



# THE OFFICIAL SHOW DAILY



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



OFFICIAL SHOW NEWS | MONDAY, NOVEMBER 9, 2015

## The 'Internet of Things' and its Potential Impact on Manufacturing

One of the underlying themes likely to surface throughout the presentations and across the exhibit halls at FABTECH 2015 involves the so-called "Internet of Things" (IoT) and its rapidly growing impact on the manufacturing sector.

That theme was reflected in a recent FABTECH Blog posting, which cited a new report from International Data Corporation (IDC) on the expansion of IoT and the expectation that the increase in Internet-connected devices over the next several years will also spark substantial growth in manufacturers' service-related revenue.



"What we're seeing is that industry, especially the manufacturing industry, is on the cusp of a need to really transform the way they deliver products and services to their customers," explained Heather Ashton, research manager for IDC Manufacturing Insights. "And because of the technologies finally being available to support it, there is a drive toward not only selling a product but selling services through a product."

continued on page 26

### DON'T MISS TODAY!

**Keynote: Running a Winning Organization**

9:00 - 10:00 a.m., Grand Ballroom

**Panel Presentation: What Additive Manufacturing/3-D Printing Means for the Metal Fabrication Industry**

12:30 - 1:30 p.m., FABTECH Theater, Grand Concourse

**Professional Welding Competition**

Location: Hall C1, Booth C1844

**Robotic Welding Competition**

Location: Hall C1, Booth C1835

**Spin To Win**

During Show Hours  
Hall C, Booth C1344  
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## Panel to Spotlight "Real World" 3D Manufacturing Experiences

Today's midday expert panel session, "What Additive Manufacturing/3-D Printing Means for the Metal Fabrication Industry," [12:30 - 1:30 p.m. in the FABTECH Theater, Grand Concourse] will provide attendees with a rare opportunity to separate fact from hype and learn about the real world manufacturing applications of this rapidly growing technology.

"It's an opportunity for this particular audience to get the lowdown on a set of technologies that have been in the press and sometimes overhyped, usually for the wrong reasons," offered panel moderator Dave Flynn, Senior Business Development Manager, Materialise USA. Acknowledging his own experiences with early 3D technologies dating back nearly three decades, he characterized today's panel members as "hard core manufacturing types."

"Our focus is going to be much more on manufacturing applications of 3D printing and less on the consumer or art types of applications that tend to get the press but don't have anywhere near the same value as manufacturing applications," he explained.

As one example, he pointed to Bryan Crutchfield, Managing Director of Materialise USA, who brings "a lot of background in the automotive industry, everything from finance to marketing to manufacturing. So he comes at additives with a real manufacturer's mindset."

He described Carl Dekker, President of Met-L-Flo, Inc. as "a job shop owner who has been around this technology for over 20 years."

"He's seen every aspect of the evolution of the technology and the business that has grown up around it," he said. "He has

a wealth of knowledge and experience that people will want to tap and he brings a critical perspective to this discussion."

Flynn noted that Rick Neff, Manager of Market Development, Cincinnati Incorporated, brings a machine tool manufacturing perspective to the panel.

"Those folks have gotten into additives in conjunction with some high powered people at Oak Ridge National Labs, developing a very large scale machine. So they are kind of pushing the envelope from a size perspective," he said.

Another unique perspective will be provided by Bob Markley, CEO of 3rd Dimension Industrial 3D Printing.

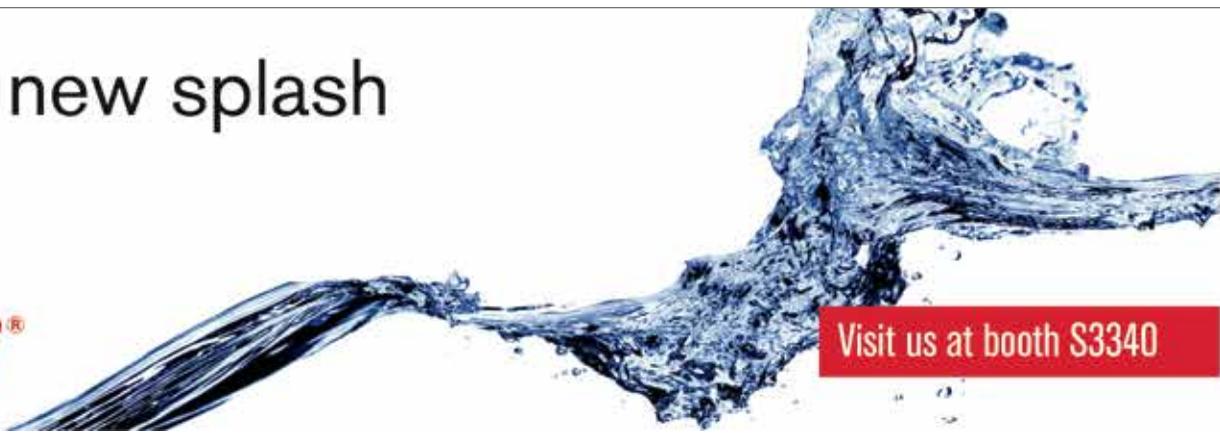
"Bob is President and Founder of a new business that wants to be a contract manufacturer

continued on page 16

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# MFG TALK RADIO Becomes FABTECH TALK RADIO

## Live From McCormick Place, This Week Only

The FABTECH co-producers are pleased to welcome Manufacturing Talk Radio to the show this year where they will conduct live radio broadcasts every day from their booth N14000, located near the entrance to the North Hall.

