

THURSDAY  
NOVEMBER 9, 2017

**DAY 4**

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THE OFFICIAL SHOW NEWS

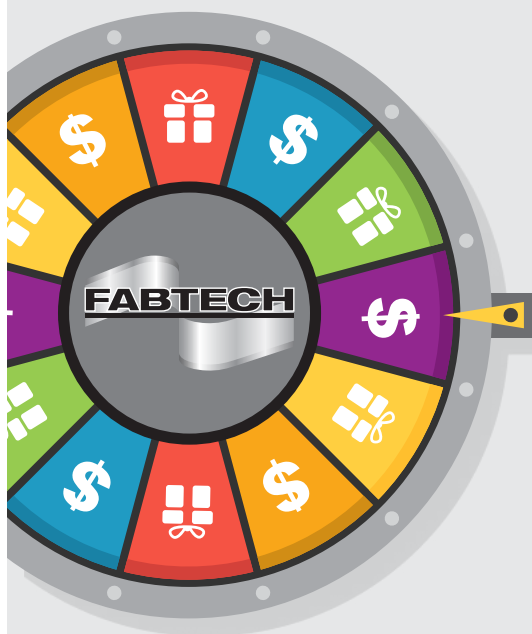
# SHOW DAILY

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## TODAY'S EVENTS

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## Experts Discuss Workforce Development and Recruiting Talent

The manufacturing sector is in the midst of dramatic change as new technologies drive it towards Industry 4.0, the fourth industrial revolution. One of the principal challenges companies face as they travel this path is finding and developing the new workforce. According to industry analyst Gartner, "The transition to Industry 4.0 requires huge levels of change and new skills not only within discrete functions, such as manufacturing, but also across the entire organization—touching almost every department and function."

The recent Manufacturing Workforce Symposium underscored the critical problem at hand: the need for educated and skilled manufacturing workers is growing faster than their availability. At yesterday's expert panel session, five experts held a lively discussion before a packed audience that seemed to reflect the industry's growing concern about the workforce challenge. The topic of the session was "Innovative Approaches for Workforce Development and Recruiting Talent." Brad Beckner, Chicago

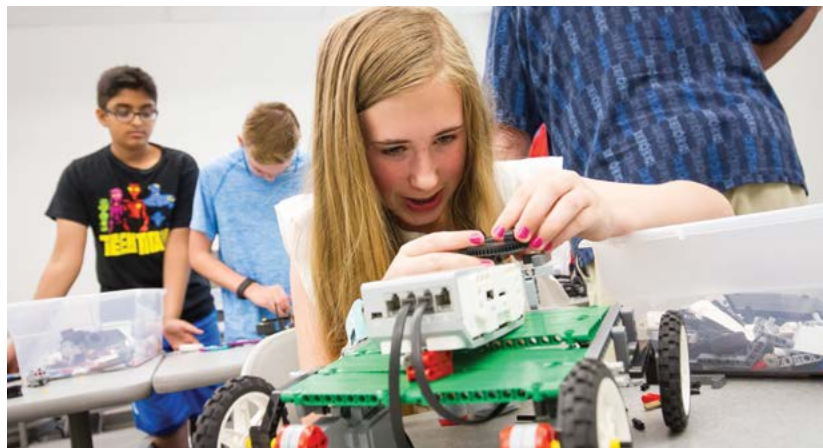
territory vice president of Kelly Services, moderated the session. Panel members included:

- *Mike Cattellino, apprenticeship manager at Fox Valley Technical College*
- *Laura Elsner, workforce development manager at DeWys Manufacturing*
- *Warren Long, commodity manager at Briggs & Stratton Products Group*
- *Hernán Luis y Prado, Founder & CEO, Workshops for Warriors*

### Making the Case for Early Engagement

Manufacturers face workforce shortages daily in key areas within their operations. A major point of the panel: those who engage with their communities, including technical high schools and colleges, manufacturing summer camps for youth, and Manufacturing Day celebrations, are ahead of the pack in filling these positions.

"Manufacturers need to understand the advantage of getting workforce development started at a much younger age than they traditionally



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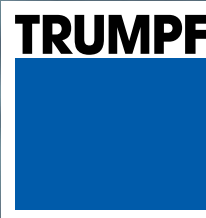
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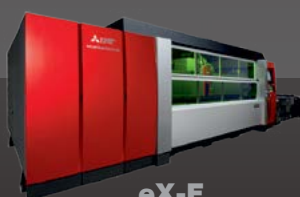


# MITSUBISHI LASER

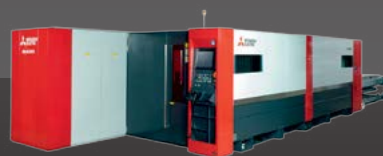
## FABTECH BOOTH **A2619**



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# Leaving Money on the Table?

*John Madsen, vice president of consulting-manufacturing R&D tax credits at Black Line Group.*

As many U.S. manufacturers actively look for business opportunities to improve their profitability or their bottom line, one of the most overlooked resources is the ability to use federal and state research and development (R&D) tax credits.

"I am amazed at how many manufacturers do not realize or understand the IRS's definition of R&D tax credits," says Benjamin Rashleger, president and CEO of WSI Industries, a contract manufacturer, who discovered the benefits and obtained credits for his company. "If you make or improve a product or a process, either for yourself or your customer, you have activities that qualify for the credit. It can substantially reduce your federal and state tax liability."

A good number of manufacturers do not believe they have R&D activities tak-

ing place in their facilities. In reality, if you quote jobs, take orders, build tools, produce products and sell them to your customers, you almost certainly conduct R&D activities.

The R&D tax credit is a dollar-for-dollar reduction of your tax liabilities that provides potentially significant sources of unexpected cash for manufacturers of all sizes, including custom manufacturers that have incurred expenses in pursuit of new or improved products or processes.

According to Black Line Group, the regulatory definition of R&D remains much broader than most people realize. For example, labor and supply cost spent prototyping or using your resources and equipment; costs incurred to quote or experiment with different designs and materials; the design/engineering of new parts



and or the process to make new parts; designing or developing tools, including dies and fixtures; and activities related to software development—all may generate R&D tax credits.

