

TUESDAY
NOVEMBER 7, 2017

DAY 2

McCORMICK PLACE



THE OFFICIAL SHOW NEWS SHOW DAILY

NORTH AMERICA'S LARGEST METAL FORMING, FABRICATING, WELDING AND FINISHING EVENT

TODAY'S EVENTS

KEYNOTE: "FAST N' LOUD" WITH RICHARD RAWLINGS

8:30 – 9:30 AM, S100 Ballroom

RICHARD RAWLINGS MEET/GREET AND AUTOGRAPH SIGNING

9:45 – 10:45 AM, S100 Ballroom

EVOLUTION OF ADDITIVE MANUFACTURING AND WHAT IT MEANS FOR THE FABRICATION INDUSTRY

10:30 – 11:30 AM, 3D/Additive Manufacturing Theater, Grand Concourse

3D PRINTING AT A CROSSROADS: HOW METAL PRINTING AT SCALE WILL CHANGE THE MANUFACTURING LANDSCAPE OVER THE NEXT 5 YEARS

11:30 AM – 12:00 PM, 3D/Additive Manufacturing Theater, Grand Concourse

DESIGNING FOR 3D PRINTING & THE COMPLEXITY PARADOX

12:00 – 1:00 PM, 3D/Additive Manufacturing Theater, Grand Concourse

STATE OF THE INDUSTRY

12:30 – 1:30 PM, S100 Ballroom

EFFECTIVELY INCORPORATING ADDITIVE MANUFACTURING INTO YOUR BUSINESS

2:00 – 3:00 PM, 3D/Additive Manufacturing Theater, Grand Concourse

PROFESSIONAL WELDING COMPETITION

During Show Hours, Location: North Hall, Booths B32110 & B33109

SPIN TO WIN

11:00 AM – 4:00 PM, Hall C: Booth C41344

Chance to Win Prizes!

FABTECH INDUSTRY NIGHT: Soldier Field

5:30 – 7:30 PM

Purchase Tickets in Registration

The FABx Tech Talks

Exciting New Format Unveiled at Opening Keynote Presentation

Nearly three decades ago, the TED (Technology, Entertainment, Design) Conference became an annual event; since then, its signature TED Talks have become a well-known and keenly followed avenue to hear some of the most interesting people on Earth communicate their vision and passion. The first six TED Talks were posted online on June 27, 2006; by September they had reached more than one million views. TED Talks proved so popular that TED's website was relaunched around them, giving a global audience free access to some of the world's greatest thinkers, leaders, and teachers.

With a grateful tip of the hat to that organization, FABTECH introduced the FABx Tech Talks around that storytelling concept, where some of the industry's leading thinkers

communicated their passion and perspective on the topics of transformation, growth, advancement, and expansion for the future of manufacturing. Yesterday's opening keynote marked the inauguration of FABx Tech Talks. From the size and enthusiasm of the audience, we hope to continue them as an ongoing part of the FABTECH experience.

A Star-Studded Cast of Presenters

Yesterday's audience was treated to talks by six visionaries in the manufacturing/fabricating sector, ranging from a pair of Detroit-based entrepreneurs and a well-known television personality to a world-renowned sculptor and a pair of young leaders from two of the nation's leading organizations:



Adam Genei,
Founder,
Mobsteel

Mobsteel is a design/build company

that manufactures automotive aftermarket products and builds custom cars while celebrating the history of the automobile and the Motor City. It's a modern-day testimony to the old-time values of sweat and hard work, and a great example of the new entrepreneurship in manufacturing.



Jesse James,
Founder,
West Coast Choppers

Although it began in the early 1990s, West Coast Choppers first gained notice with the

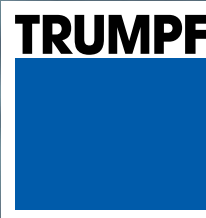
continued on page 14

Hypertherm
SHAPING POSSIBILITY™

Meet the new plasma. XPR300™.
See it live at booth A3525.

Enter to win a Powermax45® XP at booth B17013





GET CONNECTED with TRUMPF



FABTECH is the perfect opportunity to get connected with TRUMPF. With best in class equipment, automation components, vertical software solutions and experts that guide you every step of the way, TRUMPF is in the best position to support your smart factory. The demands of producing a high volume production of parts with smaller lot sizes require solutions that stay connected, adapt quickly and operate efficiently. TRUMPF provides solutions from stand alone machines to full systems across a wide range of processes. If efficient manufacturing is in your future, we invite you to stop by our booths at FABTECH and start your smart connection today.

FABTECH Booths A2601, B11013, B103 / www.trumpf.com

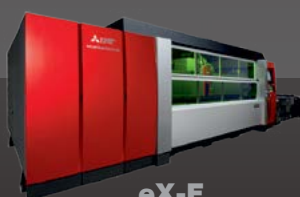


MITSUBISHI LASER

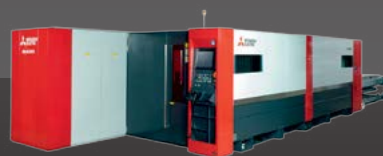
FABTECH BOOTH **A2619**



SR-F



eX-F



RX-F



XL-F

MEET MITSUBISHI'S COMPLETE LINE OF FIBER LASERS

FABTECH is just around the corner – Visit **Mitsubishi's** booth A2619 and see how ZOOM Fiber technology is changing the game. Are you moving towards industry 4.0? Learn about **Mitsubishi's** Remote 360 application and how it's revolutionizing business. That's not all – Press Brake, Automation, CO² laser, 5-axis laser, milling and turning equipment will all be on display!!! Visit our web site at www.mcmachinery.com

MORE FIBER

www.mcmachinery.com



Follow us on Twitter @mc_mits



Visit us on LinkedIn



Like us on Facebook

Experience "Innovation Drives Success – The Future of High Performance Manufacturing" at the Bystronic Booth A1819

Innovation is the driver of high performance manufacturing and the key to competitive differentiation. Innovative thinking is at the core of Bystronic solutions. The company recognizes it's no longer how a single piece of machinery will affect the fabrication process, but how all the machines and supporting software technologies work together to create a cohesive and effective fabrication solution.

The new high performance ByStar Fiber with 10kW Fiber Laser achieves the competitive differentiation sought by leading edge manufacturers. ByStar Fiber has been designed from the ground up to meet the speed and acceleration demands from high power Fiber lasers. The ByStar Fiber is available with 3kW, 4kW, 6kW, 8kW or 10kW Fiber laser power and with optional ByTrans Extended automated material loading/unloading.

Mobile robot automation meets high-speed bending with the new Xpert 40 Mobile Bending Cell, a compact solution for automated as well as manual bending that supports today's fluctuating lot sizes and varying part complexities.

To satisfy the increasing demand for high-speed, mobile bending systems, Bystronic will introduce the Xpert 80 Mobile Press Brake. With a bending length of up to 60 inches and a press capacity of 88 U.S. Tons, the Xpert 80 opens up a wide spectrum of applications for bending complex, small and medium size parts.

The Xact Smart 160 Press Brake combines high bend accuracy with advanced features in an affordable, high-value package that enables a fast entry into bending technology. Xact Smart 160 is now available with a 5-axis back gauge, extended open height, and Energy Saver.



SHEET & PLATE BENDING ROLLS

ANGLE & SHAPE BENDING ROLLS

FLANGING MACHINES

PRESS BRAKES

PRESSES

TRIM/BEAD MACHINES

COLE-TUVE

THE FAST TRACK TO SAHINLER FABRICATING MACHINES

HPK 100

4R HSS

LARGE, IN-STOCK INVENTORY

(877) 989-0700
sales@coletuve.com
coletuve.com

Lisa Johnson
Co-Owner

For affordable productivity, you'll enjoy working with us!

CT MACHINERY
COLE-TUVE, INC.

Exclusive North American Distributor for 24 Years

SAHINLER

Visit Us in Booth #A3875

Bystronic is expanding the bending process with automated tool changing. The Xpert Tool Changer with integrated 6-axis robot, is a compact automation solution for users who want to save set-up time and increase productivity. Operators can prepare for the next job while the robot changes the tooling. The ability to work simultaneously, and with tooling located directly at the press brake, saves up to 70% in set-up time.

Bridging performance with lower investment costs, BySmart Fiber is designed for users who are looking for quality machine performance at a lower investment cost. BySmart Fiber is available in 2kW, 3kW or 4kW Fiber laser power and with optional ByTrans automated material loading/unloading.

High-performance software is fundamental to modern sheet metal processing. Bystronic's "Make It Easy" BySoft 7 software represents a new generation of design and manufacturing software that

keeps pace with high productivity downstream equipment.

Bystronic MES (Manufacturing Execution System) is a new software solution developed by Bystronic that creates digital transparency across the entire process chain. MES allows users to plan, direct and evaluate work flows according to defined timelines.

ByCockpit is a new app developed by Bystronic which provides real-time analysis and visualization of the data associated with sheet metal processing. ByCockpit visualizes selected key indicators regarding machine performance and manufacturing efficiency.

Together, these new innovations are driving fabrication companies to new levels of productivity, profitability and success. Visit Bystronic at booth A1819. ■

The Bystronic logo is displayed in white text on a red background. The 'y' in 'Bystronic' is stylized with a diamond-shaped pattern of dots.

Best choice.

Innovation Drives Success

Experience Innovation at FABTECH Booth A1819

See why Bystronic continues to be the leader in high performance manufacturing technologies and your key to competitive differentiation.

NEW – ByStar Fiber 10kW with ByTrans Extended
Designed for Fiber. Unrivalled for Speed.

NEW – Xpert 40 Mobile Bending Cell
High-Speed Bending meets Robot Automation

NEW – Xpert 80
High-Speed Mobile Bending with increased
Bending Length and Press Capacity

NEW – Xact Smart 160
The Smart Choice in Performance Bending

NEW – ByCockpit
Real-time Information for Sheet Metal Processing

NEW – Bystronic MES Software
The Ultimate Navigation System for Production Management

Additional Demonstrations and Services:

- BySmart Fiber 3kW – Bridging Performance with Lower Investment Costs
- Xpert Tool Changer – The Set-up Accelerator
- BySoft 7 – Make It Easy
- ByFinances – Turning Dreams into Reality

Bystronic...Your single source solutions partner
Laser | Bending | Automation

800-247-3332 | bystronicusa.com



**Xpert 40 with
Mobile Bending Cell**

Making Apprenticeships a Part of Your “Skills Gap” Solution

Modern manufacturing facilities are becoming more sophisticated, requiring a highly skilled workforce capable of operating world-class technologies. But, as smart manufacturing – i.e., automation, robotics, and the industrial internet of things (IIoT) – transforms the industry, manufacturers are challenged to find and retain employees with the knowledge and experience to keep up to speed with change in today's plants.

While some companies feverishly integrate more state-of-the-art technologies into their facilities, the groundswell of people lacking strong technical expertise continues to escalate, creating a mounting skills gap that threatens a company's competitiveness, productivity, quality, innovation and profitability.

For companies to grow and compete successfully in the marketplace, these busi-

nesses must develop training programs that will enhance the skills of their current employees and level set new talent entering the workforce. Doing so will make room for improved productivity, more efficiency and better engaged employees.

A training tool that make sense

There are a variety of measures manufacturers can take to drive their workforce training needs. Apprenticeships are a

proven solution to closing the skills gap that combine customized online or classroom training with hands-on experience that provide a direct line to skills enhancements and workforce expansion.

These programs provide on-the-job training (OJT) to individuals new to the workforce as well as incumbent workers who are looking to upgrade their current skills in areas such as machining, welding, mechatronics, CNC programming and engineering.