The booth has been configured to hold an audience that will be able to view and hear the interviews as they are being conducted and broadcast live. Some of the scheduled interviewees are people who will be keynote or special presenters which makes this an excellent opportunity to hear messages you may have missed if your schedule kept you from attending the special event.

For example, the show on Monday will include NASCAR Legend Rusty Wallace who is also the show's opening keynote. You'll hear a "Welcome to FABTECH" interview with one of the show managers, Mark Hoper, FMA's Vice President of Expositions and Sheila LaMothe, Marketing Manager for TRUMPF and a member of the FABTECH Exhibitor Advisory Committee; they'll talk about the highlights of this year's show. Finally, with an Additive Manufacturing/3D Printing Pavilion at FABTECH for the first time this year, Mfg Talk Radio will welcome Carl Dekker of Met-L-Flo and Bob Markley of 3rd Dimension Industrial 3D Printing for an insightful discussion of how this ground-breaking technology can impact the metal fabrication industry.

Tuesday's interviewees will focus on new technology. Jay Monahan, SAP Director-Global Shop Floor, Dell, will cover cyber security risk for manufacturers. Karen Kerr, Director for Advanced Manufacturing, GE Ventures will talk about what the future of manufacturing work will look like as a result of innovation and new technologies.

Turning the focus from the technology of the show to the economics of the industry, Mfg Talk Radio will welcome Dr. Chris Kuehl, economic analyst for the Fabricators & Manufacturers Association and managing partner of Armada Corporate Intelligence. A lively discussion is sure to ensue as Dr. Kuehl picks apart the political and economic challenges around the world that have an impact on the health of the manufacturing sector.

Wednesday the guest list includes Tom McGaughy of the Edison Welding Institute and representatives from a variety of exhibiting companies.

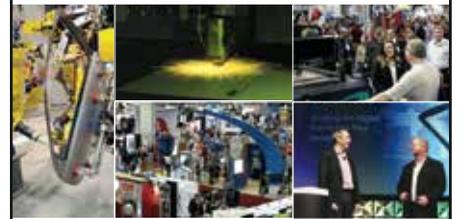
Don't be surprised if you see two guys in bright yellow jackets holding microphones and interviewing attendees on the show floor. These "man on the street" interviews are one of their favorite ways to see what exhibits and technologies most intrigue the attendees.

Who are the interviewers from Mfg Talk Radio? They are industry professionals with a combined 70 years of experience in the manufacturing sector. Lewis Weiss is the President of All Metals & Forge Group, a New Jersey manufacturer of open die forgings and seamless rolled rings. Mfg Talk Radio is produced by his company. His interview partner, Tim Grady, is also executive producer of the show. Tim has more than two decades of experience in manufacturing as a senior strategist and business advisor. They know manufacturing and their personal experiences lead to insightful questions and meaningful discussions on topics that matter to manufacturing executives.

Stop at Booth 14000, have a seat, be stimulated by the discussion. You never know – you might become an interview subject yourself!

# SAVE THE DATE!

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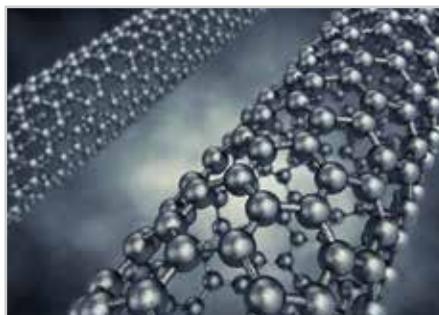


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# Why Masking Shouldn't Be a Last-Minute Consideration