Manufacturers of all kinds, including those that design and develop their own products, as well as contract manufacturers and job shops, can take advantage of the tax credit. Both the customer and vendor (job shop/contract manufacturer) of an R&D part can take the credit. The customer will have qualified expenditures around the 'product' development/improvement activities of the part or component, and the vendor will have qualified expenditures associated with developing the 'process' for making the part.

If you are unsure of how to navigate the process, or don't even know where to start to see if you qualify for the credit, you are not alone.

"I was skeptical when I first learned of the R&D tax credit," explains Tom Chacon, of MN-based Boring Machine Corp. "My company did not have what I thought were true R&D activities. I was a job shop just making tools and parts for my customers. Since I learned about the tax-credit process, my company has received tens of thousands of dollars every year in credits. It is like free money to reinvest in my business."

This situation changed in late-2015 when federal legislation, the PATH (Protecting Americans from Tax Hikes) Act became law. That legislation, in addition to making the federal tax credit permanent for the first time in the credit's 35-yr. history, significantly enhanced how small and midsized manufacturers (SMMs) can benefit from the research tax credits they generate, utilizing the following significant provisions:

Eligible SMMs may now claim the credit against the Alternative Minimum Tax (AMT) to offset AMT for tax years beginning after December 31, 2015.

Some start-up companies may offset payroll taxes with the credit—in tax years beginning after December 31, 2015, certain start-up companies can use the research credit to offset the employer's payroll-tax (i.e., FICA) liabilities.

How are these changes significant? In years past, a large number of eligible SMMs (especially S Corporations and other flow-through entities) did not pursue the tax credit because the AMT prevented them from using the credits they could generate. In addition, young companies typically didn't have a need for tax credits because their expenditures were higher than their sales, thus creating operating losses. Both new changes will allow a higher number of companies to immediately monetize the credits they generate. ■

## New Legislation Enhances Tax-Credit Benefits

Until 2016, the reality was that many small and midsized manufacturing companies and their CPAs/tax advisors simply felt that it was not viable to pursue the credits due to specific limitations in the tax code.

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# Trade Patterns in Flux

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

The U.S. market is immense. It is sometimes easy to forget this is the case and what that means to the rest of the world, as well as to the business community and the consumer in the country. The vast majority of businesses can ignore the rest of the world and survive quite nicely on selling to the domestic market alone. Most workers in

the U.S. are only dimly aware that their jobs are tied to what happens in other countries.

The truth is the U.S. is and has always been a highly export-centered nation. Currently the U.S. relies on exports for more than 15% of the total GDP, and that is no small number when one is looking at a GDP of \$18.4 trillion. The U.S. market is

the most coveted in the world as the U.S. consumer is the most dedicated buyer in the world, and that means that imports are always significant as well. The difference between what is sold overseas and what is purchased from overseas is always of concern, but most fail to grasp the implications for both businesses and consumers. It is

good that the U.S. exports, and it is also good that the U.S. imports. These imports are generally less expensive than they would otherwise be, and that allows the U.S. consumer to pursue a lifestyle they would not otherwise be able to afford.

This month's data on trade shows the deficit shrinking a little. The U.S. exports rose by 1.2% from the previous month while imports sank by 0.2%. This was a better performance than had been expected on the export side and reflects the fact the dollar has fallen in value over the last few months. It has also helped that many countries the U.S. counts as significant trade partners have started to see some real growth. This has been especially important in Europe as the Eurozone states account for almost a quarter of U.S. exports and a like percentage of imports.

Given the importance of trade and the political controversy that has surrounded the issue, all eyes are now on the trade data that will be coming from China this week. The economy there has been shaking off some of the early-year doldrums and has been growing at close to 7.0%. Granted, a lot of this growth has been due to the stimulus packages the government has been providing. But much of the expansion has been genuine, and that is indirectly interesting to the U.S. Though China is not a big export market for the U.S., the countries that do sell to China buy a great deal from the U.S.

The export and import numbers for China have been released, and they show continued strength in both categories but not as much as had been expected. The analysts had predicted that exports would go up by 10.9%, and the actual gain was just 7.2%. Imports were not as expected either as it was thought it would be up by 16.6%; the actual number was 11.0%. These are not bad numbers by any stretch, but they are clearly slowing from the pace that had been set earlier in the year. The question is whether this is the start of another trend or just an anomaly. The expectation is that inflation has been holding steady in China at both the consumer and industrial level, and that would seem to allow the government to engage in more stimulus should this be deemed necessary.

China is doing relatively well – certainly no signs of an imminent downturn. The problem is that vulnerability is showing up, and that could force decisions the country would rather not make. It could also affect

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continued on page 12





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# Carlisle Fluid Technologies Debuts New Product Lineup at FABTECH 2017

Global manufacturer of equipment for the supply and application of paints, coatings and sprayed materials Carlisle Fluid Technologies introduces new products from four of its international brands at FABTECH.

RansFlex Manual Electrostatic Applicator: CFT combines strengths of two of its top brands with two new RansFlex electrostatic spray gun applicators, incorporating world renowned DeVilbiss® air cap atomization technology with Ransburg's electrostatic capabilities to provide maximum atomization, transfer efficiency and performance in a lightweight, ergonomic design.



GEMS Electronic Mixing System: Binks' new GEMS™ (Global Electronic Mixing Solutions) 1000 psi version delivers accurate, repeatable 2K mixing to applications up to 1000 psi and/or applications using an acid catalyst. GEMS user-friendly touch screen provides real time information including flow rate, pot life, current mix ratio and color.



DeVilbiss AG-360 Automatic Spray Gun: New automatic spray applicators featuring DeVilbiss "QuickClean™" technology are now available in various machine mounting formats to provide a universal finishing solution for all industrial low pressure applications.



Binks DX 200-3:1 Diaphragm Pump: Binks introduces a new air-operated 3:1 ratio double diaphragm pump designed for high-performance spray gun, system or transfer applications in demanding heavy industrial environments. Featuring the new Eazi-Swap outlet, the DX200-3 has the flexibility to fit easily into direct-to-spray-gun, paint circulating systems or transfer applications. Eazi-Swap can even be changed with the pump in-situ.

and we are looking forward to rolling out these exciting new products at this year's FABTECH," said Global Marketing Communications Manager Jesus Guerrero.