Yesterday to today

Manufacturing has long been an OJT industry, relying on new employees to learn from more seasoned and experienced coworkers. However, in today's advanced technology climate, a “watch-what-I-do” training program is no longer sufficient to build a stable, reliable and safe workforce. Consequently, over the years, apprenticeships had fallen off the radar as a training option for employers and haven't kept pace with the current demands of advanced manufacturing.

Consider:

Your current employees have skills to share: An aging workforce takes valuable skills with them when they retire. In 2015, more than 20 percent of manufacturing's workforce was 55 years or older. As more and more of these baby boomers reach retirement age, we're seeing an exodus of skilled workers leave their companies without a systematic way of capturing and transferring their valuable knowledge.

You need workers today: You can't wait for a qualified, capable employee to complete college before they start working for your company. With apprenticeships that combine related instruction with on-the-job training, employers get a highly skilled worker able to contribute sooner than traditional educational routes.

And high-performance organizations are 4.5 times more likely to grow existing apprenticeship programs — or start one. They'll receive \$1.47 in increased productivity and greater innovation for every dollar invested in an apprentice.

However, gone are the days of informal, time-based programs that merely focus on completing education hours combined with OJT hours. The old apprenticeship system lacked an industry-wide standard, leaving companies with the task of doing the heavy lifting to carry out the program design, implementation and management.

Today's apprenticeship model is quite different. It is now geared toward an industry

YOUR PARTNER FOR CUTTING EDGE, HIGH QUALITY TUBE FABRICATION MACHINERY



BE SURE TO COME SEE US AT FABTECH CHICAGO NOVEMBER 6 - 9 IN BOOTH #B11029

SUPERIOR PRODUCTS, INDUSTRY LEADING SUPPORT

ITEC is built on over 30 years of tube industry experience with an unparalleled reputation for industry leading service and support prior to and following the sale. Innovative Tube Equipment Corporation truly is Your Partner for Cutting Edge, High Quality Tube Fabrication Machinery.

866.574.TUBE (8823)
www.tube-equipment.com



BENDING

High quality and most versatile electric and twinhead bending machines



LASER CUTTING

Fully customizable machines that offer unmatched capability



PUNCHING & FORMING

Safe and flexible off the shelf units offer alternative to traditional press tooling



AUTOMATION SYSTEMS

Complete part production without the concerns of “one off” machinery designs

continued on page 28



BLM GROUP

USA

**BEND IT. CUT IT.
AUTOMATE IT.
SEE IT AT FABTECH.**

Technology. Dedication. Service. That's us in three words. For over 60 years, BLM GROUP has developed state-of-the-art systems for processing tube, bar and special sections to make production more simple, more innovative and more efficient. Whether it's laser cutting, bending, sawing, end-forming or machining centers, our tube technology makes the difference. *See how at FABTECH 2017 in Booth B11010.*



LT8.10
3D Fiber Laser Cutting



E-TURN 52
Right & Left Hand Tube Bender



ELECT 102
102mm Tube Bender



SMART
28mm Tube Bender with Auto Loader

BLM GROUP USA Corporation
46850 Cartier Drive • Novi, MI 48377 • PH: 248.560.0080 • FX: 248.560.0083 • www.blmgrouppusa.com • email: sales@blmgrouppusa.com
LASER TUBE & FLAT SHEET CUTTING SYSTEMS | TUBE BENDERS | WIRE BENDERS | TUBE ENDFORMERS | COLD SAWS | TUBE MACHINING CENTERS

Products Finishing Top Shops Honors Best Coating Shops

The *Products Finishing* Top Shops Benchmarking Survey for liquid and powder coating shops was recently completed, resulting in 50 shops being named a Top Shop and four being highlighted for their exceptional operation.

• Safeway Services in Rockford, Illinois:

Tom Lynde doesn't want to be just anyone's custom coater. The owner of Safeway Services, a painting and powder coating provider in Rockford, Illinois, wants to be more than just a hired hand.

"We quote projects for companies from all over the Midwest, but we prefer customers who are looking for a relationship with their suppliers," says Lynde, whose family-owned business was started in 1989 and this year finished as the No. 1 shop in the *Products Finishing* Top Shops Benchmarking Survey for liquid and powder coatings.

Safeway runs two Wagner automated powder lines, an electrostatic wet line and a fluidized bed line, but it also does much more than just provide coatings for its customers. The shop can coat, label, package and ship products directly to its customers' customers, and also has warehousing and light assembly available when needed.

• Tri-State Fabricators in Cincinnati, Ohio:

Not every employee at Tri-State Fabricators is named Vogt, but the family-friendly feel of this shop located outside of Cincinnati, Ohio, makes it seem like everyone is part owner.

"The key to keeping quality employees is to treat them right, be fair with them, show them respect and make them feel important," says Rick Vogt, company president. "We strive to make sure our employees are told when they do a great job, and we let them know we appreciate all their hard work."

• Parker Trutec in Urbana, Ohio:

Parker Trutec's jobbing plant has been a very busy place over the last few years. General Manager Geoff Smith and a strong staff have been upgrading and expanding the company's coatings operations in nearly every area, a step that earned Parker Trutec a *Products Finishing* Top Shop honor for its technology achievements.

In just the past three years, they installed two new state-of-the-art Bonderlube, zinc and manganese phosphate lines that make use of the latest automated technology to support customer growth, and installed a \$1.5 million upgrade to its existing waste-treatment system that includes improved treatment technology designed to reduce its waste stream.

• A&A Global Industries in Hunt Valley, Maryland:

Good coating applications start at the top. At A&A Global Industries, no one sets a better example than Lawrence Saad, manager of its Powder Coating division.

With more than 30 years of powder coating experience, Saad is a seasoned veteran who has earned the respect of customers and others in the industry. He is an active consultant for brands such as Mercedes, Subaru, Chrysler, GM, BMW and Sylvania.

• Colourfast Corp. in Concord, Ontario, Canada:

Joseph Manzoli doesn't just tell you what Colourfast Corp. in Concord, Ontario, has to offer customers; he also tells you what his Canadian coating shop doesn't have.

"Shortcuts do not exist," says Manzoli, the company president. "We have been most intentional about putting quality above all else. We understand that timing of delivery without quality is, in fact, a negative, and never works in the end."

Colourfast is honored in the *Products Finishing* Top Shops Benchmarking Survey for its business strategies, which since 2000, have included a quality management system that was designed to critique all aspects of the operation in order to allow the shop to improve its relationship with customers.

The *Products Finishing* Top Shops Benchmarking Survey is the most comprehensive benchmarking survey in the finishing industry, and one that many job shops and coating operations use to set operational and efficiency goals. Each shop that supplies data to the survey will receive extensive benchmarking data in a series of reports.

How can your shop prepare to earn the distinction of Top Shops status? Complete the benchmarking survey next year; participating shops receive an exclusive Custom Benchmarking Report, and a Top Shop Executive Summary with data and statistics to help them improve in areas such as finishing technology, performance and practices, business strategy, and human resources. Please visit the CCAI booth # A6135 to learn more. ■



FABTECH's market-leading events take place at different times of the year and in a variety of locations across North America, making it easy for everyone who wants to participate in a FABTECH event.

► 2018 SCHEDULE

May 2-4, 2018

Centro Banamex
Mexico City

NEW DATES!

June 12-14, 2018

Toronto Convention Centre
Ontario, Canada

November 6-8, 2018

Georgia World Congress
Center – Atlanta, Georgia

CARLISLE
FLUID TECHNOLOGIES

**World's Leading
Full Line Manufacturer
Of Finishing Equipment**

DEVILBISS Ransburg ms BGK BINKS

Whatever the customer part

Whatever the finishing material

Whatever the application method

There's only one finishing equipment company that delivers all your application solutions

www.carlisleleft.com

VISIT US AT BOOTH #A6216

SOLUTIONS FOR YOUR WORLD

CARLISLE
FLUID TECHNOLOGIES



Cobra Welding Systems

mk[®]

PRODUCTS

Family Owned and Operated Since 1966



Building the world
MADE IN AMERICA



Stay In Touch!



@mk_products

Visit us at Booth

B31013

www.mkproducts.com | 1-800-787-9707 | info@mkprod.com

Hypertherm Introduces New Class of Plasma with Launch of XPR300 for X-Definition Cutting on Mild Steel, Stainless, and Aluminum



Hypertherm's most significant advance in mechanized plasma cutting ever is making its FABTECH debut. The company's new XPR300 introduces an entirely new class of plasma called X-Definition™.

This new plasma combines engineering advances and refined high definition plasma processes for unmatched plasma cut quality on mild steel, stainless steel, and aluminum. Laboratory testing shows ISO-9013 Range 2 quality on thin mild steel and extended ISO Range 3 cuts on thicker metals. To reach this point engineers developed a number of new patent-pending processes like Vented Water Injection™ (VWI), plasma dampening, and vent-to-shield technologies. The end result is squarer cut edges, markedly less angularity, and excellent surface finish on non-ferrous metals like aluminum and stainless steel.

In addition, new technology makes the XPR300 more efficient than any other plasma system. It cuts faster and uses power more efficiently than earlier systems like the HyPerformance® HPR260XD®. Piercing capability is improved thanks to increased power and an exclusive argon-assist process which enables 30 percent thicker piercing on

mild steel and a 20 percent increase on stainless. Additionally, consumable life and cut quality over the life of the consumables get a dramatic boost from advances such as Cool nozzle™ and Arc response technology™. The latter protects consumables from the negative impact of ramp down errors, a regular occurrence in real-life cutting. By reducing this impact, XPR consumables can last up to three times longer than on competitive, older generation systems.

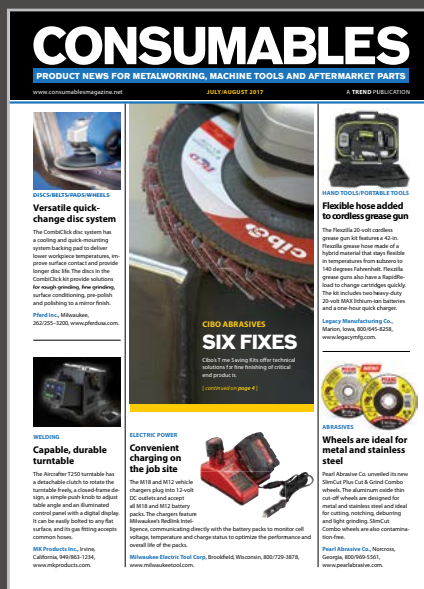
"The arrival of X-Definition Plasma and our new XPR300 is a huge step forward in the capabilities of plasma technology," said Phil Parker, product marketing manager for Hypertherm XPR Plasma. "The combination of faster cut speeds, unparalleled cut quality, intuitive features, and automatic system monitoring make it our most advanced and productive plasma yet. It really opens up a wide range of opportunities for companies by providing cut quality and consistency that may make it suitable for applications which have previously been associated with laser, but with the much lower initial investment costs associated with plasma."

Despite being Hypertherm's most advanced system yet, the XPR300 is easy to use. Sensors in the power supply deliver refined diagnostic codes and significantly enhanced system monitoring information. This reduces troubleshooting time and provides proactive data to improve overall system optimization and uptime. Additionally, the system is designed with fewer consoles and connections so operators can spend less time setting-up and more time cutting. An EasyConnect™ feature allows operators to quickly plug the torch lead into the torch connect console without the use of tools, while a patent pending QuickLock™ electrode delivers easy quarter turn tightening to further reduce setup time. Another new design feature is a quick change torch so operators can rapidly change torches with just one hand. All consoles feature advanced autogas capability allowing operators to select and implement jobs directly from the CNC, along with Wi-Fi in the power supply to enable system monitoring from afar.

