronger companies and a stronger industry.

THE MFG MEETING

March 6 - 9 | Tucson, AZ

NTMA partners with the Association for Manufacturing Technology (AMT) for this interactive discussion of technology and innovative strategies. Hear from industry case studies. It's the perfect opportunity for manufacturers to gain industry knowledge.

LEGISLATIVE CONFERENCE

April 8 - 10 | Washington, D.C.

There's power in our collective voice. Join NTMA member companies from across the country as we converge in Washington to meet with legislators and policy makers.

EMERGING LEADERS CONFERENCE

April 29 - May 1 | Las Vegas, NV

To insure the future of our businesses and the industry we have to build the future. NTMA gathers the best and brightest up-and-coming industry leaders to network, share knowledge, brainstorm about the future of manufacturing industry.

FALL CONFERENCE

October 15 - 18 | Austin, TX

NTMA's signature event is not to be missed! Our annual conference is packed with networking, advocacy and learning. You'll enjoy national sessions and sessions designed to educate and inspire—consider it an opportunity to grow your business.

A EVENTS

NG

n, AZ

h the Association
Technology
active 4-day
ological advances,
s and real-life
e perfect platform
o gain and share

EUROPEAN TECH TOUR

March 31 - April 6 | Munich to Milan

Take this opportunity to learn and observe global best practices that can be applied in your own company. We've scheduled strategic stops and tours to highlight some of Europe's most successful manufacturing companies.

ERS

ouisville, KY

successes
nd our industry,
e future today.
best and brightest
ustry leaders
nowledge and
morrow's
stry.

NATIONAL ROBOTICS LEAGUE COMPETITION

May 17 - 18 | California, PA

Crunching metal, flying sparks-- it's a gladiator-style competition between robots designed and built by students. Come witness tomorrow's workforce in action today. It's a battle of epic proportions that truly is a win for both students and industry.

ce pulls together all that is great about NTMA into three days
nally acclaimed speakers, roundtable discussions, social events
portunity to recharge both personally and professionally.

RETURNING IN 2019:

TOP SHOPS SEMINARS IN PARTNERSHIP WITH:



TOPICS INCLUDE:

- Succession Planning in Top Shops
- Employment Background Checks: Anatomy, Best Practices and Compliance
- Pulling and Analyzing Data in Top Shops
- Industry 4.0 and Automation in Top Shops
- What Makes a Top Shop
- Interactive Discussion about Top Shops' Best Practices

OFFERED THREE TIMES A YEAR ACROSS THE NATION:

- Top Shops Seminar 1: February 20, Dallas, TX
- Top Shops Seminar 2: May 22, Phoenix, AZ
- Top Shops Seminar 3: August 21, Hartford, CT

TAP INTO YOUR COMPANY'S FULL POTENTIAL!

For more information visit: www.ntma.org/upcoming-events

Please contact our Events Team for more information
or to register:

Kristen Hrusch

khrusch@ntma.org
216-264-2845

Brittany Belko

bbelko@ntma.org
216-264-2848





RESOLVE TO ENGAGE IN 2019

BY BILL PADNOS, NTMA, DIRECTOR OF YOUTH ENGAGEMENT



By the time you are reading this article, 80 percent of you will have already broken your New Year's resolution. I am really hoping that I am one of the 20 percent that are still going strong, but the odds are stacked up against me.

Remember, it is still January; you have time to get back on track and motivate yourself to follow that New Year's resolution. The goal is to start small, build your confidence, invent ways to challenge yourself, cultivate optimism and develop self-awareness that changes need to happen. So, say it with me "This year I will