About Carlisle Fluid Technologies: Carlisle Fluid Technologies (CFT) globally engineers, manufactures and distributes a complete range of finishing equipment focused on powder coating, spraying, pumping, mixing, metering, and curing of a variety of coatings used in the transportation, general industrial, protective coating, wood, specialty and auto refinishing markets. As the originator of air spray technology, Carlisle's combined 375 year



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history in engineering and manufacturing expertise are unmatched in the industry. The company's five equipment brands are designed and built to provide durable, high-performance finishing solutions to the most exacting international standards in a wide variety of challenging environments, from heavy industrial to manual applications: DeVilbiss® atomization, Ransburg® electrostatics, MS Powder coating equipment and systems, BGK® curing and controls, and Binks® atomization and fluid handling. ■

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# Training and Education is Key for Man and Machine to Co-Exist

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

The story of the day has been the impact of technology and robotics on jobs. There are those that decry the advance of automation as the ultimate job killer – replacing tens of thousands of workers with machines. There are those that look at the advance of technology and automation as a job creator that improves productivity. In truth, it is both. There have been job losses and job gains, and what makes the issue vexing is that those who are losing their jobs are not generally the ones who are getting the new ones. There have always been technological advances that shape the economy – this has been the story for decades. The manufacturing community has been undergoing radical change for the better part of a century as every new year brought new machines and new techniques. Everyone can remember back to days when labor was more common, and we all watched as automation and technology changed our habit. Just thinking back to my own childhood, the changes have been substantial as I once worked as a gas station attendant as nobody filled their own car, and everybody got jelly glasses with each fill. We had cashiers at the grocery store that rang things up on a cash register, and clerks were everywhere in every store. Those days are gone, and some people like the change and others don't.

Is it possible to assert the advance of technology and robotics is an unqualified good

or bad thing? It seems not, as it will all depend on one's perspective. The motivation for a business to embrace technology is complex, but is generally rooted in produc-



tivity. The machine or robot allows greater output and efficiency. It is also generally more expensive in the short run but cheaper in the long run – depending on how long the machine lasts and the maintenance costs. The impact on jobs is both obvious and subtle. The people who were doing the job the machine now does will lose their position and will either be dismissed altogether or will get reassigned to some other job. The jobs that get added are those that involve operating the new machine or system, but it doesn't stop there. The presump-

tion is that the business will prosper with this technology and the growth will mean more hiring for everything from sales to design to back-office management. The more pro-

ductive and efficient a business becomes, the more competitive it becomes and the more market share it can command.

The crux of the issue is about who gets the jobs and who loses them. The people who have been replaced by the robot or technology will not slide easily into the role of salesman or receivables manager. There will be retraining opportunities in some cases but not enough to handle all of those who have been rendered redundant. One of the primary factors in the dramatic loss

of manufacturing jobs has been the development of material handling systems that replaced the legions of men and women whose job it was to move things around the factory. They lost out to conveyor systems and machines, and there was no place for them to go.

The dilemma is this: It makes no sense whatsoever to hold back technological advance. It would simply mean that companies would start a slide toward irrelevance, soon to be driven out of business by a competitor that did embrace technology. Even a country with a massive workforce paid at very low rates—China—has embraced robotics in order to stay competitive. By the same token, a society can't ignore the fact that millions of once productive workers are now off the employment roles.

As always, the simplistic answer is training. Those who have seen their jobs replaced by a machine have to adapt and develop new skills relevant to the new employment world. This is often much easier said than done. There is however a new urgency, as robotics and technology have been making rapid inroads into sectors that were thought to be immune from this change just a few years ago.

For example, a study done just 10 years ago stated that one of the professions that would be impervious to the advance of robotics was truck driving. Today the advance of driverless trucks and cars seems imminent, and the truck driver is considered highly vulnerable. The white-collar jobs that were considered protected have been subject to replacement by sophisticated new analytical programs and artificial intelligence. It would be overstating the case to assert that every job is subject to replacement by a robot, but far more is being accomplished by technology every passing year. The barriers to re-training will have to be dealt with far more aggressively in the future, and that conversation has just started.

This is not a matter of stopping tech advances. This would not be a good idea and it would be next to impossible to do this in any case. The issue is compatibility. How do workers and machines cooperate and coexist? How do people gravitate to the jobs created and away from the ones being lost? The fact is that the people involved will not be able to do that transition without training and education. ■

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## Trade Patterns in Flux continued from page 6

Chinese sensitivity to U.S. pressure. If the U.S. chooses to push its trade agenda and threaten China with tariffs and other restrictions, these will likely hurt more than would have been the case earlier. China may elect to be more cooperative to avoid the pressure, but it is far more likely that