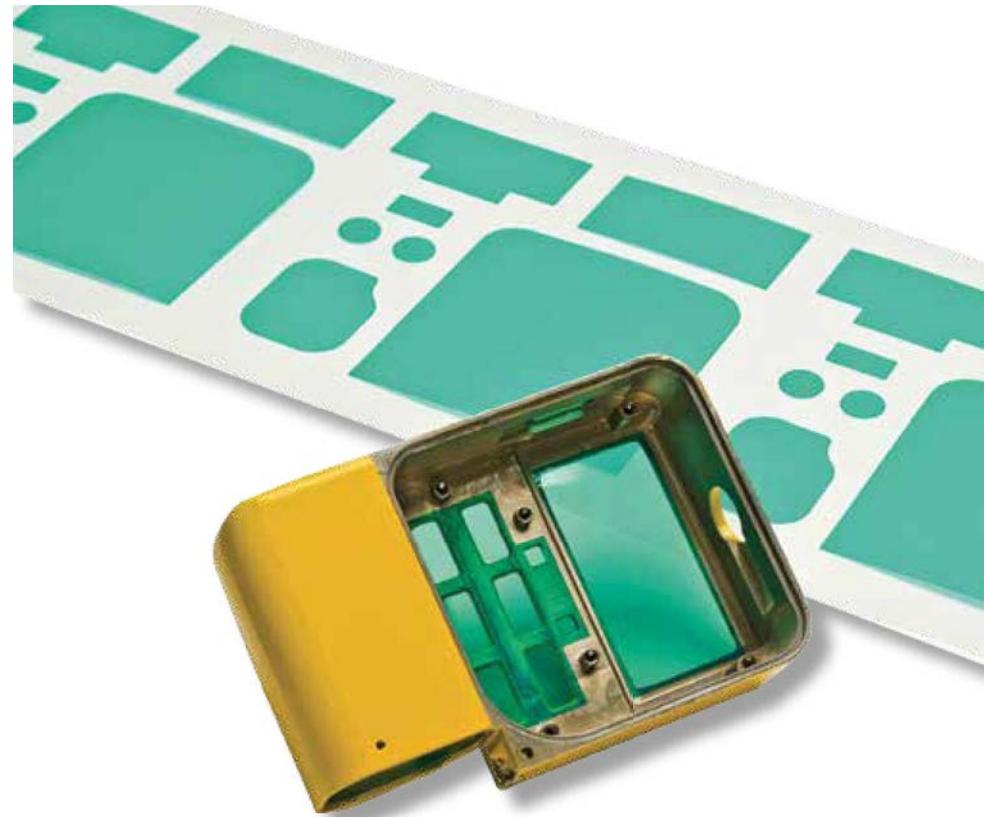
If you're masking with traditional methods, you know the process can bring costly challenges to your production line and bottom line. Although masking always serves as an essential barrier for areas that require coverage during powder coating, it is a process that is most often reduced to an afterthought. Potential options aren't typically considered until the product is entering the finishing process, which limits manufacturers to a quick fix. But these traditional, "one size fits all" methods fail to provide reliable long-term protection that meets specific needs and can significantly impact both labor and product costs.

In order to offer greater reliability and ensure complete consistency, Caplugs engineers a wide variety of solutions that precisely mask a part — the first time, every time. Although it may seem more costly up-front, using highly efficient protection can actually be cheaper than traditional methods when considering long-term time and labor savings.

Caplugs is uniquely positioned as the masking experts since acquiring Shercon two years ago. With such advanced molding capabilities, state-of-the-art technologies and custom design expertise, the company can produce a solution no matter the size, color, material, process, or other requirement.

In fact, Caplugs designed a custom silicone molded mask for Bodycote — an international network of 190 facilities that provides thermal processing services. One location in particular utilizes Caplugs during carburizing and nitride surfacing. Before Caplugs' solution, Bodycote's expertly trained staff would apply a lacquer, which took about 15 to 20 minutes for application drying and curing, and then remove the mask by soaking it in an acetone solvent for another 15 to 20 minutes.

To accomplish this process, Bodycote employed a skilled force of ten people in their masking department with two additional employees manning the hardening oven. With manual labor, unavoidable errors occurred from missed brush strokes, which require the part to



be scrapped because of a failure to meet the specifications. Not to mention, there are increased safety liabilities and contamination risks associated with 10-12 hour exposure to hazardous materials.

So when Bodycote switched to a custom Caplugs solution, they saw significant cost savings in time, labor and materials. The original masking application time of 15-20 minutes was reduced to a mere 45 seconds,

providing a savings of approximately 4,000 man hours and tens of thousands of dollars annually. Because Bodycote was able to eliminate the use of hazardous lacquers and acetone, they greatly reduced accident risks and material expenses. Now their masking solution can be applied like a cap or plug which eliminates the need for razors and cut-resistant gloves saving time and money for the production.

Caplugs is truly a masking partner, offering the advanced capabilities and expertise needed to help manufacturers solve their process challenges. By working together to understand a company's existing solution, thinking strategically on how to improve a masking process, and providing a standard or custom part — Caplugs can certainly save time, labor and costs all to improve a bottom line. ■

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**A**jan Electronic Service was founded in 1973 in Izmir, Turkey. Today, with the support of their R&D department, Ajan plasma machines have continually improved to become one of the most technologically advanced machines in the world. These machines feature combined pipe cutting as well as 4 axes and 5 axes bevel head systems. Ajan also produces separate pipe cutting plasma machines available in various dimensions.

With 40 years of experience, Ajan is one of the leading manufacturers of plasma machines in the market. Customers know Ajan not only for plasma machines, but also for other Ajan industrial productions such as EDM machines and CNC milling and drilling machines.