Visit any one of the Hypertherm booths A3525, A3531, B17013 to learn more. ■



**BRINGING FABRICATING
& FORMING TO LIFE**



**ALL CONSUMABLES.
ALL THE TIME.**

VISIT US AT BOOTH **A3091**

WWW.FFJOURNAL.NET



CONSUMABLESMAGAZINE.NET

TREND PUBLISHING INC.



INNOVATION



WE'RE LIGHTING UP FABTECH. **AGAIN.**

DEMO STATIONS.

Get your hands on a variety of machines, like the full fleet of Rebels, including the all-new **all-process** AC/DC unit capable of MIG, Flux-Cored, Stick, DC TIG, and now **AC TIG** welding.

Then experience the expanded Renegade™ family, Cutmaster® 60i, EDGE™ Series 2.0, and Purus™ 42 wire; see the DMX automated plasma beveller in action; and try the industry's hottest helmet on for size – Sentinel™ A50. And when you demo anything, you'll be entered in our daily equipment drawing.

FILLER METAL HUB.

Stop by our interactive filler metal hub where you can chat with our technical experts, sign up to receive a free copy of our latest Filler Metal Data Book, and enter for a chance to win a Sentinel A50 welding helmet.

THE PALEY-JAMES PROJECT.

ESAB is a proud sponsor of the Paley-James Project, a collaboration between sculpture artist Albert Paley and motorcycle builder Jesse James. The final product of their collaboration will be on display at the entrance of the North Hall, so make sure to check it out.

Don't miss your chance to do all this and more. Get in on the action at booth B17074.

Hurricanes' Impact on the U.S. Economy

Dr. Chris Kuehl, FMA's economic analyst and founder of Armada Corporate Intelligence.

Now that Harvey and Irma have entered the lexicon it is time to start the pragmatic assessment. The first priority was obviously to make certain that people were safe and little discussion of economic impact took place – it seemed more than a little

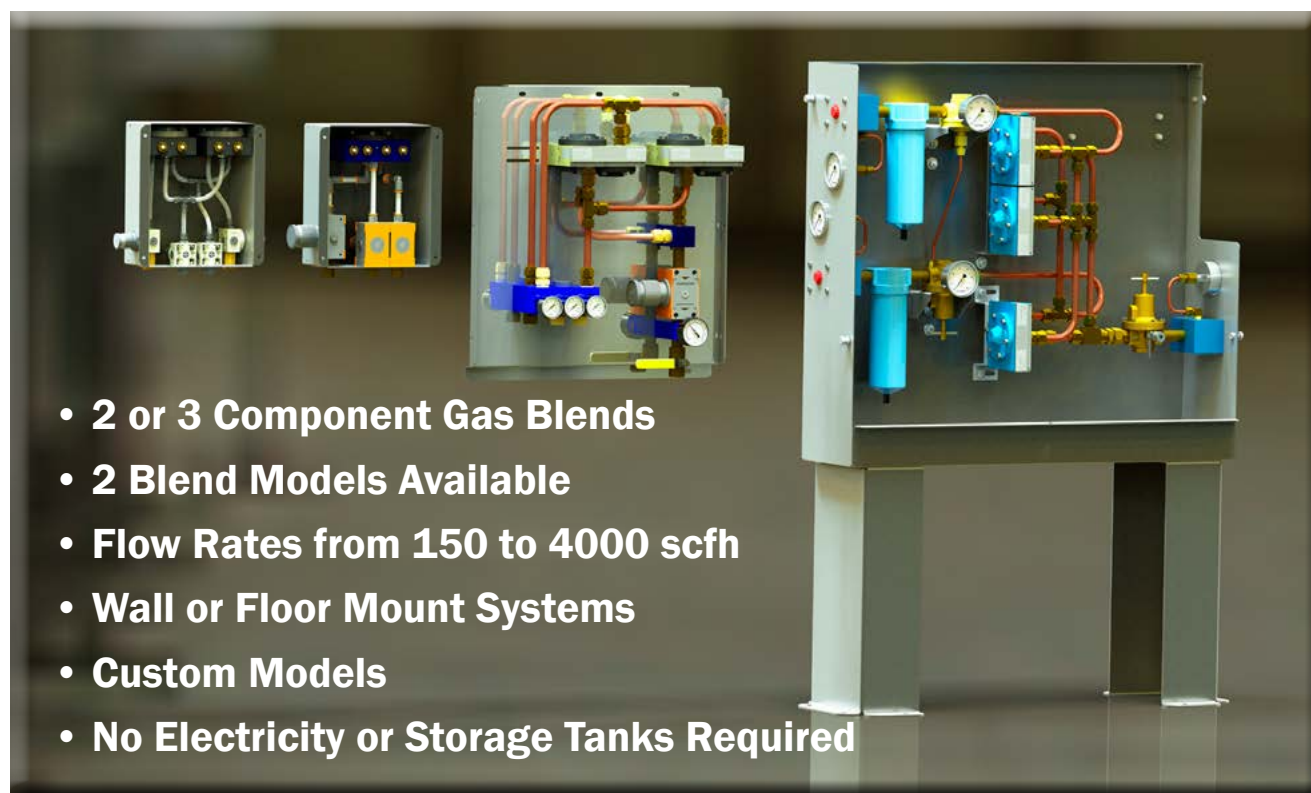
churlish to dwell on that subject at the time of crisis. Now that the emergency is over for some it is time to look at the impact on the region and the country as a whole and such an assessment is far from simple or easy.

Natural disasters on this scale have profound negative impacts – that much is patently obvious. What is less obvious is that there will be an economic upside at some point and often fairly soon. Damage estimates are all over the place at this

point with a range from \$20 billion to \$80 billion. It may take months to really know what these storms will cost in terms of lost productivity. There will be second and third order impacts as well. The refineries that were damaged and shut down in Texas

ON-SITE GAS BLENDERS

A WIDE RANGE OF MODELS TO FIT YOUR NEEDS...



- 2 or 3 Component Gas Blends
- 2 Blend Models Available
- Flow Rates from 150 to 4000 scfh
- Wall or Floor Mount Systems
- Custom Models
- No Electricity or Storage Tanks Required



Booth # B25069

McDantim
GAS BLENDING TECHNOLOGIES



888.735.5607 • www.mcdantim.com



produced a great many petrochemicals as well as fuel and there are now shortages of products such as ethylene – a building block for the overall plastics industry. The repair work has begun but in many cases, it is difficult to find the employees that scattered due to evacuation.

In the months to come the rebuilding process will unfold and in largely predictable stages. The destroyed facilities will be repaired and rebuilt with the latest and newest technology and in most cases the repaired facility or home will be better than the one lost. The legions of people that will be engaged in recovery will swell local economies as there will not be enough local people to handle all the work.

The estimate is that Q3 numbers will be down by as much as .05 percent but Q4 numbers could be up by as much as 1.0 percent and that growth will extend into 2018. This is hardly the first time there has been a disaster for a region to recover from and it will not be the last. The phases of recovery will be predictable and the process will be as well. The initial spending on damage will be over by the end of October, the reconstruction will be largely underway or complete by the end of the year, and full recovery for most will occur by the middle of 2018. ■



Visit us at FABTECH
Booth A3284!


IMPROVE PRODUCTIVITY WITH SICK PRODUCTS, SYSTEMS AND SERVICES

THIS IS **SICK**

Sensor Intelligence.

Make your forming and fabricating machines and work cells safer and more productive with SICK. Join us at Fabtech in booth A3284 to see the latest automation products and systems to improve your machine tools applications. Our wide range of LifeTime Services, including Machine Guarding Risk Assessments ensure you keep up with the latest safety requirements. SICK's broad portfolio of presence detection, measurement, vision, and safety ensures the most efficient automated production for your machining work center.

From integrated manufacturing systems to safety for collaborative robots and the latest solutions for reducing scrap, stop by and talk to one of our experts. www.sick.com



The FABx Tech Talks

Exciting New Format Unveiled at Opening Keynote Presentation

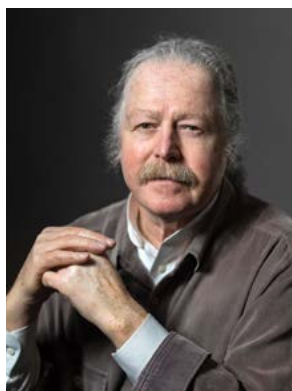
continued from page 1

2001 shows, “Motorcycle Mania I and II,” on the Discovery Channel. In 2004, James starred with Kid Rock in “Motorcycle Mania III.” With the release of these shows, interest in Jesse James and the West Coast Choppers allowed the firm to expand recognition of its brand and therefore its following. James also narrated a 2006 Discovery show called “History of the Chopper,” where he makes his own motorcycle to commemorate the 1960s.



Karen Kerr, Executive Managing Director, GE Ventures

GE Ventures provides unrivaled access to a global network of GE expertise and resources. They partner and invest in the best ideas within software, health care, energy, and advanced manufacturing. The company’s vision is to scale ideas and grow companies that advance industries and improve lives.



**Albert Paley
Sculptor**

Paley is an American modernist metal sculptor, although he began his career as a jeweler. He has become one of the most distinguished and influential metal smiths in the world. Within each of his works, three foundational elements stay true: the natural environment, the built environment, and the human presence. Paley is the first metal sculptor to have received the Lifetime Achievement Award from the American Institute of Architects.



**Jacques Panis,
President, Shinola**

Panis leads Shinola, a Bedrock Manufacturing brand that was conceived with the belief that products should be well made and built to last. As makers of modern watches, bicycles, leather goods, and journals, it builds all of its goods to last. However, of all the things Shinola makes, world-class jobs and an innovative and thriving manufacturing presence in Detroit might be what they’re most proud of.



Michael Walton, Industry Solution Executive, Microsoft

Microsoft needs no introduction; within that world-leading organization, Walton stands as one of the most passionate advocates of engendering an innovative culture—and one of the most articulate spokesmen for why it is essential to today’s manufacturing.

Common Threads Throughout

While each of the presenters gave his or her unique perspective on the challenges and opportunities faced by American manufacturing today, a number of common threads emerged through the collection of stories.

Each presenter spoke to the human focus: the importance of the workforce, the way it works, thinks and learns, particularly in an age where accelerating technology is changing processes and business models. “We’ve been spending a lot of time thinking

about the future of work—from where we sit, what does the manufacturing job of the future look like?” inquired Kerr. “With the advent of the multimodal factory, an inevitable result of more intelligent and ubiquitous connectivity, more flexibility will be required of workers within factories. How do we assure that they achieve this?”

One of the ways GE is meeting this challenge is by augmenting the workforce, both in the factory and field service arenas, with automation and AI tools, as well as augmented reality. “We’ve invested around these areas, and we’re starting to see those tools put to use,” she said.

Walton referenced studies that showed the gap between the needs of manufacturers and the available, qualified personnel that can be hired to meet those needs. He discussed the ongoing challenge for the sector to reshape the perception of manufacturing jobs among a younger demographic.

The need is urgent. According to a study by the Manufacturing Institute and Deloitte Consulting, there will be two million unfilled manufacturing jobs in the future. At the crux of the problem are Millennials, who indicate technology is their most sought-after job, but don’t connect technology and modern manufacturing.

Panis explained that workforce training was critical to Shinola’s success, and used its leather products as an example. A dispossessed workforce—those who had worked with leather in the automotive industry—has been leveraged and retrained to have the skillsets necessary for the company’s luxury leather goods business. “So we’ve been able to tap into a resource resident in Detroit, but nonetheless have had to add automation into processes to bring down costs and maintain competitiveness,” he noted. “After all, even though we’re committed locally, the competition is still global.”