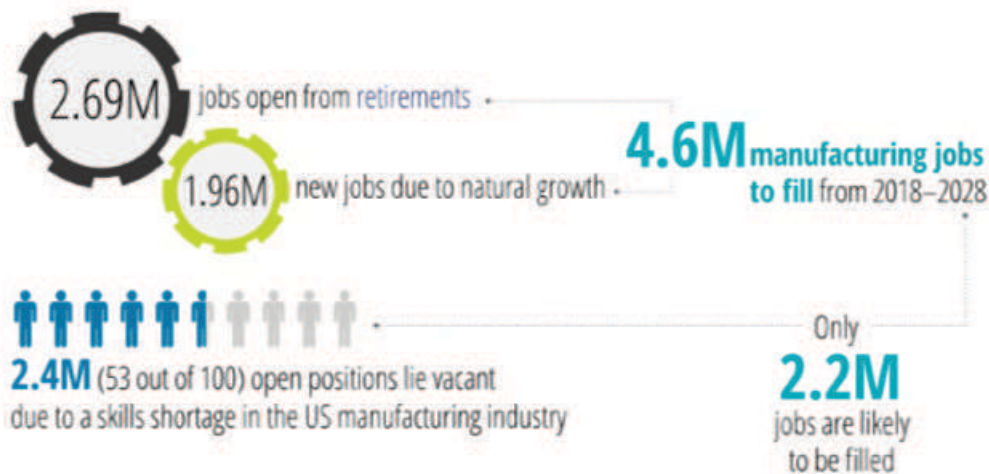
ENGAGE MANUFACTURING'S NEXT GENERATION!"

The new Deloitte and Manufacturing Institute survey report is out and the skills gap continues to widen. From 2015-2025, Deloitte had estimated that there will be 3.5 million open positions in manufacturing with 1.5 million jobs likely to be filled by existing people in the pipeline. The new numbers show there will be 4.6 million manufacturing jobs to be filled from 2018-2028 with 2.2 million people in the pipeline. As a result, there will be a projected 2.4 million

open positions that will lie vacant due to a skills shortage in the US manufacturing industry.

Look around your facility. By 2028, at least 53 percent of your skilled workers will be gone. Even worse, the time that it takes to replace one of those workers is increasing each year. In 2015 it took on the average 70 days to fill an open position. In 2018, that number has increased to 93 days. That is three months of productivity lost from each open position. This means more over-time for your existing workers and less opportunities

The skills gap may leave an estimated 2.4 million positions unfilled between 2018 and 2028



*Calculated on the basis of 52.7% of the skilled manufacturing positions that are unfilled (per the 2018 survey)
 **Retirement age of 66

Source: BLS Data, OEM (Oxford Economics Model), Reprinted with permission from Deloitte and Manufacturing Institute skills research initiative.

for new work which results in lower profits. Deloitte has estimated the persistent skills shortage could risk the US \$2.5 trillion in economic output over the next decade.

This is not fake news or alternative facts. This is the truth regardless if you are able to automate your entire facility by 2028. You still will need the skilled labor to program and service the robots. In fact, FANUC has stated that for every robotic arm installed in a manufacturing facility will result in 15 new jobs. Automation will not close the skills gap, it will expose it even more.

This is why you need to commit to a New Year's resolution that it is time to "Engage Manufacturing's Next Generation". You can start small in order to build your confidence.

- Reach out to the career and technical center in your community and ask if you can be a part of their manufacturing program advisory committee. This is usually a small investment of time. Maybe two to three meetings a year to provide guidance to the instructor on how to better prepare his students to come work for you.
- Circle October 4, 2019 on your calendar. Make the commitment to invite your local school to visit your facility for MFG 2019. Contact the principal at the high school or connect with the technology education

teacher and invite them to bring a group of students to an open house at your facility.

- Visit the NRL web site (gonrl.org) and see if there is a regional program in your area. Volunteer to help at their upcoming competition for a couple of hours to see what the program is all about. Reach out to the program manager and offer to help a team machine a part for their Bot.

You do not need to jump in as a full-blown program champion. Dip your toes into the water first and then challenge yourself to go the next step. Now that you have made a connection to your local high school or CTE, offer to come to speak to the students about the benefits of a career in manufacturing. When the students come for a tour on MFG Day, offer them the opportunity to come back to job shadow or even hand them a job application so they know that their future could be working for you.