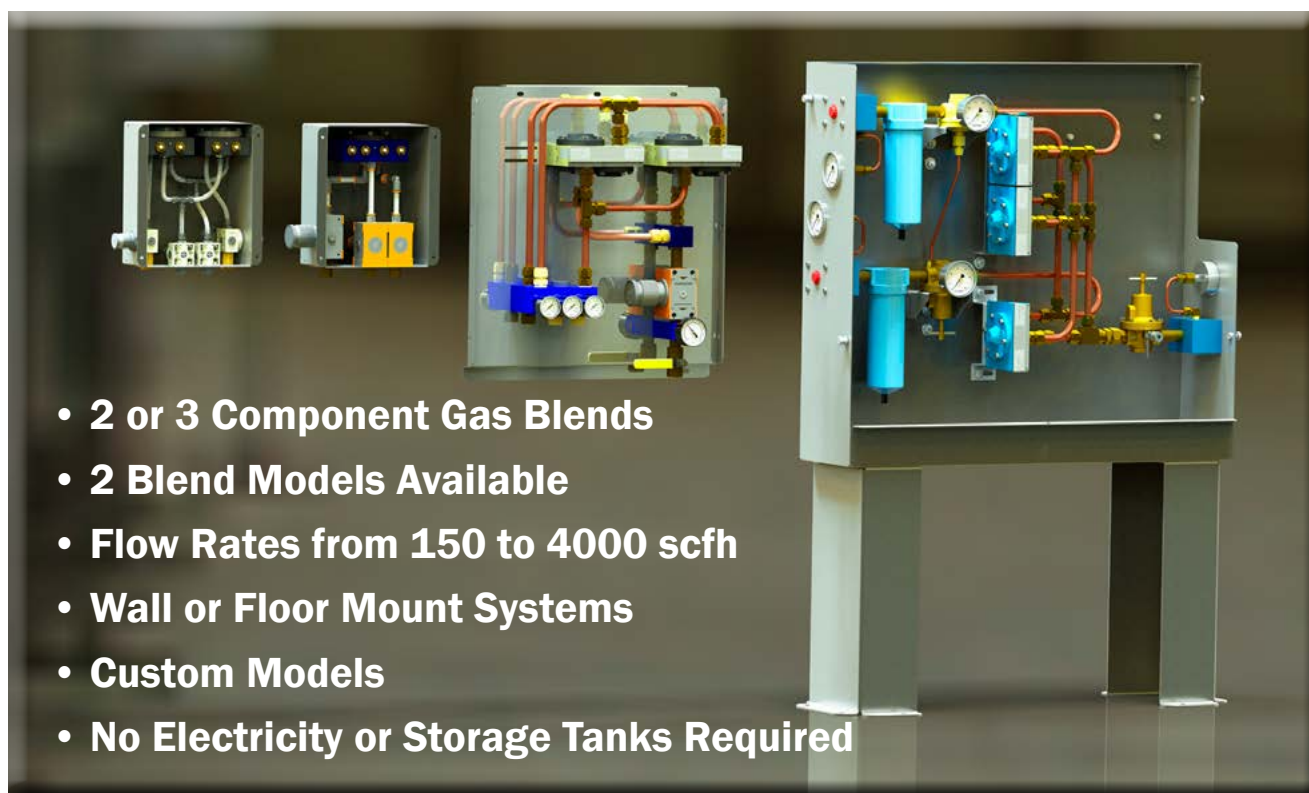
there will be more aggressive action in reaction to that pressure.

What does this mean for manufacturing? U.S. manufacturing is very sensitive to trade for a variety of reasons. The overseas markets are crucial for the kind of high-value sales the U.S. needs, and

the U.S. manufacturer needs the raw materials and commodities it can obtain from around the world. The growth that has been experienced of late has a lot to do with the improved position of U.S. exports. The U.S. needs healthy demand from Europe as well as Latin America. ■

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# Experts Discuss Workforce Development and Recruiting Talent

continued from page 1

think about,” said Cattelino. “For example, in the Fox Valley/Appleton area, we’ve had tremendous support from our local businesses, especially from the ones that see the value in supporting activities for kids as young as middle school age, knowing that they won’t see their ROI on this investment for six to 10 years.”

looks for a new generation of workers, and having them “see reality for themselves” at an early stage of development is a promising approach. More than 17 million people are employed in manufacturing and on average the compensation for these careers exceeds \$77,000. Yet while the jobs are available and pay well,



The supportive companies understand that while they may never see the kids in a summer camp, those youngsters talk to their parents, siblings, and extended families. Through these conversations, the idea of manufacturing as a potential career path is talked about, a discussion that often pays off in workers down the line. “Such activities provide a direct opportunity to influence someone’s decision-making as they start to explore career opportunities,” noted Cattelino. “Yes, this is an intangible; but the indirect message that gets out into the community is a benefit that sometimes doesn’t get considered.”

Long expanded on this idea: “The problem today is that a lot of students don’t get exposure to manufacturing, so they don’t consider it as a potential career. To the extent they’re aware of it, a lot have negative perceptions that extend from portrayals in the media or popular culture that don’t reflect how the industry has changed and how exciting it is.”

The summer camps are deceptively simple in concept. The majority focus on having kids make something, then giving them some exposure to local manufacturers for a firsthand look at what manufacturing is all about. Then they can form their own opinions.

The disjoint between perception and reality continues to trouble the sector as it

young people have shown surprisingly little interest in them. According to the National Association of Manufacturers, 18- to 24-year-olds rank manufacturing five out of seven for career preferences. But more than 80 percent believe manufacturing is important to our economy and standard of living! “Because of this perception, the core attempt for manufacturers has to be to develop talent locally and support it early,” advised Cattelino.

“The strategy involves exposure,” added Long. “Direct education and establish touch-points within the community to improve how manufacturing is considered by those on the cusp of entering the workforce. Surveys have shown this results in dramatic improvement in general awareness and consideration of the sector as a career path.”

## Education and Training as Gateway

About five years ago, DeWys Manufacturing had to rethink its approach to finding the skilled advanced manufacturing workers it needed to keep up with demand. After participating in a job fair that resulted in a single new hire, the company decided to launch DeWys University and train people to give them the skills the company needed. This strategy is indicative of a growing relationship between manufacturing and education, whether through collaboration or taking on the responsibility themselves.

Cattelino pointed to two sides of the education/manufacturing coin: “The education system has a long history of holding their hands out to business, palms up, looking for money,” he explained. “That approach has now shifted a bit in that schools are now looking less for money than support. If a company is willing to donate money, great; but schools may be looking for a place for kids to tour, for materials, or for mentors (e.g., former students from the school) to spend time with current students. So, it’s now a two-way street in terms of what we need to fix: manufacturers need workers coming out the schools; the schools need support from manufacturers if that’s going to happen. It’s calling for a collaborative environment.”

One of the panel members cited a company where he used to be employed that has worked with the local high school since the day they started business as a means of workforce development. They offered them work in the factory on evenings or weekends while they were still in school, giving them a hands-on opportunity and training them in the skills used in their processes. Today, about 80 percent of their current workforce started when they were still in high school.

Such an approach supports three key objectives manufacturers strive to achieve in this labor-starved market:

- Make sure that employees develop the necessary skills the workforce demands through consistent and ongoing training and education.
- Ensure the right employees are being hired. While the students are getting a firsthand look at manufacturing, the manufacturer is getting a firsthand look at the potential employee.