The subject of new materials also came up several times. Kerr spoke to GE Ventures’ growing interest in the 3D printing area, noting the company’s “investments in carbon and desktop metal are pushing the boundaries in technology but also in business models.”

Paley referred to the importance of materials in the execution of his art: “My involvement with aesthetics has gone through various phases over the years. In this evolution,

the constant has always been my focus on personal awareness and perception. My investigation in form development centers on the exploration of material characteristics, related processes, and technology.”

While all the speakers touched on their future visions, two paid particular tribute to the traditional values that have driven American manufacturing. “We do on a small scale what I believe the country needs to do on a large scale: make things that can be made here,” said Genei. “Skilled trades are at a deficit, and we need to get more people involved in working with their hands.” He continued: “It’s important to us to celebrate what this country has accomplished in its past, and we celebrate that through re-building old vehicles and what they were—but also in how we act and behave. In the ‘90s, everything became about the stock market, white-collar work, and a different message went out that turned a lot of young people against manufacturing. We had moved away from a work ethic that drove us. There was real skill in that ethic, and at Mobsteel we embrace that. We put our work boots on every day—and it’s very rewarding.”

James echoed that sentiment, noting that despite the celebrity he’s gained, what he’s achieved goes back to doing what he loved, building motorcycles in his mother’s garage. From there he built his shop from the ground up, through nothing more than hard work and dedication, turning it into a phenomenon. Today the West Coast Choppers brand is recognized around the world.

For those who are thinking, well, that’s just motorcycles, it might do well to remember that tiny company that started in an Albuquerque garage in 1975: Microsoft. ■

Advanced Manufacturing for the Next Industrial Revolution

The title of this column is really a misnomer; the next Industrial Revolution is already here, driven by the rapid advance and proliferation of digital technology and the ubiquitous connectivity it enables. A recent column on the Wired Innovation Insights blog puts it like this:

The biggest change that the manufacturing industry is experiencing right now is the internet of things (IoT). The first industrial revolution was largely powered by steam power and today IoT-centric solutions are powering the fourth industrial revolution.

Sensors are central to IoT solutions in factories, gathering data from machines and delivering them to the right people at the right time. A survey by PwC shows that at least one-third of the manufacturers in the U.S. are embedding sensors in their factories and using the data generated to make their operations more efficient.

According to that survey, 34 percent of manufacturers say that it is critical for American companies to adopt an IoT strategy; 38 percent are embedding sensors in products that allow their end-users and customers to collect sensor data. As a young man born in the blue-collar town of Duluth, Minnesota once sang (a man who is now a Nobel Prize-winning laureate), "The times they are a-changin'." Changing fast.

The opening panel session of this year's FABTECH focused on the revolution taking place in American manufacturing, where four distinguished panelists discussed how their companies stay at the forefront of this revolution, and how they embrace disruptive technologies to remain competitive and profitable. As executive director of MForesight, Sridhar Kota was an ideal moderator for the group. MForesight is a federally-funded consortium focused on enhancing U.S. manufacturing competitiveness by providing insights to decision-makers on emerging technology trends and related priorities to inform policy and investments in advanced manufacturing. The panel participants were:

- Jerry Foster, CTO, Plex Systems
- Karen Kerr, Executive Managing Director, GE Ventures
- Jacques Panis, President, Shinola
- Michael Walton, Industry Solution Executive, Microsoft

Tough Questions from the Moderator

Kota had a specific line of questioning that he related to the nature of FABTECH's audience, largely comprised of small and mid-sized manufacturers:



"What are the challenges of implementing next-generation technologies in small and mid-sized manufacturers? After all, 95 percent of manufacturers fall into that category, so even if large multinationals are moving rapidly towards Industry 4.0 and smart manufacturing tools and techniques,

unless the small and mid-sized companies that comprise their supply chains are also making that leap, the revolution will never get off the ground. How many small manufacturers can get a 3D model from an OEM and deal with it comprehensively?"

Kota also cited the challenge of workforce empowerment: "How do we bring people into this new world of manufacturing? What are the opportunities? What are the roles of government and universities? Is education being offered in a meaningful way? How can manufacturers drive this?"

Here Kota cited Siemens and its SCE (Siemens Automation Cooperates with Education) program as a model worth exploring. SCE offers curriculums and automation training based on Massive Open Online Course (MOOC) and blended learning concepts for conveying know-how on Industry 4.0. Educational institutions across the United States can benefit from the special conditions, support, and partnerships provided through the SCE program.

Kota also questioned the efficiency of efforts to date: "When it comes to the nation, we are second to none in entrepreneurship and investment, yet we have deficits in manufacturing and advanced technology products. Why isn't this trickling down?"

With many venture capitalists finding manufacturing a risk-averse sector, he was particularly keen to hear what Karen Kerr had to say and why GE Ventures was moving to get innovation into manufacturing.

The Panel Speaks

In discussing GE Ventures' areas of focus, Kerr called out three in particular:

- **Workforce empowerment.** "We have devoted a lot of time thinking about how to augment our workforce, both in the factory and field service arenas,"

continued on page 22

www.nordson.com/ics

**Your productivity.
Made better by Nordson.**

Join us to coat and cure your part today!
Experience the all new Encore® HD dense phase **powder coating** technology, our **Nordson University** training program and our **liquid coating** and **UV curing** applications at **FABTECH Booth #A6224**

Performance by design

Nordson



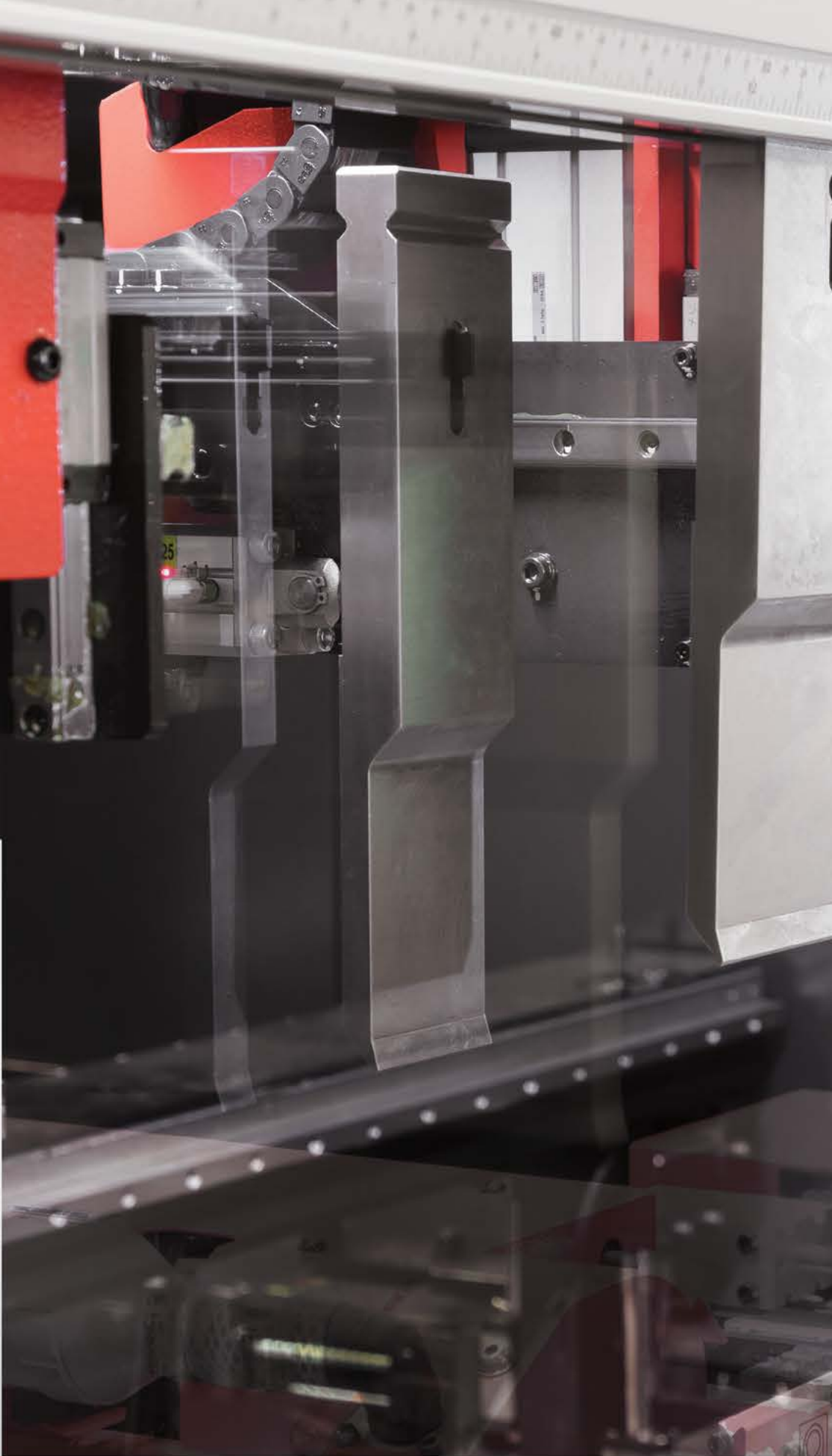
SEE IT HERE,
THEN SEE IT LIVE.

Booth A1802



**AMADA is proud to be
the FABTECH mobile
app sponsor.**

*Available for iPhone, iPad and
Android devices, this native app
is designed to keep you connected
while enhancing your show
experience.*



**Partner with AMADA at FABTECH and learn how
to thrive in The New Era of American Manufacturing.**

- **HG 1003 ATC:** Press Brake with Automatic Tool Changer
- **ENSIS 3015 RI:** 3kW Fiber Laser with Rotary Index
- **LCG 3015 AJ + AMS 3015 CLT:** 9kW Fiber Laser with Expandable Automated Material Handling
- **LC 2515 CI AJ + ASR 3015 NTK:** Punch/Fiber Laser Combination Machine with Automated Material Handling
- **HG 1003 ARs:** Integrated Robotic Bending System
- **FLW 4000 M5:** 4kW Fiber Laser Robotic Welding System
Via live video feed.



Automation *For The* *New Era.*



Today's focus is on revitalizing U.S. manufacturing — with American goods built by American workers. This defines the New Era of American Manufacturing.

As fabricators develop strategies to meet the demands of this new era, AMADA's Manufacturing Facility in Brea, California, is building industry-leading automated solutions that set the standards for performance and reliability.

Stay In Touch With What's Next.



AMADA AMERICA, INC.

180 Amada Court • Schaumburg, IL 60173 • 877-262-3287 • www.amada.com/america

JOIN US TONIGHT!

Industry Night at Soldier Field for Fun and Networking

FABTECH's Industry Night is the only planned function that takes place after show hours. It's a wonderful opportunity to bring the industry together in a fun, relaxed environment, enjoy some great food and drinks, and network among old and new friends in one of Chicago's signature landmarks.