Ajan has exported plasma machines to over 40 Countries. In their three factories totaling 32,000m<sup>2</sup> (344,000ft<sup>2</sup>) and 300 employees, they manage a production capacity of 40 – 50 plasma cutting machines per month.

Ajan plasma cutting machines are 100% made in Ajan factories. Not only does this include the power generator and torch, but also CNC controller, servo motors, drivers, gas control valves and software.

Ajan's R&D department has always been considered the most important department of the entire company, and they are now working on fiber laser cutting machines. As a result of long-term research and development, Ajan fiber laser cutting machines will be available in the local market as early as 2016. They will have 3000 watts of cutting power, and Ajan Fiber Laser parts will all be produced by Ajan. This includes the power source, laser head and software. With this production Ajan will undoubtedly become one of the leading laser producing companies of the world.

Ajan has participated in all FABTECH Expositions in the

USA, MEXICO and CANADA, and is participating in FABTECH Chicago 2015. You can find them in the South Hall at Booth S1774 ■

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Markets served are Sheet Metal & Plate Fabrication, Tube & Pipe Manufacturers, and Wet Dust Collection.

## Booth #S3552 Machine Demonstrations

Machine demonstrations include the Nautilus 2 wet deburring and finishing machine; the new Mini 9 dry deburring and finishing machine for small, flat parts; and the BH50 centerless deburring and polishing machine with Niagara wet dust collector. The newly redesigned Patriot 1 dry deburring and finishing machine is also featured at the show.



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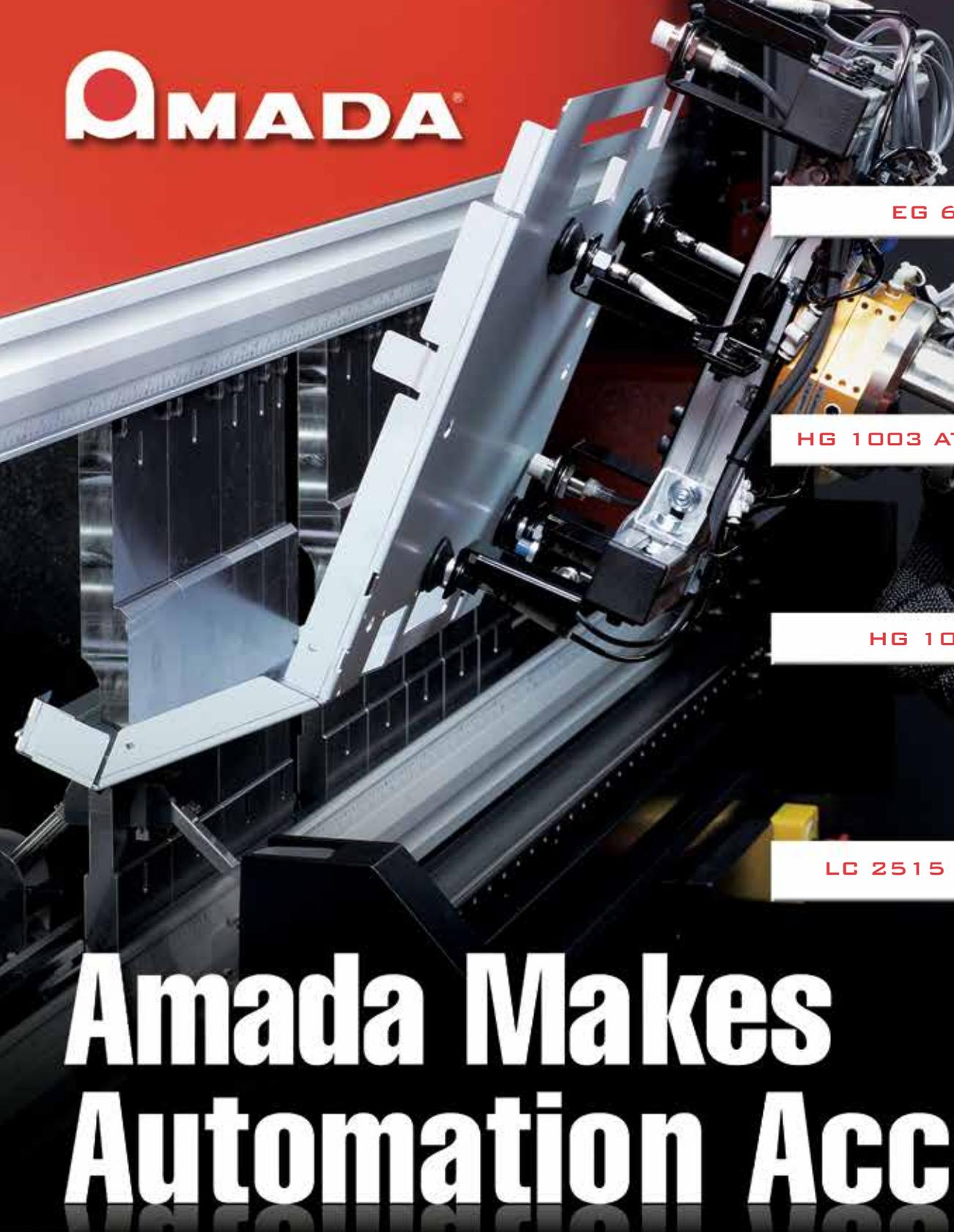
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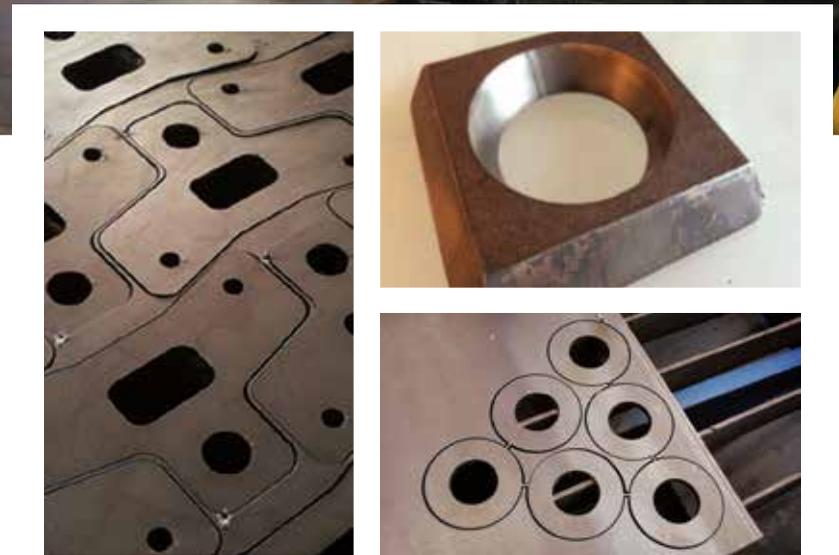