- Provide motivation that helps retain current skilled employees by involving them in initiatives (i.e., as mentors, trainers, teachers) and providing them a platform to support their community.

## Moving Towards a Holistic Approach

Beckner concluded the session with this assessment: “Organizations that take a more holistic approach to workforce development and recruiting talent are going to be better positioned than those that stay within the bounds of traditional approaches. There is no silver bullet. We’ve focused on the community aspect of the issue, which is a big part of addressing it; but there is a lot of additional work that can be done.” He referenced two areas in particular:

- Make sure current employees are well taken care of. There’s a significant amount of attrition in the sector, so continuing to focus on employee engagement and worker experience will be important. These are increasingly hot topics. Organizations that attend to them will be better positioned than those that have a cavalier attitude in this regard.
- Offer flexible workforce options. How do manufacturers fulfill the talent needs of their organization without completely leaning on full-time employees? Options include contingent workers, part-time workers, alumni programs, and “pay for skills” programs. Pay for skills is an opportunity to bring people in at lower wages and provide a very specific program that trains them into the positions that are needed at the manufacturer. “Flexible workforce options can really help round out talent strategy,” concluded Beckner. ■





# Fourth Annual Women of FABTECH Gets Huge Response, Underscores the Growing Importance of Women in Manufacturing



On Wednesday morning, FABTECH hosted a networking breakfast celebrating women in the manufacturing sector. Designed to foster relationships and dialogue between supporters and practitioners in the field, the well-attended program included a continental breakfast, a keynote presentation by Pixar's Matthew Luhn, and finally a tech tour on the show floor. "By this fourth year that we've organized a Women of FABTECH event, we've hit on a formula that people really respond to," noted Meagan Shea-Keenan, workforce development program analyst at SME.

More than 100 women attended this year's event, which began with the breakfast at 7:30 a.m., noshing and networking, before the interesting and inspiring presentation by Luhn. Then attendees broke into smaller groups and shared a bit about their backgrounds and work. For the tech tour, tour guides and other leaders took these smaller groups to specific stops on the show floor where exhibitors awaited with presentations.

"This breakfast and tech tour was a wonderful opportunity for women who

are in manufacturing to be able to network, discuss what they're doing, what they're working on, what their companies are working on, and just help each other grow and advance," said Shea-Keenan. "The overall response was tremendous, and as usual our numbers have increased from the previous year."

## The Importance of Diversity

While far from a new concept, the idea of recruiting women for manufacturing may not be top of mind when looking to fill the current skills gap manufacturers face (another hot topic at the show). The fact is that women represent manufacturing's largest pool of untapped talent and are a critical component to helping fill this gap.

Numerous studies have shown that companies that achieve diversity in their management and on their corporate boards attain better financial results, on average, than other companies. According to a Women in Manufacturing (WiM) survey, more than 80 percent of women who work in the manufacturing industry find their jobs interesting and challenging. Talent development efforts such as increasing STEM education for women, combined with organizations such as WiM and industry events such as FABTECH that sup-



port, promote, and inspire women working in manufacturing, are all important.

At the same time, increasing the presence of women in manufacturing helps to create the "push-pull" effort needed to build supply and demand. It's a win-win situation for the industry, much as the Women of FABTECH event was a winning time for all those who got up early to attend. ■

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TECHNOLOGY	8:00 AM – 10:00 AM	10:30 AM – 12:30 PM	1:30 PM – 3:30 PM		
AUTOMATION/ SMART MFG	<b>F107: NEW</b> Standards and Air Quality for Risk Assessment in Your Automation <b>I</b> Room 402A				
FINISHING	<b>C100: NEW</b> The ULTIMATE Powder Coating <b>A</b> Room 404D	<b>C110: NEW</b> Got Corrosion? <b>I</b> Room 404D			
	<b>C101:</b> Electrocoating Equipment Considerations <b>B</b> Room 405A	<b>C111: NEW</b> The Evolution of Architectural Coatings <b>I</b> Room 405A			
FORMING & FABRICATING	<b>F108: NEW</b> Tube & Pipe Forming <b>A</b> Room 502A				
	<b>F109:</b> Roll Forming In-Line Punching, Cutoff Dies and Press Tonnage <b>I</b> Room 502B				
JOB SHOP	<b>F106:</b> Sales 101 For The Fabrication Industry <b>B</b> Room 401D	<b>F116:</b> Sustainable Design and Solutions for the Job Shop <b>B</b> Room 401D			
LEAN	<b>F104:</b> Lean Tools: Preventative Maintenance and Sustainable Techniques & Life Cycle Assessments <b>I</b> Room 401BC				
MANAGEMENT	<b>F105: NEW</b> Increasing Organizational Readiness and Agility in Your Company <b>A</b> Room 403A	<b>F115:</b> Marketing 101 for Fabricators <b>B</b> Room 403A	<b>F125:</b> Grow Your Business: For Keeps or For Sale! <b>I</b> Room 403A		
STAMPING	<b>S100: NEW</b> Advancements in Press Technology <b>I</b> Room 503A	<b>S110: NEW</b> Press Drive Technology <b>A</b> Room 503A			
	<b>S101: NEW</b> Optimizing Sensor and Lubricant Applications <b>I</b> Room 503B	<b>S111: NEW</b> Simulation & Process Design Improvement <b>I</b> Room 503B			
STRUCTURAL STEEL/PLATE	<b>F600: NEW</b> Plate Rolling of Structural Steel <b>I</b> Room 501D				
WORKFORCE DEVELOPMENT	<b>F103: NEW</b> 6 Steps to Hiring and The New Gig Economy <b>B</b> Room 404BC				
WELDING					
SEMINARS	<b>W23:</b> Fundamentals of Radiographic Inspection for CWI's and Quality Assurance Personnel, Room N128			8:30 AM	4:30 PM
PROFESSIONAL PROGRAM	<b>W30: Session 17:</b> Sensing and Control, Room N138			8:00 AM	12:00 PM
	<b>Session 18:</b> Modeling II, Room N139			8:00 AM	12:00 PM
	<b>Session 19:</b> Testing and Characterization, Room N140			8:00 AM	12:00 PM
SPECIAL PROGRAMS	AWS Certification Information Session: Move to Computer-based Testing (CBT) and Other Topics - FREE, Room N129			9:00 AM	12:00 PM

\* Schedule subject to change.