What: Industry Night

When: Tonight, Nov. 7, 5:30-7:30 PM

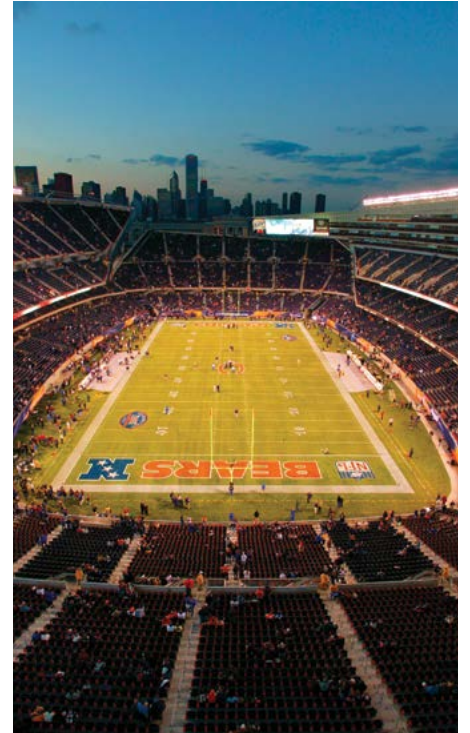
Where: Soldier Field

Why: You Deserve It!

The Bears won't be on the field tonight, but you'll have the opportunity to get down on the grass; what's more, NFL Hall-of-

Famer Dan Hampton, "the Danimal," will be there for autographs and conversation. Inducted into the Pro Football Hall of Fame in 2002, Hampton was a dominating presence as a defensive tackle for the Chicago Bears from 1979 to 1990. He was selected to four Pro Bowls and was a member of the team that defeated the

New England Patriots in Super Bowl XX. He currently hosts the Bears' postgame show on WGN radio in Chicago.



Soldier Field was designed in 1919 and opened on October 9, 1924, as Municipal Grant Park Stadium. The name was changed to Soldier Field on November 11, 1925, as a memorial to U.S. soldiers who had died in combat. Its neoclassical design style features Doric columns rising above the east and west entrances. The stadium cost \$13 million to construct (\$182 million in 2015 dollars), a huge sum for a sporting venue at that time.

General admission tickets to the event are \$50. VIP tickets are \$75, an upgrade that provides a behind-the-scenes tour that includes access to the visitor's locker room, where Bears opponents gear up before game time, and a visit to the field where all the action happens. VIP's will also have the chance to win a football autographed by Hampton.

For those who do not have advanced tickets, you can go to Registration to check availability.

We look forward to seeing you at Soldier Field tonight! ■

MASTER

ROLL MANUFACTURING



PRECISION MACHINING
TURNING CAPACITY OF 20" DIAMETER & 180" LENGTH



CYLINDRICAL & CENTERLESS GRINDING
GRINDING CAPACITY OF 14" DIAMETER & 168" LENGTH



MILLING & DRILLING
MICRO-FINISHING
PREMIUM RECONDITIONING
INCLUDING WORK / INTERMEDIATE ROLLS & BACKUP BEARINGS



STRAIGHTENING
INDUCTION HARDENING
INSPECTION & CERTIFICATION
WE MAY ALSO PROVIDE
HARD CHROME PLATING
THERMAL & SYNTHETIC COATINGS
PICKUP & DELIVERY WITHIN 150 MILES



CALL US ANY TIME!
219-393-7117



VISIT US ONLINE!
MASTER-ROLL.COM


Visit us in booth C40710

**3999 HUPP ROAD - BLDG. R-2-3
LAPORTE, INDIANA 46350**


DOUCET

**VISIT US AT
BOOTH A3150**


**PERFORMANCE
ORIENTED
MANUFACTURING
SOLUTIONS IN
METAL POLISHING**



EBP



PMCT-HD



PMCTA

Doucet Machineries is a machinery designer, manufacturer and integrator dedicated to fulfilling the machinery needs of the wood and metal processing industries.

- PMC Stroke Belt Sanders and Polishers
- PMCT Triangular Stroke Belt Sanders and Polisher
- PMCTA Automatic Stroke Belt Sander and Polisher

- EBP Enclosure Box Stroke Belt Polishers
- APP Automatic Stroke Polishers for metal plates

866 673-8876
INFO@DOUCETINC.COM
DOUCETINC.COM

Education Program

Want to attend an education session?
Go to event registration located in **S100 Ballroom** or **Hall C** to register. Fees apply.

TUESDAY, NOVEMBER 7				SCHEDULE-AT-A-GLANCE*	
TECHNOLOGY	8:00 AM – 10:00 AM		10:30 AM – 12:30 PM	1:30 PM – 3:30 PM	
3D/ADDITIVE MANUFACTURING	F40: NEW Business Considerations for 3D Additive Technology with Tech Tour B Room 402A		F50: NEW Design Considerations for 3D Additive Technology I Room 402A	F60: NEW Considerations for Small to Large Additive 3D Printing I Room 402A	
AUTOMATION/ SMART MFG	F47: NEW Automating with Laser Technology I Room 401A		F57: NEW Introduction to Smart Manufacturing and Asset Optimization in Real-Time B Room 401A	F67: NEW Robot-Based Automation Systems I Room 401A	
CUTTING				F61: Waterjet Cutting Solutions for Quality Cut and Speed I Room 404A	
FINISHING	C40: NEW Fundamentals of Pretreatment B Room 404D		C50: NEW Finishing End User Case Histories I Room 404D	C60: NEW Understanding the Importance of Wastewater Treatment I Room 404D	
	C41: NEW Plating and Anodizing Industry Success Stories I Room 405A		C51: NEW Mejorando el Desempeño Total Del Sistema de Pintura en Polvo I Room 405A	C61: NEW Practical Approach to Optimal Powder Coating Operations A Room 405A	
	C42: NEW Solving 21st Century Coating Challenges with Durable Porcelain Enamel I Room 405B		C52: NEW Finishing System Design Criteria I Room 405B	C62: NEW Optimizing Liquid Finishes I Room 405B	
FORMING & FABRICATING	F48: Tube Producing and Joining B Room 502A		F58: Advanced Roll Forming Tooling and Line Troubleshooting A Room 502A	F68: Press Brake Tooling I Room 502A	
	F49: Advanced Punching Capabilities for Fabricators I Room 502B		F59: Advanced Press Brake Technology I Room 502B	F69: Steel 101: Mill to Fabricator B Room 502B	
JOB SHOP	F46: NEW Cracking the Paperless Code for Manufacturers I Room 401D		F56: NEW Lean Manufacturing Journey Through the Job Shop B Room 401D	F66: NEW Leverage Real-Time Costs and Double Output I Room 401D	
LASERS	AWF100: Laser Welding for Today's Fabricator Workshop I Room 403B			F62: NEW Innovative Laser Application and Solutions B Room 403B	
LEAN	F44: Lean: Value Stream Mapping, Addressing Differences Between Office and Shop Floor I Room 401BC		F54: Lean Tools: Flow and Pull Creating Flow in High-Variety Environments I Room 401BC	F64: Lean Tools: Quick Changeover and Total Production Maintenance (TPM) I Room 401BC	
MANAGEMENT	F45: NEW Global Landscapes and Cultural Awareness for Competitive Advantage I Room 403A		F55: NEW Accelerate Profitability Through Cost Reduction Strategies I Room 403A	F65: NEW Innovative Strategies for Leading, Protecting and Growing Your Organization B Room 403A	
STAMPING	S40: NEW Press Line Optimization I Room 503A		S50: NEW Machine Modernization & Safeguarding I Room 503A	S60: NEW Equipment Installation I Room 503A	
	S41: Cutting & Punching Technology I Room 503B		S51: Lubrication Technology I Room 503B	S61: NEW Transfer Die Technology I Room 503B	
STRUCTURAL STEEL/PLATE	F300: NEW Structural Fabrication Equipment Technology I Room 501D			F400: NEW Structural Steel Software Solutions I Room 501D	
WORKFORCE DEVELOPMENT	F43: NEW Leadership Actions to Transform Your Culture and Create Employee Engagement B Room 404BC		F53: NEW Strategies for Learning and Leveraging Your Leadership I Room 404BC	F63: Accelerating Workforce Performance Through Best Practices in Learning & Development I Room 404BC	
WELDING					
SEMINARS	W12: Crash Course of Welding Inspection Technology Seminar (WIT), Room N128			8:30 AM	4:30 PM
	W13: The Why and How of Welding Procedure Specifications - Beginner, Room N129			8:00 AM	12:00 PM
	W14: The Why and How of Welding Procedure Specifications - Advanced, Room N129			1:00 PM	5:00 PM
	W15: The Why and How of Welding Procedure Specifications - Both, Room N129			8:00 AM	5:00 PM
	W16: Applications of Stainless Steel Welding - Day 1, Room N131			8:30 AM	4:30 PM
	W17: ASME Section IX, B31.1 & B31.3 Code Clinic - Day 1, Room N133			8:30 AM	4:30 PM
CONFERENCES	W24: Tubular Structures Conference, Room N226			8:00 AM	3:00 PM
RWMA SCHOOL	W26: RWMA Resistance Welding School - Day 1, Room N227A			8:00 AM	5:00 PM
PROFESSIONAL PROGRAM	W28: Session 4: Arc Welding, Room N138			8:00 AM	12:00 PM
	Session 5: Welding Metallurgy & Weldability, Room N139			8:00 AM	12:00 PM
	Session 6: Honorary Symposia for Dr. S. David and Prof. T. DebRoy - Joint Session A, Room N140			8:00 AM	12:00 PM
	Session 7: Industrial Technologies, Room N138			2:00 PM	5:00 PM
	Session 8: Honorary Symposium for Dr. S. David - Session B, Room N139			2:00 PM	5:00 PM
	Session 9: Honorary Symposium for Prof. T. DebRoy - Session B, Room N140			2:00 PM	5:00 PM
EDUCATIONAL SESSIONS	W34: AWS Education Sessions, Room N137			8:30 AM	4:30 PM
SPECIAL PROGRAMS	W36: AWS Awards Luncheon, Room N228			12:00 PM	2:00 PM

* Schedule subject to change. **B** = Basic **I** = Intermediate **A** = Advanced

The Steel Story

Dr. Chris Kuehl, FMA's economic analyst and founder of Armada Corporate Intelligence.

The plan was to release the details of the steel tariff plan at the end of June. As of mid-August the plan was still not in place. As expected, this complex issue is not easily resolved, and in the last several months there have been comments from a variety

of affected industries. The plain fact is that there are far more consumers of steel than there are producers, and they have all been making their opinions known.

The motivation for the tariffs is a belated attempt to rescue the domestic steel

business. Over the last few decades, the U.S. steel industry has been fading and steel consumers have been buying cheaper imported steel. Even if the foreign steel was not always cheaper, it was available, and the U.S. producers could

not always keep pace. The case for the steel tariff has been made around national security as the U.S. doesn't want to be dependent on foreign sources. Given that most of the steel coming into the U.S. is from allies such as Canada, Mexico, and Japan, this is a weak argument.

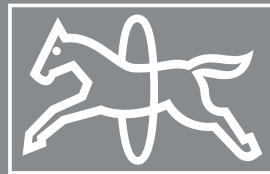
What is likely to happen now? It would be an embarrassment to abandon the whole effort, and Trump seems unwilling to take that step. Those that do not want to see major shortages of steel and price hikes are pushing hard for exemptions, and they have gotten some already. The steel-using sectors are making their case aggressively and suggesting they will lose jobs. The best estimate is that a final decision will not come for months, and the end result will be far less comprehensive than was originally outlined, with perhaps a sliding scale of tariffs.

Meanwhile, there are discussions regarding what the steel sector in the U.S. really needs in order to be competitive in the future. The strict environmental rules that prohibit scrapping of ships in the U.S. would be a good place to start, as most of the U.S.'s current ship work is done in other nations, such as China. That has included the scrapping of U.S. warships. ■

Sharpen Your Knowledge of PFERD.

PFERD's 218 years of metalworking expertise will be on display for you to see firsthand. Come visit us at FABTECH® and let us show you how our solutions will help increase productivity and efficiency in your operations.

PFERD



SEE US AT
BOOTH
#B17025

RACE TO THE FINISH!