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- **IMTS 2016**  
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- **FABTECH 2016**  
Las Vegas, NV — November 16-18, 2016

**Stop by our booth today!**

**Booth S1774**  
[www.ajanusa.com](http://www.ajanusa.com)

## 3D/ADDITIVE MANUFACTURING PAVILION IN THE GRAND CONCOURSE

Don't miss the exciting 3D/Additive Manufacturing Pavilion in the Grand Concourse. Attendees can see live equipment and products on display from a host of exhibitors and check out the FABTECH Lion Project. This unique project was a collaboration between the Art Institute of Chicago, Exact Metrology, Met L Flo and Linear Mold & Engineering, Inc. to produce miniature replicas of the iconic lions that flank the museum using 3D/Additive technology.

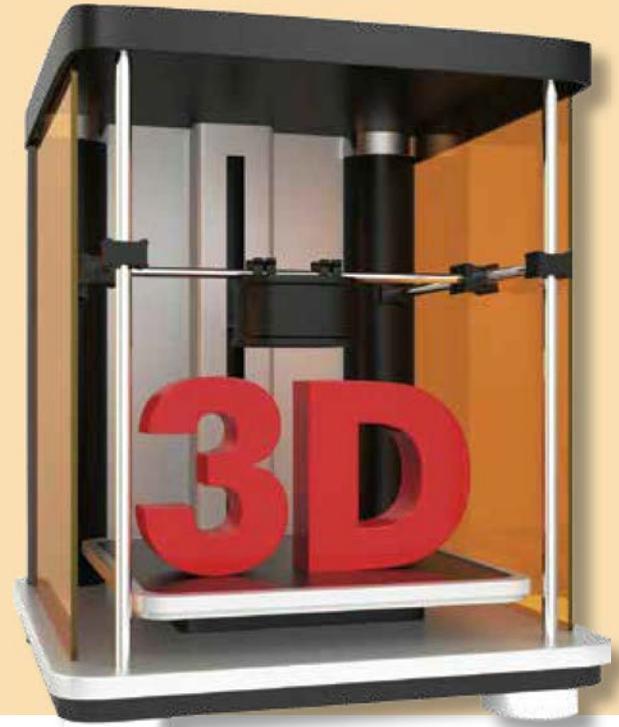
An array of additive-made parts will be also be on display from these FABTECH exhibitors:

Cincinnati Inc., Booth N9000

Stratasys, Booth N6000

GPI Prototype & Manufacturing Services, Booth N5000

3rd Dimension Industrial 3D Printing, Booth N4000



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# BLM Group USA Corporation Unveils the LC5