Once you have seen the NRL program in action this spring, offer to become an official Industry Advisor for your local school. If that school is not involved in the program, recruit them to join. If your area does not have an NRL program, reach out to your chapter leadership to let them know that you are interested in helping to start one.

Now that you have taken the first

step, build your confidence and challenge yourself to go the next step, it is time to cultivate optimism. Tell others about the positive steps that you have taken to close the skills gap at your company and ask them to join you. Whiners or complainers about the lack of skilled workers will never succeed in the long run. Get yourself out of the habit of complaining about the next generation and recruit others to help you build bridges.

This will lead you to developing self-awareness that your company must develop a business strategy to achieve your short and long-term workforce development needs. I read that "living without self-aware-

ness is like driving your car at night with the headlights off – technically you can still drive, but you will eventually have a collision." With awareness, you will be able to shed light on how you are self-sabotaging your company's future by not investing the time to manufacture your own workforce talent pipeline. You invest time to cultivate new business. However, with 53 percent of your workforce out the door over the next 10 years, you will not be able to fill the order for your existing customer let alone service new ones.

Remember, it is still only January of 2019. Stop waiting for someone else to solve the problem of where you are going to recruit your future workforce needs. As NTMA's director of youth engagement, I can only spark the interest of students to pursue a career in manufacturing through the NRL program. I do not have the ability to hire any of those talented students that pass through our program each year. It is up to you to focus your efforts on making the change to your business strategy by reaching out and engaging your next generation.



A CELEBRATION: OF THE SEASON, OUTGOING LEADERSHIP AND A NEW PRESIDENT

BY KEVIN HARTFORD, ALLE-KISKI INDUSTRIES, PITTSBURGH CHAPTER NTMA



The Pittsburgh Chapter NTMA held its eighth Annual Christmas Party on December 12 at the Pittsburgh Field Club. It was a festive evening with about 50 attendees. There was outstanding food, drink, entertainment and comradery. The Chapter hired a magician who was absolutely spectacular. Even those guests who were amateur magicians were amazed.

The Christmas Party has become an opportunity for our members to get to know each on a more personal basis but still provides a conducive environment to discuss industry challenges, opportunities and forecasts. What began as a year-end board social event has become an anticipated chapter event for both our metal-working members and our associate members.

It was also an opportunity to say goodbye and thank our outgoing president, John Maholtz. John has been leading our chapter for the past two years and has done an exceptional job. John has broadened our reach into workforce development and enhanced the work of the Pittsburgh Chapter NTMF, our foundation. John is leaving our industry to join a start-up company in the biotech industry. We wish John all the best in his new endeavor.

We welcomed our incoming President, Jim Hoffman. Jim is the Director of Manufacturing at Oberg Industries. Jim brings a wealth of knowledge and accomplishment in our industry to his role as chapter president. Jim has also been a board member for several years so he has a good sense of our mission. Jim will take the helm at our January board meeting.

We hope everyone had a terrific holiday season and we wish all of our members all the best in New Year.



NEW CE ANNOUNCED FOR HOUSTON CHAPTER



Kaity Van Amersfort from C&R Management has been hired as the Chapter Executive for the Houston NTMA Chapter. With experience in working with other chapters in the association, the Houston chapter is looking forward to working with Kaity and leveraging her skills in helping to grow and lead the chapter in 2019 and beyond. Kaity currently manages the San Francisco Bay Chapter of the NTMA and previously worked with the Los Angeles chapter.



ROCKY MOUNTAIN CHAPTER RECOGNIZES LONG-TIME MEMBER



NTMA
ROCKY MOUNTAIN
CHAPTER

Mike Hirsh, president of RMTMA presents Pat Bernal, president of Delltronics, Englewood, CO, with a plaque recognizing 45 years of membership with RMTMA/NTMA.