Stop by our booth to play and win!



Play our web-based app, PFERD DERBY, and sharpen your knowledge of PFERD! Scan the QR code or go to pferdusa.com/derby for details and to sign up.



Passcode: daily1799

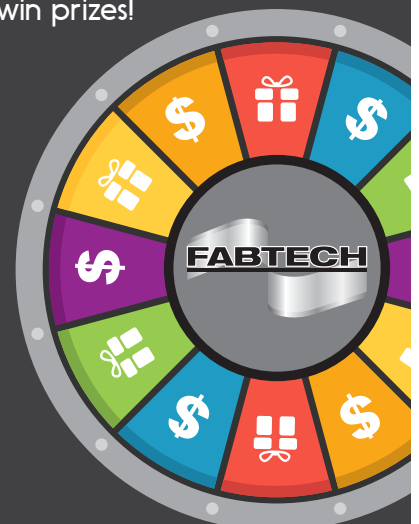


TRUST BLUE

SPIN TO WIN!

► LOCATION: HALL C BOOTH C41344

Stop by and spin the wheel for a chance to win prizes!



HOURS OF OPERATION

Monday, Nov. 6 . . . 12:00 PM - 5:00 PM
Tuesday, Nov. 7 . . . 11:00 AM - 4:00 PM
Wednesday, Nov. 8 . . . 11:00 AM - 4:00 PM
Thursday, Nov. 9 . . . 10:00 AM - 2:00 PM



www.pferdusa.com ■ (800) 342-9015 ■ sales@pferdusa.com



Bud's Equipment

We added an M-502 Super Cooling Fan and it has been keeping our techs comfortable during these hot days. We even tested it with one of our expensive infrared temperature guns and it passed the test.

- Cody Hofer - Stotz Equipment

Booth: A4092

Hall A, Forming & Fabricating Pavilion

Variable speed portable evaporative super cooling fans can be used in large work areas — including dusty, dirty environments, such as maintenance shops, large patios and decks. They are useful in places where air conditioners are not effective, and they have the added benefit of cleaning and filtering out dust along with cooling the temperature.



M-502-Cool Inverter Portable Fan
PE
50"
3 (SMC Blades)
2 HP
2 HP
220 Volt 1-Phase
518 R.P.M.
86.1" H x 71" L
x 34.64" W
6,200
61 Gallons
429 lbs



M-602-FRP

65-75 dB



M-602-Cool

30-80 dB



M-703-Cool

30-70 dB



M-702-Cool

30-70 dB



M-802-Cool

30-70 dB



M-902-Cool

30-70 dB

External Frame	FRP	PE	PE	PE	PE	PE
Blade Size	42"	42"	30"	30"	24"	18"
No. of Blades	6 (Nylon 66+ Fiber Blades)	6 (Nylon Blades)	3 (Nylon Blades)	3 (Nylon Blades)	3 (Nylon Blades)	3 (Nylon Blades)
Motor Power	1 HP	1.5 HP	1.5 HP	1.5 HP	0.5 HP	0.3 HP
Inverter	2 HP	2 HP	1.5 HP	1.5 HP	1 HP	1.5 HP
Variable Speed	520 R.P.M	10-580 R.P.M.	10-1100 R.P.M.	10-990 R.P.M.	10-1200 R.P.M	10-1370 R.P.M.
Cools Up To	N/A	4,800 SQ FT	3,700 SQ FT	3,100 SQ FT	2,500 SQ FT	1,291 SQ FT
Capacity Gallons	N/A	47 Gallons	38 Gallons	33 Gallons	32 Gallons	14 Gallons
Volt	230 Volt 1-Phase	230 Volt 1-Phase	115 Volt 1-Phase	115 Volt 1-Phase	220 Volt 1-Phase	115 Volt 1-Phase
Size	61" H x 45.66" L x 35.43" W	73.22" H x 61" L x 31.89" W	67.71" H x 52" L x 27" W	62.20" H x 49.60" L x 28.34" W	54.33" H x 38.58" L x 26.77" W	51" H x 29" L x 19.68" W
Dry Weight	243 lbs	265 lbs	220 lbs	200 lbs	165 lbs	99 lbs

Advanced Manufacturing for the Next Industrial Revolution

continued from page 15

she said. The company has invested in automation, artificial intelligence (AI), and augmented reality (AR) tools, and is already seeing these deployed to good effect.

- **Increased visibility.** "Supply chain visibility end-to-end and having the ability to leverage connectivity between suppliers, carriers, warehouses and factories are important capabilities to invest in. We do this to drive cost out, but also to provide a better customer experience in terms of quality of product and on-time delivery."
- **3D/Additive Manufacturing.** "We have made significant investments in carbon and desktop metal, pushing boundaries on technology but also business models."

All these areas relate to the idea of connectivity: getting feedback on manufacturing processes, and leveraging that for insight to innovate new products. "Manufacturers have always had a sense of connecting things, but I think it's reached 'a hockey stick' effect where they have the ability to leap forward exponentially," said Plex's Foster.

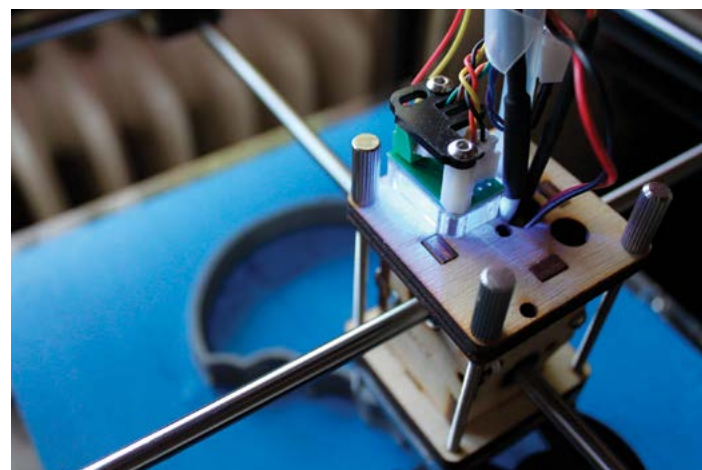
In addition to the development of the industrial IoT, Foster points to the cloud as a critical piece of infrastructure, even if it's become so much of modus operandi

that we don't think of it as advanced. "The cloud is critical to most of the other technologies. Connectivity, big data, cheap storage are all integral to the IIoT; but the decrease in the cost of storage has really opened the flow of data. That is directly related to the cloud. This combination of factors is allowing manufacturers to get at the heart of their processes like never before."

"Not enough has been said about the workforce," continued Foster. "Manufacturers need a workforce that is comfortable with technology, and it hasn't always been that way." The situation is compounded by the fact that Millennials, who are comfortable with and seek engagement with technology, do not associate technology with manufacturing.

Like GE Ventures, Plex is supporting workforce development with investments in tools such as augmented reality and wearable devices. "We've had some real success with Google Glasses and audio navigation. While voice recognition has been around for some time, the exciting recent advancements have been about weeding out surrounding noise, so often critical in factory environments."

Something Plex is looking at, but hasn't yet implemented: use of drones on the factory floor. Since 3D printing has developed quite dramatically, don't be surprised to see drone technology follow in those footsteps.



Start Small, Move Fast, Think Big

In response to Kota's query of how to drive this new technology down into the critical small and mid-sized part of manufacturing's base, Microsoft's Walton was passionate in repeating a mantra: *Start small. Move fast. Think big.*

"These organizations can't implement digital transformation overnight," he explained. "They must start with a vision. Take small steps. Then move fast and get muscle memory through that process. Once they have that, they can scale. That's how all the best organiza-

tions do it, from visionary IT companies to smaller fabricators."

Walton posed some questions of his own: "Why is innovation important to this industry? Why is it important to share ideas and not penalize employees for creativity? What are the penalties if your organization fails to innovate?"

Walton contended that it is key for manufacturers to create a "culture of innovation," meaning having the willingness to innovate, not penalizing (or fearing) innovative thought or action, and being able to learn from failures to drive future success. "I have the utmost respect for FABTECH," he says. "Most of the attendees here work for companies with limited marketing budgets. Here's one thing that they or anyone can do regardless of size or capital resources: allocate 20 percent of your time to innovative thinking. It's not easy, but it's highly effective. You can't sustain a culture of innovation unless you apply it yourself."

Walton closed with an anecdote about a colleague from another industry who had been hit hard by a raft of financial pressures. "He applied this method to himself and his team, and after three years, his team was the only one across the enterprise that didn't have a cut in personnel. Why? They'd developed a culture of innovation. They'd found new ways to have greater impact and realize cost savings."

The American futurist Stewart Brand once observed, "Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road." For small and mid-sized manufacturers dealing with the disruptive technologies of the new industrial revolution, having an innovative culture will keep them from getting flattened. ■

W Series
FULL CNC
PORTABLE MULTIFUNCTION MACHINE TOOLS

Unique of its kind

Excellence Made in Italy fascinates America

SIR MECCANICA
Portable Multifunction Machine Tools

VISIT US AT
Stand N° B32097

distributors
WE WANT YOU
dealers

Sir Meccanica S.p.A. - Viale Europa 37, 88100 CATANZARO (Italy) ☎ +39 0961.769696



REBEL EMP 285ic
Available as single- and three-phase units

REBEL EMP 205ic AC/DC

REBEL IS TAKING THE INDUSTRY BY STORM. **AGAIN.**

MORE INCREDIBLE NEW MACHINES ARE JOINING THE EVER-GROWING REBELLION.

Rebel EMP 205ic AC/DC – We made the impossible possible with the first-ever **all-process** machine, complete with MIG, Flux-Cored, Stick, DC TIG, and now **AC TIG** capabilities, which means – yes – it TIG welds aluminum. It's a true all-in-one, never-before-seen welding machine that you won't want to miss.

Rebel EMP 285ic – This multi-process machine is the most industrial Rebel yet – capable of welding up to 350 A. Available as a single- or three-phase unit, Rebel EMP 285ic is able to weld the full range of .035 and .045 wire in short arc or spray transfer without sacrificing duty cycle, providing industrial fabricators with more power and more productivity when and where it counts.

Stop by booth B17074 today to experience them for yourself, and explore the whole Rebel family at esab.com/rebel.

Introducing TRIMAX, The Worlds' Safest, Most Innovative Split-Frame Lathe

Tri Tools' exciting new split-frame machining system has been designed to deliver unprecedented performance & dependability, combined with industry-leading operator safety at it's very core.

"A remarkable achievement. This state-of-the-art bearing design is a game-changer and makes all competing machines obsolete in terms of safety, stability and outstanding cutting results."

Having pioneered countless variations, configurations and special engineered versions of the split frame lathe, Tri-Tool became keenly aware of the fact that the true nature of the "Clamshell" lathe was not simply a machine that could be split and mounted in-line along a pipe. TRIMAX's real advantage is that it is an ideal platform for limitless machining operations.

Many years as an OEM providing high quality, world-class portable machining solutions has resulted in a vast body of experience, as well as the excellent opportunity to learn our customers' needs and expectations from its many tools.

When developing a new machining system intended to raise the bar for this class of machine, it was crucial to re-imagine its products that had served so many, so well for such a long time. By applying their vast experience in machine tool design with



advanced CAD and manufacturing capabilities, their engineering team was able to produce the ultimate split-frame lathes on the market today.

Internalizing the conventional drive, feed, and mounting components eliminated pinch points making the TRIMAX ideal for operation in close, confined spaces.

The TRIMAX system is indicative of our ongoing commitment to our SAFER BY DESIGN™ concept, to produce increased operator safety through intelligent design.