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# PFERD Debuts COMBICLICK® Quick-Change Disc System

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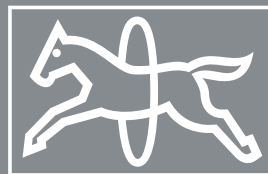


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M-802-Cool

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M-902-Cool

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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



# Inspiring Creativity in the Workplace

## One of Pixar's Original Storytellers Tells His Own Story and Shares Secrets of Innovation

Pretty much everyone knows Pixar. If you don't, your kids do, along with millions nationwide who treasure the feeling

holder at the time. Pixar is best known for CGI-animated feature films created with RenderMan, Pixar's own implementation of the industry-standard RenderMan image-rendering application interface, used to generate high-quality images.



Matthew Luhn, Original Storyteller, Pixar

of being young at heart. Pixar Animation Studios is an American computer animation film studio based in Emeryville, California that is a subsidiary of The Walt Disney Company. Pixar began in 1979 as the Graphics Group, part of the Lucasfilm computer division. Then it spun off as a corporation in 1986, with funding by Apple co-founder Steve Jobs, who became the majority shareholder. Disney purchased Pixar in 2006 at a valuation of \$7.4 billion, a transaction that resulted in Jobs becoming Disney's largest single share-

Pixar has produced 18 feature films, from "Toy Story" (1995), which was the first-ever computer-animated feature film, to "Cars 3" (2017). All these films debuted with CinemaScore ratings of at least an "A-," indicating positive receptions with audiences. As of July 2017, its feature films have earned approximately \$11 billion at the worldwide box office, with an average worldwide gross of \$634 million per film. Thirteen of Pixar's films are among the 50 highest-grossing films of all time, with "Toy Story 3" (2010) being the

third all-time highest-grossing animated film with a gross of \$1.063 billion.

To say that this is one of the nation's most successful—and most creative—companies is stating the obvious. How did it get that way? More importantly, how did it stay that way as it grew exponentially?

## A Window into Creative Culture

For those who attended yesterday morning's keynote, Matthew Luhn, writer, storyteller, and one of Pixar's early animators, provided answers to those questions and insight into how to inspire creativity in the workplace. Thought-provoking and engaging, Luhn shared his own story from a child surrounded by toys to one of the makers of "Toy Story."

Luhn began with a tip of the hat to FABTECH and manufacturing, noting that when he's taken people through Pixar's facilities, they often comment on how "cool" it is; but he has been taken by the "cool things" that are happening in manufacturing.

Luhn's own life is a bit of a toy story. He was surrounded by toys his entire life (his family owned toy stores for generations in San Francisco), but was influenced by his father, who never really wanted to sell toys, but rather dreamed of being an animator for Disney. While the senior Luhn chose to stay in the toy business, he

passed that passion for animation onto his son, encouraging him to draw, observe animated movies, appreciate art, and so on. This eventually led Luhn to the California Institute of the Arts (founded by Walt Disney), where a student film he made caught the eye of some people doing animation—and he was hired as an animator for "The Simpsons." "I was doing what I thought I wanted to do, be an animator; but while working there I realized I was more passionate about story development," he shared. Eventually he landed at Pixar as an animator on "Toy Story," but received the latitude there to follow his passion.

Pixar's development was rooted in the Cal Arts animation department, "an open environment with everyone creating; it had incredible energy inspired by an eclectic group." This kind of culture was fostered at Pixar, where creativity was nurtured, respected, and encouraged. When Jobs came to Pixar, he blended in another element, what Luhn calls "the Apple innovation culture." The final element: a passion to advance new technology, which came from Industrial Light and Magic.

When all this came together, so did the Pixar we know, and Luhn arrived about a year and a half after its genesis. "It was the collaboration of technology, art, and innovation that really empowered Pixar to take root and grow," explained Luhn. Its ability to maintain the culture established at its outset through that growth has kept it grounded in the open, creative, interactive environment that is its core strength.

## Encouraging New Ideas

Luhn leveraged the Pixar experience to provide the audience with some concrete examples of strategies to employ in creating a culture that encourages new ideas:

- **Leave all egos at the door, and set up workspaces that eliminate hierarchy.** For example, use round tables for meetings instead of rectangular ones. With rectangular tables, the person with the highest status often sits at the head of table, setting up a precedence that everyone needs to please "the king or queen," instead of coming up with the best idea. A circular table creates a feeling of equality empowering everyone to work together to solve the problem at hand.
- **Provide educational stipends for employees to learn outside of work, and encourage them to participate in or lead "extracurricular activities"**

continued on page 24

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continued from page 22

to underscore the organization's commitment to the person (i.e., not just the worker) and the group. After all, you want to keep them for the long term. The kinds of creative classes and workshops a company could provide include writing, drawing, and improvisation.

- **Embrace fear and failing as part of the creative process.** "We've been told that failing is bad from an early age; but in creativity, failing is good—it gets rid of the bad to move towards the good," Luhn explained. "We must get past the fear of failing." To get workers to embrace fear and failing as a necessary part of the creative process, management must create a culture that feels safe and secure for all employees to pitch new ideas free of judgment, ridicule, or negative repercussion.

At Pixar, Jobs established something like a "Brain Trust" to oversee project development. The director of a particular film was the idea-originator, and other directors formed the trust to provide honest feedback over the course of the project to the director. Luhn paraphrased Jobs' message that informed this process: "I don't want to have division among our films. We are all in this together. Imagine that each film is like a boat in dock in the water. When the water goes up, all goes up. There should be no rivalries. We must set egos aside." Jobs formed this thinking out of his initial experience at Apple (from where he came to Pixar), where groups within the company were more competitive than collaborative, something he felt did not work to good effect.

To establish trust and provide effective feedback, the trust, which met to review a film periodically through the course of the project, had several imperatives to guide the process and help ensure authentic communications. These were required or encouraged of all:

- Candor
- Balance
- Mutual respect
- Honesty
- Brevity (keeping comments clear and concise)
- Timeliness
- Asking questions

"At Pixar we understood that nothing kills energy faster than saying, 'No!' So we developed a culture that rather would say, 'Yes and...'" said Luhn. "This is the way it was always done. Don't kill an idea; build on it."