SAN FRANCISCO BAY AREA CHAPTER RECOGNIZES BENDA TOOL



NTMA

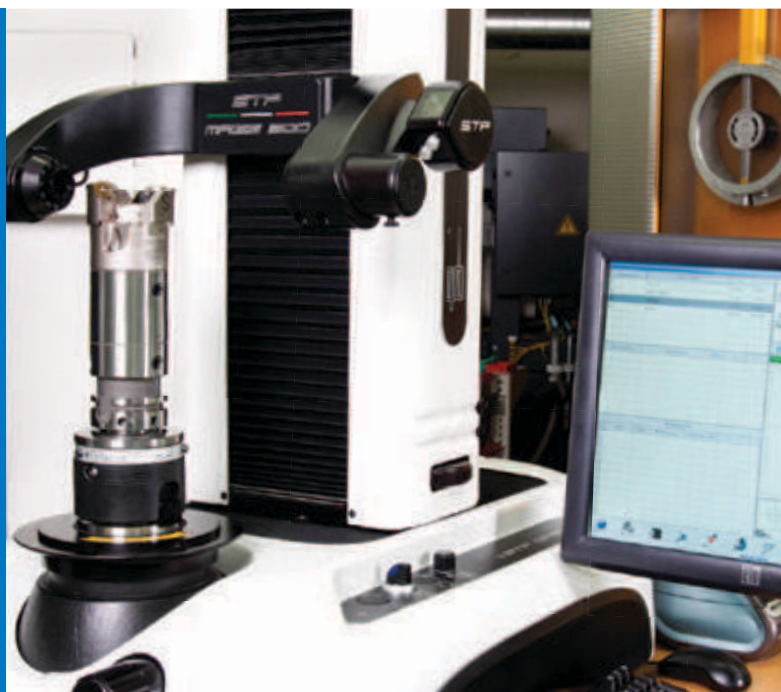
**SAN FRANCISCO
BAY AREA
CHAPTER**

Benda Tool was recently awarded a 53 year NTMA Membership award. Robert Benda was given the award by SFBA NTMA President, Tim Rohr, who congratulated Robert on this extraordinary achievement. Thank you Benda Tool for your service and membership to NTMA!

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NTMA MEMBER EARNS MANUFACTURING HONOR

Hirsh Precision Products has been named an Honors Program winner in association with Modern Machine Shop magazine's 2018 Top Shops benchmarking survey. Modern Machine Shop (published by Gardner Business Media, Cincinnati, Ohio) offers this annual survey to enable its readers to compare their operations' performance and practices against industry leaders. The survey, this year taken by 471 North American machine shops, is divided into four primary sections: machining technology, shopfloor practices, business strategy and human resources. Honors Program winners were chosen for each of these categories, and design and manufacturing company Hirsh Precision Products was named 2018 Honors Program winner for its shopfloor practices.

"Honors Program winners are vetted and selected by me from a top-tier benchmarking group based on answers to select survey questions," says Derek Korn, Modern Machine Shop's Executive Editor who heads the magazine's Top Shops benchmarking program. "Hirsh Precision Products was selected as the shopfloor practices winner for the various ways it has worked to improve efficiency throughout its operation. This includes automating its machining processes, improving its work scheduling processes via their proprietary shopfloor management software, and developing a reporting system that shows all operations, minute by minute, that are expected to be completed on a particular day. This tool allows the Hirsh Precision team to determine how close the shop came to achieving 100-percent production schedule adherence."

"We're honored to receive this award which celebrates and recognizes the ongoing efforts of our team to improve the quality and efficiency of our production process for customers," Peter Doyle said, COO of Hirsh Precision Products. "We appreciate the opportunity to share lessons learned as well as gain insights from other Top Shops across the country."



Results from this year's Top Shops benchmarking survey will be presented at the Top Shops Workshop (topshopsevent.com) during the International Manufacturing Technology Show (IMTS) on Thursday, September 13 in Chicago, Illinois. Peter Doyle will join other winners as part of a panel discussion about industry trends during the workshop.



**HIRSCH
PRECISION**



FOUNDER OF FLOHR MACHINE PASSES

The engineering and machining community lost a pioneer and a friend on Sunday, November 25th, 2018. Ivan Flohr, founder of Flohr Machine Company, passed away with family at his side.