BLM Group USA is a supplier of tube, sheet and wire fabrication equipment including a broad range of CNC tube benders, tube endformers, cold saws, wire benders, tube machining centers, and laser tube and sheet cutting systems. Its latest innovation the compact LC5, equipped with a fiber laser up to 4.5kW, is the only high production machine with automatic loading and unloading that can process both tube and flat sheet in a single machine. Thanks to its design, switching from tube to sheet is fast,

adding the flexibility fabricators need to expand their laser processing capability. The LC5 can handle bar up to 21 ft. in length and tube to 4.75 in. dia. The processing of sheet metal is fully automatic and allows for sheet up to 5 ft. x 10 ft. The fiber laser is ideal for cutting both mild steel and highly reflective materials such as stainless steel and for aluminum. Stop by the BLM Group USA Corporation booths, N2010 and N2000 to learn more. ■

## 3D/Additive for Metal Fabricators

continued from page 1

using metal additive manufacturing systems – metal laser sintering systems,” Flynn said. “That’s a brave new world. The technologies are complex and expensive. And he is one of those people who is truly on the leading edge.”

He explained that some extremely large manufacturers are investing hundreds of millions of dollars into additive manufacturing, with metal laser sintering systems as their primary focus.

“But there has not been as much investment on the part of smaller private companies – job shops or contract manufacturers – to get into this,” he asserted. “There has been some activity in the medical realm – on orthopedic implants especially, with fairly exotic materials and geometries – but in terms of more mechanical component manufacturing, Bob’s company is ‘diving in head first’ into the contract manufacturing world, which is well established and governed by established quality systems and certification policies. And they are coming at it with new technology. It’s a pretty bold step.”

Asked about the “key draw” that should bring attendees to today’s panel, Flynn summarized, “This is about real world experience with these technologies. These panelists understand where the value lies and have probably stubbed their toes against applications that don’t work. I know that I certainly have. So we’re all pretty experienced in this area. And it’s an area where you don’t find a whole lot of experienced people.” ■

*Don't miss the 3D/Additive Manufacturing pavilion in the Grand Concourse while attending the show. The pavilion features a 3D printed lion display case containing replicas of the iconic guardian lions that flank the Art Institute of Chicago. The 3D lions were created through a collaboration between Exact Metrology, using its Surphaser technology to 3D scan a nine-foot tall lion at the Art Institute, Met-L-Flo and Linear Mold, using the scanned data to create small scale lions using 3D/Additive manufacturing technology.*



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Prices valid **November 9–12, 2015**. Subject to prior sale.