Or consider Pixar's development of "Monsters University." As the story was being developed, it was about Sully, whose character went through myriad transformations (from A student to janitor to librarian to party animal to lousy roommate) before the story developers realized the real sto-



### How to Push Boundaries

Luhn made it clear that the best leaders are those who are constantly pushing new boundaries, trying new things, which means there will be failures along the way. "We fail dozens of times before we get it right," he said. "What makes a great hero is not that they succeed, but that they fail and keep on trying. Think of Indiana Jones."

ry was about Mike, not Sully, who would become a monster coach. The idea had roots back to Luhn's days with an irritating roommate at Cal Arts. "The process was necessary," said Luhn. "We had to explore all these possibilities to get to the right one; we had to fail before we succeeded."

He noted that people and companies usually avoid risk, consciously or subconsciously, choosing to repeat something safe rather than try something new. He cautioned strongly against this tactic. "You want to keep pushing yourself," he concluded. "The truly innovative company never rests on its laurels. Sometimes you have to be willing to shake things up, even when you don't need to."

The audience—one in the midst of an industry undergoing a revolution that is pushing its own boundaries—seemed to really appreciate what Luhn was driving towards, if the closing ovation can be used as a measure. ■

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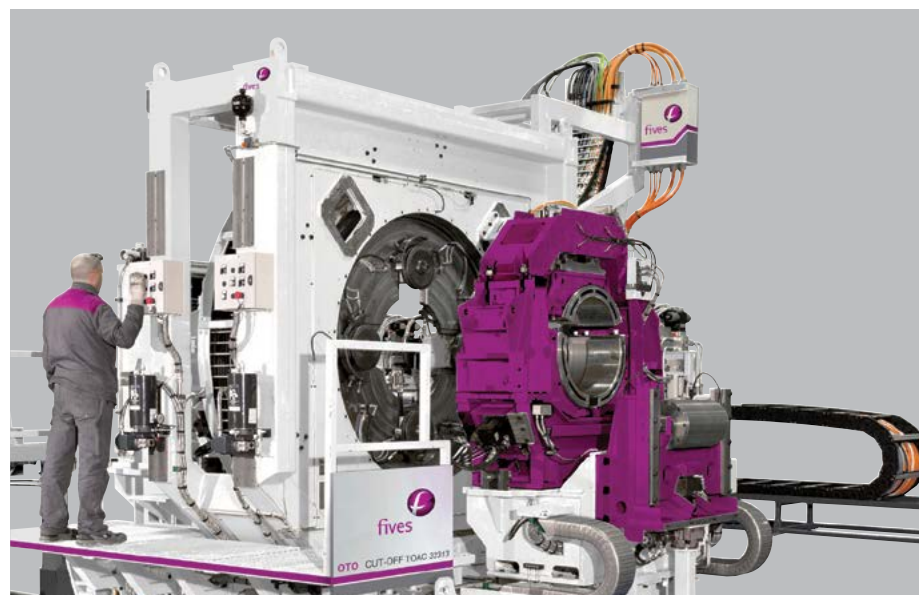
# Fives, custom engineered machines for production of seamless and welded tubes

## 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.



# SIR Meccanica: Excellence Made in Italy



**SIR**  
**MECCANICA**  
Portable Multifunction Machine Tools

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

Quality and reliability, innovation and design, extreme precision and handiness. These are the characteristics that define SIR Meccanica's products that are made in Italy. Sir Meccanica S.p.A. is the brand leader for the production of portable multifunction machine tools. With only ONE machine tool and a single set-up, they effect on-site repairs of internal and external holes and articulation points of big or small machines, whose disassembly would result in a machine stop and transportation to a workshop. SIR Meccanica's portable machines allow for time saving and a considerable reduction in machining costs, as well as guaranteeing the quality of the work itself.

SIR Meccanica's products find application in heavy and light metallic carpentry, in the earthmoving and mining, shipyard, oil & gas, nuclear plants, wind power and industrial sectors, just to name a few.

The company's portable machine tools include Line Boring and Overlay Welding Machines, Flange Facers, Orbital Lathes, Milling Machines and the cream of the crop of the entire production, the new Boring and Overlay Welding Machine Full CNC, unique of its kind, able to create any type of profile, such as any type of grooving and of threading.

The product lines are entirely created and produced inside the company's plant in It-

aly. They comply with the most advanced technological standards. The measurements and tests performed during the production phases ensure a constant and authentic Quality Control. They are the result not only of integrated working processes, based on the use of the latest technology, but also of precious manual and artisan skills, stored and passed onto specialized workers. These levels of knowledge make Sir Meccanica flexible, able to adopt a tailor-made approach, interpret needs and specific requests from customers, plan and manufacture custom-made solutions, ensuring quality and efficiency. The result is a wide range of quality products characterized by a long lifespan, reliability and high performance, even under the ergonomic profile, capable of satisfying any applicative situation with extreme versatility.

The constant company attention towards the quality standards is demonstrated by a wide range of certifications. Among these, the most important ones are the UNI-EN-ISO 9001; EC (N ° IMQ 192) for the WS Series; CE certification; GOST; The NATO Code (NCAGE AFA 74) attesting recognition of the company as an official supplier of materials and services to the United States Government and the American bases in Europe.

Find out more about SIR Meccanica and its products at booth # B32097. ■

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.

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# SanRex Corp Introduces the SANMIG 400M Packaging System

The SANMIG 400M is designed to withstand the rigors in today's portable industrial welding machine environment. Built small, lightweight and tough, Welding with MIG, & Flux Cored wires, STICK, Lift TIG and Carbon Arc Gouging are easily set

through robust easy to use membrane switches on the front panel. Each function is marked by a symbol and lighted LED that clearly marks which function is being adjusted. The MIG system includes the SANFEED SKY 4, 4-roll wirefeeder, inter-

connect coax cable assembly, 350 amp MIG gun, work lead with clamp, regulator/flowmeter and running cylinder rack. Visit booth # B28082 to learn more about this innovative system. ■



# Weld Anywhere With the Powerful, Battery Powered Tactical Welder

## Lithium Battery-Powered Arc Welding is Here

The Ultra Tech International, Inc. Tactical Welder portable welding tool is powered by a 528Wh lithium ion battery pack. A state-of-the-art electronic Battery Management System (BMS) safely controls charging and discharging functions. The weld gun is a 300A industrial grade spool gun wire-feed welder. Stop by the UltraTech International, Inc. booth #B21083 to see a demonstration.