If you knew Ivan, he was an honest businessman with an impeccable work ethic. He often said, "you can never have enough knowledge, learn what you can when you can."

Ivan began working at Goodyear Aerospace in 1952 as a machinist and built blimp parts for Goodyear until 1966 when he and brother Charlie started the Flohr Machine Company. 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.

All of Ivan's sons either worked some, or all their Summers at Flohr Machine. 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

Ryan Flohr (Jerry's nephew). Flohr Machine recently celebrated 50 years and three generations in 2016.

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

Ivan married Judith Mary McDonald on September 5, 1953 and together raised 12 children. They have 69 grandchildren and 63 great-grandchildren.

Ivan was extremely generous and gave to many charities. Donations may be made in honor of Ivan to Compassion International where he sponsored several children in Ecuador, or The Ivan and Judith Flohr Scholarship Fund, care of Flohr Machine Company.

Ivan was very proud, but humble to be the patriarch of Flohr Machine. His legacy will live a long time through his children, grandchildren and great-grandchildren as they continue to grow the business he started so long ago.



**FLOHR
MACHINE** SINCE 1966



METHODS MACHINE TOOLS HOLDS RIBBON CUTTING, TOURS AT NEW MEMPHIS TECHNOLOGY CENTER

Methods Machine Tools, Inc., opened its new state-of-the-art, 7,000 sq. ft. Memphis Technology Center at 6700 Fletcher Creek Cove in Memphis, Tennessee. The Ribbon Cutting took place on November 14th, 2018 and included tours of the new facility, and was attended by manufacturing professionals, local officials and community representatives.

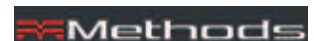
Representatives from the Bartlett Area Chamber of Commerce and the Greater Memphis Medical Device Council were on hand to welcome Methods to the area. Key executives from Methods and some members of the company's board of directors also participated in the event. Customers and

attendees had the opportunity to speak with Methods' application and engineering personnel during the open tour of the new facility. A full complement of the latest manufacturing technology, including new automation solutions were showcased during the tours.

Methods offers the most advanced, optimal technology for each machining discipline or class. Machine tool partners include Nakamura-Tome, Yasda, FANUC, KIWA-Japan and most recently, Niigata Machine Techno. EDM products include FANUC Wire EDM and Ocean Technologies Co., Ltd. Additional partners include Tornos, Swiss manufacturer of automatic turning

Methods Memphis Technology Center Ribbon Cutting Ceremony. Shown here are Methods Machine Tools, Inc. Owners, members of the Board of Directors, and Executives accompanied by members of the Bartlett Area Chamber of Commerce, the Greater Memphis Medical Device Council and other community representatives.

machines, and MarkForged-3D printing solutions. For measurement and inspection solutions, Methods offers Digital Optical Comparators from VISIONx Inc.



SYST-A-MATIC SAYS GOODBYE TO THEIR PRESIDENT

Bruce Alden Hills, president of Syst-A-Matic Tool & Design, passed away unexpectedly at his residence on December 8, 2018.

Bruce graduated from Meadville High School in 1969. He did his tool and die apprenticeship at Pennsylvania Tool and Gages. He then went to work at AC Machine with his dad, brother and brother-in-law. In the 1980's he went to Syst-A-Matic Tool and Design, where he was president.

A past president of the Northwestern Pennsylvania Chapter NTMA, Bruce was an active board member for many years. Bruce enjoyed hunting and fishing, especially trips to Colorado. He was actively involved with livestock at the Crawford County Fair and eventually joined the Crawford County Fair Board. He was a member of the Springboro Fire Dept. shuffleboard team, a social member of the Conneautville American Legion, a member of the Norrisville Sportsman's Club, on the 4-H Advisory Board and a member of the Homeshow Baked Goods

Department at the Crawford County Fair. Bruce was an avid Steelers fan, enjoyed working in his garden and canning. He loved spending time with his family.