This design advantage is one of many offered by the new system wherein the increased "L Shaped" headstock stability and low friction of the innovative recirculating ball bearing patent offer much greater system expansion than ever before.

Greater system options translate to enhanced versatility and customization possibilities, and that in turn results in maximum economy and functionality for years to come.

Tri Tool encourages customers to challenge them with any operational requirement, from the simplest to the most demanding (or previously impossible) portable machining requirement.

With two patents, the TRIMAX machining system was built to be the safest, most stable split frame lathe on the market today. With the tripper mechanism being housed internally, there are no pinch points on this revolutionary new machine. The unique recirculating ball bearing also makes the system rigid both axially and radially providing the strength needed for fast, safe form tooling on heavy wall pipe. Currently there are no competitors in the market space that can do what this new machine can.

The vastly improved rigidity and capacity to accept much larger cutting loads and forces without adversely affecting performance maximizes the special accessory configuration extensibility of the TRIMAX machining system.

Stop by Tri Tool's Booth #B33013 to see this remarkable game changing clamshell and discuss cost effective solutions possible for demanding applications. ■

"I see you will get more performance and safety than ever before..."



The advantages of TRIMAX are crystal clear.

- The industry's first "Zero Pinch Point" OD mounted split-frame pipe lathe
- Revolutionary, patented high-speed ball bearing system
- Faster cutting speed, better surface finishes, and longer bit life
- Rigid, high-stability frame for unlimited machining applications and accessories



With productivity, reliability and system expandability like this, TRIMAX will save you a fortune!

Visit Booth #B33013 to see the future of portable machining!

800-968-2605 • www.tritool.com

©2017

Introducing the
TRIMAX
Machining System

MAX CUTTING SPEED
MAX PRECISION
MAX SAFETY



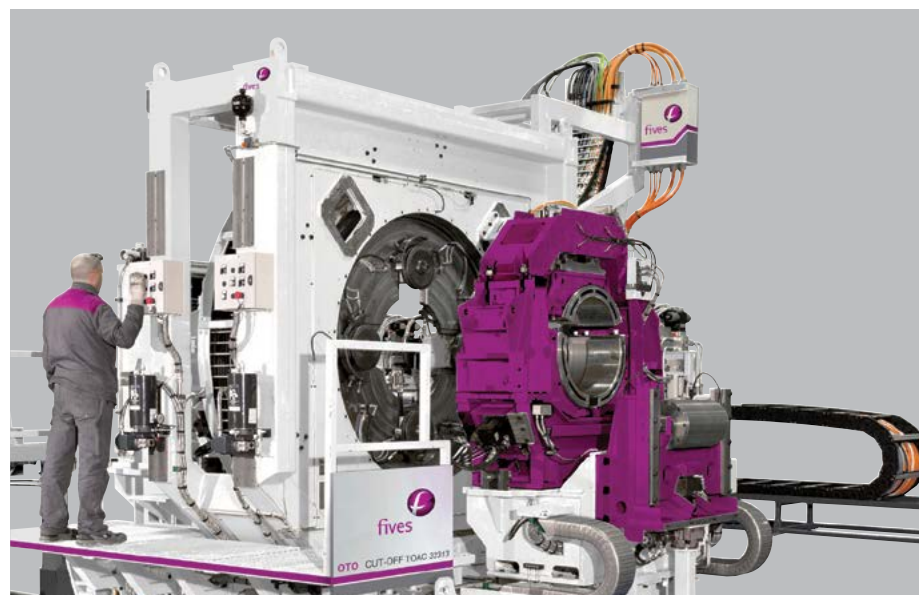
Fives, custom engineered machines for production of seamless and welded tubes

OTO & Abbey tube mills



OTO and Abbey electric resistance welding tube mills dedicated to the production of ERW tubes with a diameter range from 4mm to 914mm and wall thickness from 0.4mm to 25mm.

OTO & Abbey cut-offs



OTO and Abbey cut-off systems for small, medium and large size round tubes and profiles, including a new high-speed model with maximum cutting quality.

Bronx straighteners



Bronx heavy duty straightening machines with minimized set-up time, improved accuracy without surface blemishes, enhanced rigidity and consistent straightness / roundness.

Taylor-Wilson packaging system



The Taylor-Wilson packaging system to accommodate a multitude of variables, with three styles of machine to process tubes from 12 to 219mm with lengths of 3 to 12 meters.

A Metal-AM Industry Expert Peers Toward the Future

Brad Kuvin, Publisher and Editorial Director, 3D Metal Printing Magazine

The overriding trend among users of 3D metal-printing technology, particularly those in regulated industries such as medical and aerospace: use of “smart-manufacturing” technology based on sensors, data analytics and software applications to manage process flow, track and optimize product quality, and minimize machine downtime to optimize OEE. So notes EOS director of global application and consulting Gungor Kara, in an interview with 3D Metal Printing. In his look ahead at 2017, Kara takes a deep dive into the trends driving metal additive manufacturing (AM) forward.



Kara has spent the last 30 months leading the EOS global application teams, working with engineers as they help customers ramp up their development cycles, including

selection of parts and redesigning them for AM, and process qualification.

3DMP—How does the digitization of manufacturing and Industry 4.0 initiatives impact the metal-AM market?

Kara—There is a jetstream driving all of manufacturing forward at an accelerating

pace, based on the growing use of sensors, machine-to-machine communication and data analytics. We see it everywhere and it's pulling in AM. While this technology utilizes connected hardware devices, it's the software applications that really dominate the landscape. Companies with several 3D metal printers, for example, can monitor their use and develop sophisticated ROI models based on the data they can pull from the machines. Further, customers can upload their part designs, and receive immediate cost quotes based on embedded cost models.

These applications are bringing transparency to the AM industry—I call this “agile transparency,” where we're not looking back at what has occurred in the past, but instead looking ahead with the ability to make intelligent decisions about where and when to print parts. There also are software applications helping manufacturers overcome hurdles related to intellectual property. STL files can be encrypted, for example, so that the files only can be read by specific, defined 3D printers. And, the designer can designate how many times a part can be printed. These and other solutions will make metal AM more appealing in a short amount of time.

3DMP—Please explain how digitization and the use of sensors and “smart manu-



facturing” help support automation in the metal-AM industry.

Kara—This is an interesting and exciting topic—much has happened in this area. We see a significant increase in the development of automation driven by the escalation in the use of sensors. AM-machine builders are adopting this technology very quickly. It's driven primarily by two factors—the need to improve product quality (and track and trace build results), and the desire to increase machine utilization.

For example, with the aim of minimizing machine downtime, AM-machine controls

now can send SMS text messages to operators. Such a message might, for example, alert the operator that a build is nearly complete, and that he should prepare to open the process chamber, remove the part and prepare the machine for the next build. The goal is to minimize changeover time.

This technology will become much more prevalent in the coming months, as platform solutions become available. This will result in the simultaneous management of software applications, sensors, data analytics and process flow.

3DMP—How is the industry, and specifically EOS, preparing to educate engineers and others on metal-AM technology, in light of all of this ongoing innovation and rapid increase in use?

Kara—Companies using metal AM now are realizing that merely hiring recent engineering graduates, who have studied AM in college, is not sufficient. They must train their current, experienced engineers in metal-AM technology, from design for AM to post-processing techniques. And then, these trained engineers must be capable of going back to their companies and imparting what they have learned to the rest of their team.

The key areas of training that we see as the focus in 2017 and beyond are understanding design complexity, part consolidation and lightweighting; how to design for post-processing; and optimization of process parameters. One of the goals also must be to move engineers away from the machines and let machine operators take over day-to-day tasks of machine setup and machine tending. This will happen as we educate engineers on process

Visit us in
booth B28082

SanRex



Welding Power Supplies

SanRex is an innovative, dynamic power leader, with a proven record in deploying new renewable generation resources and strategic planning. SanRex Corporation is a diversified, worldwide provider of well-engineered equipment and exceptional services in the welding market. SanRex Corporation continues to expand and improve its range of products to provide more comprehensive, high-efficiency, wide input voltage range, reliable equipment for the welding industry.

All of our AC/DC TIG, STICK and MIG Multiprocess (CC/CV) welding machines are based on over 55 years of SanRex's welding design experience. Our latest models, based on SanRex's Arc-Technology offer a unique value of excellence and acutting edge technology with superior arc-characteristics.

516.625.1313 | Fax: 516.625.8845 | www.sanrex.com

continued next page

development and evaluation—steering them away from using the machines for physical trial-and-error tasks and instead performing what I call an “intellectual trial and error process.”

At EOS, we have for the last two years developed a training partnership with two European universities—the University of Wolverhampton, in West Midlands, UK, and Germany’s SRH Hochschule Berlin—to help us develop a comprehensive program combining hands-on training and classroom instruction. We’ve already begun to use the program to train our own employees, and will offer the program to customers later this year. Metal-AM training at Wolverhampton addresses design, process optimization and material qualification; training at SRH focuses on driving innovation throughout the company culture.

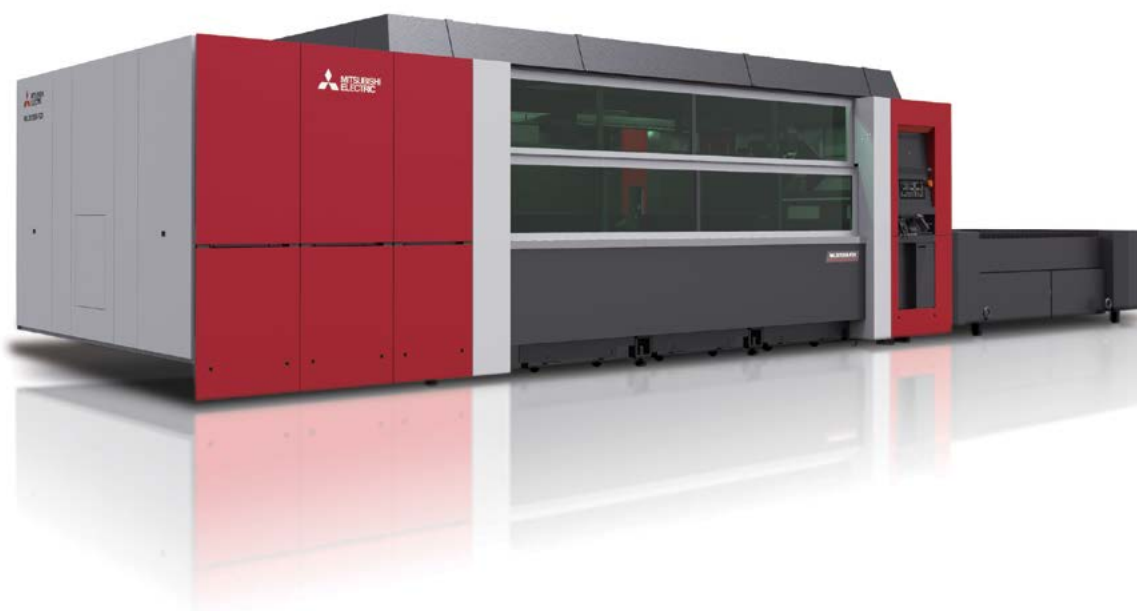
So, with this training engineers not only learn 3D metal printing from start to finish, but they also learn how to move this innovative technology into their companies. They come away with an understanding of how to communicate with engineers at their companies and preach the benefits of AM. They learn how to calculate ROI, and we provide case studies on how to run innovative workshops within their companies, and how to pull together interdisciplinary teams—people from quality, production, supply chain, R&D, etc.—and drive innovation. 3DMP ■

Mitsubishi SR-F Model, Superior Laser in an Economical Package

Mitsubishi showcases their latest Fiber machine, the SR-F model, available in 2 and 3KW. This entry level machine offers the superior advantages of a Mitsubishi Laser in an economical package. Standard Features include

Motion Cut, Eco Mode, Auto Focusing, Mitsubishi’s High Speed Control and our exclusive Remote 360 Application. The SR-F is the newest in the most complete FIBER laser line up available in the industry. This line up

includes, eX-F Zoom Fiber, rX-F Zoom Fiber, XL-F Zoom Fiber, and our eX-F standard Fiber. Stop by booth A2619 to learn more and see all of the Mitsubishi products in action. ■



► GO MOBILE AT FABTECH



Download the FABTECH Mobile app to access show info at your fingertips. The application is designed to enhance your show experience and puts important event information in the palm of your hand so you can access it anytime, anywhere.