# EDUCATION PROGRAM

MONDAY, NOVEMBER 9		SCHEDULE-AT-A-GLANCE	
TECHNOLOGY	8:00 AM – 10:00 AM	10:30 AM – 12:30 PM	1:30 PM – 3:30 PM
FINISHING		C20: Conceptos Basicos de Pintura en Polvo en Espanol <b>B</b> Room S404A	C30: <b>NEW!</b> Powder Coating Basics <b>B</b> Room S404A
		C21: <b>NEW!</b> Spray Booth Design: Do It Right <b>I</b> Room S404BC	C31: Basics of Electrocoating <b>B</b> Room S404BC
		C22: <b>NEW!</b> Keys to Successful Finishing: Hooks, Racks & Stripping <b>B</b> Room S404D	C32: <b>NEW!</b> Curing Options for Industrial Finishing Operations <b>I</b> Room S404D
STAMPING	S10: Software Solutions for Metal Forming I <b>I</b> Room S405A	S20: Stamping Aluminum <b>B</b> Room S405A	S30: Value Added Technology <b>I</b> Room S405A
	S11: Press Technology I <b>I</b> Room S405B	S21: Press Technology II <b>B</b> Room S405B	S31: Press Technology III <b>I</b> Room S405B
LASERS & CUTTING	F10: <b>NEW!</b> Advances in Laser Joining Applications I <b>I</b> Room S403A	F20: <b>NEW!</b> Advances in Laser Joining Applications II <b>I</b> Room S403A	F30: <b>NEW!</b> Laser Processing 101 <b>B</b> Room S403A
LEAN	F11: Lean Principle: Strategic Planning and Organizational Alignment <b>I</b> Room S403B	F21: <b>NEW!</b> Lean Principle: Developing People and Processes <b>I</b> Room S403B	F31: <b>NEW!</b> Lean Principle: Business Strategy for Sustainability <b>A</b> Room S403B
MANAGEMENT	F12: <b>NEW!</b> Workforce: Innovation and Team Building Strategies <b>B</b> S401A	F22: <b>NEW!</b> Workforce: New Approaches and Strategies for the Next Generation <b>I</b> Room S401A	F32: <b>NEW!</b> Workforce: Leadership Strategies and Tools for Managing Your Organization <b>I</b> Room S401A
		F23: <b>NEW!</b> Framework for Product Development Strategies <b>A</b> Room S401BC	F33: <b>NEW!</b> Tech Trends: Emerging Threats, Disruptions and Opportunities in the Fabrication Industry <b>A</b> Room S401BC
JOB SHOP SOLUTIONS	F14: <b>NEW!</b> Manufacturing Execution System (MES) Technology: Explained <b>A</b> Room S503A	F24: <b>NEW!</b> Cost Reduction Strategies for Job Shop <b>I</b> Room S503A	F34: <b>NEW!</b> Improving Your "Bottom Line" with Better Estimating, Job Costing and Scheduling <b>I</b> Room S503A
AUTOMATION	F15: <b>NEW!</b> Panel Discussion: Maximizing Your ERP Scheduling Tools <b>I</b> Room S401D	F25: <b>NEW!</b> The Connected Enterprise: Bringing the Data Together <b>I</b> Room S401D	F35: <b>NEW!</b> Automation Application Strategies for Product Mix <b>B</b> Room S401D
FORMING & FABRICATING	F16: Press Brake Safeguarding: Changes to ANSI B11.3 <b>I</b> Room S402BC	F26: Tooling Solutions for Metal Fabricators <b>I</b> Room S402BC	F36: Maximizing Your Roll Forming Operation <b>B</b> Room S402BC
WELDING			
SEMINARS	W10: Bridge Code Clinic • Room N127 .....		8:00 AM – 12:00 PM
	W11: API 1104 Code Clinic • Room N127 .....		1:00 PM – 5:00 PM
	W12: D1.1 - Code Clinic • Room N129 .....		8:30 AM – 4:30 PM
	W13: The Why and How of Welding Procedure Specifications <b>B</b> • Room N230B .....		8:00 AM – 12:00 PM
	W14: The Why and How of Welding Procedure Specifications <b>A</b> • Room N230B .....		1:00 PM – 5:00 PM
W15: The Why and How of Welding Procedure Specifications <b>B</b> and <b>A</b> • Room N230B .....		8:00 AM – 5:00 PM	
PROFESSIONAL PROGRAM	W30: Session 1: Recent Progresses in Overlay and Cladding • Room N138 .....		2:00 PM – 5:30 PM
	Session 2: Additive Manufacturing and Laser Welding • Room N139 .....		2:00 PM – 5:30 PM
	Session 3: Advanced Alloys and Dissimilar Joining (Professor John C. Lippold Symposium) • Room N140 .....		2:00 PM – 5:30 PM
EDUCATIONAL SESSIONS	W36: National Center for Welding Education and Training, Weld-Ed • Room N137 .....		9:00 PM – 3:30 PM
SPECIAL PROGRAMS	W38: AWS Prayer Breakfast • Room N227B .....		7:00 AM – 8:30 AM
	Robotic Arc Welding Competition – Day 1 .....		10:00 AM – 6:00 PM
	AWS Professional Welders Competition – Day 1 .....		10:00 AM – 6:00 PM
	Welding Wars Competition – Day 1 .....		10:00 AM – 6:00 PM
	Thermal Spray Wire Arc Demonstration (Hourly) – Day 1 .....		10:00 AM – 6:00 PM

AWS Headquarters, Room N229

FABTECH Headquarters (FMA, SME, PMA, CCAI), Room S402A

## Don't Miss The Special Events Scheduled for FABTECH 2015

### MONDAY, NOVEMBER 9

**9:00 – 10:00 AM** **Keynote Presentation:** Running a Winning Organization  
LOCATION: Grand Ballroom

**12:30 – 1:30 PM** **Featured Panel Session:** What Additive Manufacturing/3-D Printing Means for the Metal Fabrication Industry, FABTECH Theater | LOCATION: FABTECH Theater, Grand Concourse

Media Sponsor: **AMazing**  
additivemanufacturing.com

### TUESDAY, NOVEMBER 10

**12:30 – 1:30 PM** **Featured Panel Session:** Enterprise Security Risks: Is Your Company Protected?  
LOCATION: FABTECH Theater, Grand Concourse

**5:30 – 7:30 PM** **FABTECH Industry Night**  
LOCATION: Lucky Strike, Downtown Chicago  
Advance Ticket Price: \$50  
Special Appearance by Jeanette Lee, famous "Black Widow" Professional Pool Player



### WEDNESDAY, NOVEMBER 11

**7:30 – 10:30 AM** **Women of FABTECH Breakfast with Tech Tour**  
LOCATION: Grand Concourse Lobby

**8:30 – 9:30 AM** **Keynote Presentation:** Innovation in the Future of Work in Advanced Manufacturing  
LOCATION: FABTECH Theater, Grand Concourse

**12:30 – 1:30 PM** **Featured Panel Session:** State of the Industry Executive Outlook: Advanced Manufacturing  
LOCATION: FABTECH Theater, Grand Concourse



### MONDAY, NOVEMBER 9 - WEDNESDAY, NOVEMBER 11

**Professional Welding Competition:** Competition runs during show hours Nov. 9-10, Winners announced on Nov. 11 at 11:00 AM  
LOCATION: Hall C1, Booth C1844

**Robotic Welding Competition:** Competition runs during show hours Nov. 9-11  
LOCATION: Hall C1, Booth C1835

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ESAB welding and cutting products and system solutions set new standards for productivity, reliability, durability, portability, and flexibility. With one of the most diverse offerings in the industry, ESAB can address any welding and cutting requirement. At FABTECH booth N6074, ESAB showcases a broad scope of products and solutions – all designed to improve performance and lower the cost of operation.