### Features & Benefits:

- Completely battery-powered system – no long power cords, heavy cables or generators necessary.
- State-of-the-art, electronic battery management system uses high capacity lithium ion batteries to provide consistent power and safely controls charging and discharging functions.
- Ultimate portability – all components are designed to be stored/transported in the included backpack. The bag provides a holster for the spool gun and tools, allowing for one-hand welding operations.
- The system includes a high current contactor for cold tip operation. Clamp the ground, pull the trigger and weld.

### The Welder comes complete with:

- Power system (Battery & BMS)
- Spool gun
- 6A charger
- 300A ground clamp
- 6-foot cables with high-current plug connectors for positive or negative ground welding.

### Portable

The Tactical Welder can be used just about anywhere. Its compact size and weight means you can carry your welder to wherever you need it. You don't

have to plug in, string cables, or fire up a generator because the Tactical Welder is self-powered with its own high-capacity lithium ion battery system. Just clamp the ground and start to weld. It's that simple.

### Powerful

The Tactical Welder is capable of producing a weld that meets AWS D1.1 structural steel requirements based on face bend and root bend testing, using the included feed gun with 0.035 in. flux-cored wire and argon gas on a 3/8" steel plate.

### Versatile

The Tactical Welder is capable of welding approximately a one-pound spool of weld wire on a single charge. It is capable of performing high quality MIG welds and fluxcored welds. ■

## 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](http://tacticalwelder.com)



# New FABTECH Logo Reflects an Industry Evolution

Today, the five FABTECH co-sponsors unveiled a new logo and brand identity for the FABTECH series of events. FABTECH represents the leading events in North America exclusively focused on advancing the metal forming, fabricating, welding and finishing industries.

The industry is evolving and the new logo reflects the innovation and emerging manufacturing technologies showcased at FABTECH. With its more modern look and feel, the new logo better conveys the current and future direction of the FABTECH brand.

"The manufacturing industry is entering a new age and experiencing an industrial revolution that is changing the way we manufacture," said John Catalano, FABTECH show co-manager and SME senior director. "And in the midst of this, FABTECH is also evolving to stay at the

leading edge of the industry. We are excited to launch a new logo that demonstrates the evolution of the FABTECH brand."

"While we usher in a new visual identity, FABTECH remains committed to delivering a high-quality, innovative event experience," added Mark Hoper, FABTECH show co-manager and FMA senior vice president of media and expositions. "The show will continue to meet the demands of the industry and showcase not only what's new, but what's next."

Evidence of FABTECH's embrace of innovation is on display in Chicago this week with a new pavilion dedicated to the advanced technology of additive manufacturing as well as expert panels and education sessions on the future of manufacturing, including smart manufacturing, the Industrial Internet of Things, Industry 4.0, automation and more.

The new logo mark and simple letter structure offers a more relevant, forward-thinking image while still honoring and preserving FABTECH's rich history.

The new logo is the first piece of a strategic branding initiative to bring a consistent, cohesive and contemporary look and feel to all FABTECH events. The evolved brand identity will be rolled out for all FABTECH events, communications, and other publications throughout the next year.

## About FABTECH

FABTECH is North America's largest collaboration of technology, equipment and knowledge in the metal forming, fabricating, welding and finishing industries. The event provides a powerfully aligned hands-on, face-to-face business growth experience. FABTECH is held annually in the U.S., rotating between Las Vegas, Chicago and Atlanta. FABTECH Mexico also occurs annually rotating between Mexico City and Monterrey and FABTECH Canada occurs biennially in Toronto. These events are made possible by FABTECH's five co-sponsors, all of whom represent the varied and diverse makeup of the manufacturing industry. They include the American Welding Society, the Fabricators & Manufacturers Association International, the Precision Metalforming Association, Chemical Coaters Association International, and SME. ■

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# Pneu-Mech Systems

Pneu-Mech Systems was established in 1991 by a management group of six individuals who had worked together in the industrial sheet metal fabrication business since 1973. Originally, this group was involved in air filtration systems, but branched into finishing systems for the furniture industry in 1980. Since that time, and upon the founding of Pneu-Mech Systems, we have directed our manufacturing/sales efforts strictly towards finishing systems equipment (both liquid and powder) for metal, wood and composite materials for all industries. With over 70 employees, we are capable of completing "turn-key" projects of most any size. We are a custom manufacturer that builds systems to fit the needs of our customers, and our philosophy is "To deliver to our clients not only our equipment, but our knowledge." This enables the end users of our equipment to pro-

duce both profits and a quality finish.

Pneu-Mech System's two Statesville, North Carolina manufacturing facilities, with over 75,000 sq. ft., are equipped with all the essential equipment. Hi-definition plasma cutter, metal shears, press breaks, spiral duct fabrication and saws to fabricate our specialized and custom paint systems from flat metal to finished equipment. Our fabrication staff is highly experienced in the craft of building our systems in modular form to be freighted to our customer's facility and shorten the installation process.



Pneu-Mech's capabilities to supply finishing equipment, including pretreat washers, ovens, conveyors, paint booths and other ancillary finishing equipment make us the best choice as a supplier. Our installation staff is highly experienced in the mobilization, rigging and placement of specialized finishing systems. We are proud of our staff, highly trained and experienced in the installation and integration of our systems to meet our cus-

tomers' needs. Focused on "being easy to do business with", we provide training, production assistance, troubleshooting and all service work required to install and maintain our systems.

We view ourselves as partners with the clients we serve, and highly value long term relationships. We welcome the opportunity to add you to our rapidly growing list of satisfied customers. ■

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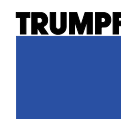
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