SPONSORED BY



TACTICAL WELDER

THE MOST POWERFUL, MOST PORTABLE, BATTERY-POWERED WELDER AVAILABLE.

See a Demo at **FABTECH**
Booth **B21083**

The Tactical Welder portable welding system is a completely self-contained solution. This system makes welding possible in situations that would otherwise be extremely difficult, time consuming or altogether impossible.

- + Completely battery-powered system. No long power cords, heavy cables or generators necessary.
- + Ultimate portability – all components are designed to be stored and transported in the included backpack.

Contact us for more information · (904) 292-1141 · tacticalwelder.com

NAFTA Debate Underway

Dr. Chris Kuehl, FMA's economic analyst and founder of Armada Corporate Intelligence.

About the only thing accomplished in the first round of talks over NAFTA is that everybody now seems to know how tough this is going to be. One would be hard pressed to find common ground among the participants, and now the focus is on determining whether any of these positions are real or just early stage posturing to appeal to specific constituents.

What makes these discussions even more unpredictable is that two of the three leaders have significant political issues to deal with at home. The elections in Mexico are not that far away, and the candidates are making their positions known. The threat to the PRI (currently the party in charge with Enrique Pena Nieto as president) is AMLO -Andres Manuel Lopez Portillo. He is the former mayor of Mexico City and a fiery leftist who has made much of the Trump hostility toward Mexico. Anything that appears to be giving in to Trump's demands will be a boost for AMLO and his hardline position.

Trump also must worry about his base. The events in the White House that led to Steve Bannon's firing threaten to alienate many of those who have been ardent supporters, and giving in on NAFTA will only further distress this voting bloc.

As expected, the focus of the talks has been manufacturing. The U.S. has been watching a great deal of manufacturing capacity shift to Mexico over the years – especially as far as the auto sector is concerned. The U.S. automakers have been trying to bring their parts and assembly costs down, and they have chosen to rely on Mexico more.

The migration of the auto sector has been going on for many years as operations have left the industrial Midwest for the South and from there to Mexico.

At least this is the standard assertion, but the data doesn't really bear this out. U.S. auto production has remained quite stable for over a decade. It is true that Mexican production has increased, but the country that seems to have lost the most productive capacity is Canada. It should also be noted that much of the expanded capacity for auto-related manufacturing in Mexico is from carmakers and parts makers from around the world that have set up in Mexico to have better access to the U.S. market. These parts were not likely to be made in the U.S. regardless. Many were made in Asia before moving to Mexico. In the long run, it is better for the U.S. economy for Mexico to make these parts as Mexico buys far more from the U.S. than do countries like China or Vietnam or Indonesia.

The U.S. has opened these talks with demands that both Canada and Mexico have rejected out of hand. The content rules put forward by the U.S. have been rejected by the automakers themselves, and they assert that the suggested rules would make them uncompetitive – even against imported cars. The U.S. business community as a whole has taken a dim view of the U.S. position, as it would severely limit trade. There are far more jobs dependent on imports from Mexico than would be preserved or added by these new rules and regulations – that is the position thus far from most of the business organizations that have weighed in.



As is so often the case, the effort to hold on to U.S. manufacturing in 2017 is a case of too little and too late. Most of those manufacturers that were seeking lower production costs have already left the U.S., and they will not be bringing jobs back to the U.S. even if they elect to return capacity. The manufacturers that are returning to the U.S. are often able to do so because of technology and robotics. This is great for the U.S. manufacturing GDP, but it does little to add jobs. The fear is that political motivations will overtake economic ones and NAFTA will be severely crippled. This would mean that other nations in the world would gain a competitive edge over those in North America, and that would be bad for the U.S. as well as Mexico and Canada. The more realistic search should be geared toward finding new job opportunities for those who have been displaced by either advancing technology or foreign competition.

The talks will continue from here, and there are rounds scheduled for Mexico and Canada with a conclusion hoped for early next year. That puts the discussions smack in

the middle of the 2018 elections in the U.S., and that will be a major factor alongside the impending vote in Mexico.

What does this mean for manufacturing? There are not many issues as divisive as NAFTA when talking to manufacturers in the three countries. It is not hard to find companies in the U.S. that have lost business to plants in Mexico and in Canada. It is not hard to find people whose jobs shifted either north or south. By the same token it is not hard to find companies that thrive on the exchange of business across the borders. In the years since NAFTA, the manufacturing community has become well integrated across the borders, and all three nations have seen benefits from that integration. There have been job gains as well as losses. By this time there are far more benefits from integrating the three countries, and that would seem to protect the NAFTA pact from being dismantled. But all this doesn't reckon with the politics of the moment. ■

Making Apprenticeships a Part of Your "Skills Gap" Solution continued from page 6

standard with a competency-based approach, tracking the related training instruction (RTI) that is required for apprenticeship education as well as the demonstrated OJT skills a worker should perform over the years of his or her development.

Apprenticeships pairing of OJT hours with classroom and online instruction supply a talent pipeline of qualified workers for employers and industries. Employees benefit as well, as these apprentices get paid while gaining the training needed for the skilled positions that will launch them on a promising and lucrative career path. As a result, they gain a debt-free education when compared to many of their counterparts pursuing two-year and four-year college degrees.

Now, educators and employers can identify

the specific skills, experience and technical knowledge required to succeed in today's advanced workplace environments through competency-based learning models such as Tooling U-SME's Apprenticeship Acceleration Framework.

By defining specific knowledge and skill requirements that align with standard apprenticeship job functions, these frameworks allow the development of an industry-wide standard of program design, implementation and management.

You must do something

To attract and retain new talent, manufacturers must commit to establishing tried and true training programs that will produce highly-skilled employees and drive competitiveness, productivity, quality, innovation

and profitability. And apprenticeships can be part of the answer.

Cox Manufacturing, a 60-year old San Antonio maker of precision cut metal components, is one manufacturer seeing strong results from its apprenticeship program.

"The biggest advantage for a company is related to culture and retention," said Sean Althaus, the company's training coordinator. "Turnover has been on a downward trend the last two years. It's an investment in the future."

Cox implemented a competency-based registered apprenticeship program, certified by the Department of Labor.

What's your move?

Regardless of whether an organization is large, medium or small, most — if not all

— manufacturers can benefit from establishing ongoing learning and development programs, such as apprenticeships, to prepare their workforce. Planning will take time and money, but the payoff will be well worth the investment.

As we head into National Apprenticeship Week, Nov. 13-19, consider the proficiencies of your workforce to determine whether an apprenticeship model is the right training option for you.

If you want to learn more about establishing a tried and true apprenticeship program at your company, visit our Tooling U-SME team during the FABTECH show at booth # A3558 or visit toolingu.com. ■



THE NEWEST
POST-WELD CLEANUP TOOL
ISN'T A TOOL AT ALL.

Introducing a next-generation solid wire specifically formulated
to reduce post-weld cleaning of spatter and silica islands.

ESAB Welding & Cutting Products / esab.com



Mazak Optonics Corp. Introduces OptiPlex 4020 Fiber III 8KW

Mazak Optonics Corp. will be showing their new OPTIPLEX 4020 Fiber III 8kW laser-cutting system in booth #A4001. The new OPTIPLEX Fiber III 8kW utilizes a new PreviewG Control and higher performance digital drive package.

The OPTIPLEX 4020 Fiber III utilizes a new drive system which provides higher productivity through high-speed and high-accuracy. The new cutting-edge PreviewG Control offers state of the art CPU for unsurpassed operations speed, high-response and high-speed machine motion.

The PreviewG Control is a large 19" LCD touch screen which operates similar to a smart phone or tablet for increased ease of operation.

Designed to integrate Intelligent Setup and Monitoring Functions, the OPTIPLEX 4020 Fiber III delivers features normally available only on the highest technology machines. These features simplify operation and reduce operator dependency. The OPTIPLEX 4020 Fiber III has been engineered to be utilized with Mazak's extensive range of automated material handling systems. A 2 pallet changer design with a helical rack and pinion positioning system that features high through-put and rugged construction delivers a combination of performance and value. OPTIPLEX 4020 Fiber III is equipped with sensors in the Multi-Function Torch that monitor piercing and cutting operations to improve throughput and part quality. If an anomaly is detected, the operation



is adjusted or paused to automatically achieve effective cutting conditions.

For more information on any of Mazak Optonics Corp.'s laser-cutting line visit booth # A4001.

Mazak Optonics Corporation is a major supplier of laser-cutting systems, offering 50 laser models and leading the industry in the implementation of emerging laser technologies. The company's 50,000 sq. ft. North American Headquarters are located in Elgin, Illinois, and feature a 30,000 sq. ft. laser technology center

housing up to 18 machines for demonstrations and training. Mazak Optonics is part of Yamazaki Mazak Corporation (Oguchi, Japan), the global leader for the manufacture of machine tools and systems for the precision machining of metal parts, including CNC turning centers, horizontal and vertical machining centers, Multi-Tasking machining centers, turnkey cells and software solutions. The North American Headquarters for Yamazaki Mazak are located in Florence, Kentucky. ■

**The reliable, single source of
finishing equipment for
paint and powder coating
for over 20 years
Single components
to complete systems**

**Visit us in booth
A5914**

Member of



**Powder
Coating
Institute**



**System Design
Certified**

**PNEU-MECH
SYSTEMS MFG. LLC**

1.800.274.5724 www.pneu-mech.com

THANK YOU TO OUR SHOW SPONSORS

PLATINUM SPONSORS:



 **WALTER**
Surface Technologies
Only the best.™



FLEXSTEEL CONTEST. WIN A MUSTANG GT.



FLEXSTEEL™

Enter to win a 2018 Mustang GT Fastback. Inside every specially-marked 10-pack of Walter Surface Technologies Flexsteel™ you'll find an entry code valid for 10 chances to win the grand prize or one of 75 other prizes to be awarded between May 15, 2017 and November 15, 2017.

Flexsteel™ is the new versatile multi-purpose flap disc for fast ultra-high stock removal, rough blending, and deburring. Made tough for use on all metals in industrial, metal fabrication and construction applications.

Learn why Flexsteel™ is the only flap disc you need at walter.com/flexsteelcontest

Booth B35013

walter.com

#WalterIsAbrasives

POWER+



OPTIPLEX 8.0kW Fiber III
laser-cutting machines
integrate **POWER+** exclusive
technology.



Intelligent performance for maximum productivity

The OPTIPLEX 3015/4020 Fiber III series features Intelligent Technology that delivers higher cutting speeds, maximum throughput and uncompromised quality.

- Multi-Function Torch and Nozzle Changer technology increases productivity by allowing the machine to optimize the setup automatically.
- New PreviewG control with 19" SXGA TFT monitor with touch screen includes integrated tech tables that simplify operation.

BOOTH#A4001
FABTECH

www.mazakoptonics.com

Mazak
OPTONICS CORP.