Bruce is survived by his wife, Brenda of Conneautville, PA; one daughter, Jennifer Yania and her husband Wes of Uniontown, OH; one son, Shawn Hills of Saegertown, PA; two grandchildren, Colton and Lyndsay Yania; one sister Susan Miller and her husband Ken of Meadville, PA; one brother, Jeffrey Hills and his wife Robbin of Lincoln, IL and several nieces and nephews.

In lieu of flowers, the family suggests memorial contributions be made to PSCE: Crawford County 4-H (Attn: Paula Lucas), 1099 Morgan Village Rd. Suite A, Meadville, PA.



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LET'S HIRE A VET! BUILD YOUR WORD-OF-MOUTH NETWORK

BY BRIG. GEN. (RET.) MARIANNE WATSON

Are you placing job ads, but you're not attracting veterans? You're not alone if you are having this problem. In a national survey of employers by non-profit Center For America, 57 percent of employer respondents cited the problem that their job advertisements are not attracting veterans.

A good first step is word-of-mouth. Find a veteran – maybe someone already in your organization, or among your retirees and suppliers. They can put you in touch with good candidates in their veteran network. Veterans want to help other veterans find good full-time jobs.

There are many effective nonprofits, state agencies and military employment transition organizations in your area that can help, so make sure to reach out to them. However, networking personally with the veteran community may be a faster way to find good candidates that match very well to your requirements and culture.

Most veterans maintain close contact with other veterans through a wide range of organizations and events. They know friends and acquaintances who are looking for good jobs. They also have good instincts about who in their network would have an interest in a given job and the skills and experience to fit in well.

Tapping into this network isn't hard: start by identifying veterans among your employees, your retirees, your suppliers. Give them an up-to-date written description of the job and the qualifications so they can pass this along to their contacts and get the word out.

Developing a "word of mouth" network works better when you explain to your veteran contacts why your jobs and your company offers a good fit for people with a military background. This can empower your contacts to make a good case for you. Veterans making a transition to a civilian job often know very little about most industries and less about specific companies.

While many veterans go online to research jobs, you should take the time to explain the aspects of your jobs and your company that should be especially

attractive to veterans. Military-friendly attributes include: future career growth supported by training or in-house mentoring, an emphasis on teamwork and your commitment to diversity. Since veterans are accustomed to these topics while in the military, the more specific you can be, the better.

There are many national veterans' organizations that have local affiliates you can contact for referrals. Although these organizations are not specifically in the business of providing referrals, veterans who belong are always interested in helping their members find good career jobs.

You can contact the local affiliates of these national organizations by visiting the national websites listed with each:

- **Team Red, White & Blue**
www.TeamRWB.org
- **Team Rubicon**
<https://TeamRubiconUSA.org>
- **Mission Continues**
<https://MissionContinues.org>
- **Iraq & Afghanistan Veterans of America (IAVA)**
<https://iava.org>
- **Marine for Life**
www.MarineForLife.org
- **Soldier for Life**
<https://SoldierForLife.army.mil/employment>
- **Citizen Soldier for Life**
<https://www.jointservicessupport.org/communityforces/>

The time you spend developing a word-of-mouth network among veterans will have growing benefits over the coming months. The more your veteran contacts learn about you and your company, the more they will want to recommend candidates to you. The more you learn about the veterans you are in touch with and the issues and concerns they have, the more effectively you can gain their help. You'll also get feedback about your jobs that will help you position them more effectively or address aspects of your offers that are turning veterans off.

If you would like to learn more about hiring veterans, National Guard mem-



Brig. Gen. (Ret.) Marianne Watson

bers and Reservists, visit our website at www.CenterForAmerica.org. You'll find many free Guides, articles and presentations on recruiting military candidates.

Brig. Gen. (Ret.) Marianne Watson serves as Center for America's Director of Outreach and she is member of the NTMA Workforce Development Board. Until her retirement from the military, she served as the Director of Manpower and Personnel at the National Guard Bureau. She was chief human resources officer of the Air and Army National Guard, responsible for leading the employment transition operations, among other functions. When deployed to Afghanistan, she was head of National Guard Affairs when 30+ percent of the U.S. soldiers in Afghanistan were National Guard members.



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