### New Game-changing Multi-process Welder

The Rebel™ EMP 215ic is a welding system that offers true multi-process arc performance, 120V/230V primary input power flexibility, lightweight portability, a groundbreaking operator interface and exclusive sMIG (“smart MIG”) technology that learns and adapts to the operator’s technique. Rebel’s breakthrough design was inspired by professional welders and combines versatility, performance and ease of use in the best go-anywhere, weld-anything machine on the market today. Dare to rebel – experience Rebel at FABTECH!

### New WeldCloud™ Data Management Platform Allows Continuous Improvement

The WeldCloud software platform captures and analyzes data so users can maximize asset utilization, improve documentation and QA processes, and monitor and drive machine/operator productivity. Secure, robust and scalable, WeldCloud operates within a user’s firewalls, automatically transmitting and storing data from power sources via Wi-Fi or cellular network. WeldCloud can be customized to fit application needs and integrates with ESAB’s DataLeap solution for end-to-end traceability from cutting to welding. See WeldCloud in action at FABTECH.

### Complete, High Productivity Automated Welding Systems

ESAB welding automation solutions put high quality, high capacity, and much higher productivity within reach. At FABTECH, see a complete state-of-the-arc robotic cell featuring the new Aristo® power source combined with ESAB’s unique tandem Swift Arc Transfer (SAT™) MIG welding process for travel speeds well beyond the limits of normal spray arc welding. Also on display, an automated Column & Boom system featuring the innovative ICE™ process for SAW. ICE exploits the excess heat from the Twin SAW process to melt an additional non-powered welding electrode, doubling the productivity of most SAW applications.

### Manual Plasma Cutters Offer True Performance, True Cut Capacity

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ESAB has a cutting automation solution for every process: plasma, oxy-fuel, waterjet and laser cutting. The Crossbow is the perfect entry point into automated plasma or oxy-fuel cutting, featuring a fully-integrated CNC in a compact, portable system. SGX is a plasma/oxy-fuel system designed for performance, speed and accuracy and engineered for easy operation. Experience these systems and Columbus® CAD/CAM programming/nesting software and advanced DataLeap production management software at FABTECH.

### Premium-quality Filler Metals Optimize Performance

ESAB continues to set the standard in filler metals with premium-quality wires and rods for everyday welding, as well as solutions that increase productivity, meet stringent code requirements and deliver specialized properties for specific applications. Learn how ESAB filler metals can help increase productivity, lower total cost of ownership and improve the welding experience. On display at FABTECH, new Stoody® nickel-based tungsten carbide hardfacing wires, new Stoody all-position CO<sub>2</sub> Flux-Cored nickel super alloy wire, and more.

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REBEL™

# ESAB Challenges the Status Quo with New Multi-process Welder



## The Rebel™ welding machine makes its debut at FABTECH

With exclusive features like sMIG ("smart MIG"), true multi-process, continuous 120-230V input voltage, and user-friendly display, the Rebel™ family of inverters is challenging the status quo. The Rebel EMP 215ic gives professional welders the power to tackle any job in the shop or out in the field. Strike an arc, and you'll understand why Rebel sets the new standard for light-industrial welders.

Experience the Rebel at FABTECH booth N6074 and discover the truth about this game-changing machine:

### True Multi-process Arc Performance

Rebel users enjoy best-of-class MIG, Flux-Cored, Stick and Lift TIG welding arcs — including 6010 Stick electrodes on 120V primary, TIG welding down to 5 amps and aluminum welding with a spoolgun. The Rebel family includes Rebel EMP 215ic providing full-featured, true multi-process performance for MIG, sMIG ("smart MIG"), Flux-Cored, Stick and Lift TIG welding; Rebel EMS 215ic for full-featured MIG, sMIG ("smart MIG"), Flux-Cored and Stick welding; Rebel EM 215ic dedicated to MIG, sMIG ("smart MIG"), and Flux-Cored welding.

### Exclusive sMIG ("smart MIG") Technology

The Rebel makes MIG welding easier with its innovative sMIG ("smart MIG") technology. sMIG ("smart MIG") has an exclusive, built-in algorithm that monitors a welder's technique and continually adapts to provide a stable arc and superior, repeatable welds.

### Dual Voltage Versatility

The Rebel automatically connects to 120V/230V single-phase input power for welding mild steel, stainless steel, and aluminum. The machine can also work off a generator.

### Intuitive Display Technology

A 4.3-inch LCD/TFT color display is intuitive, easy to use, and protected by front handles and a hefty composite bezel. The display allows welders to easily switch from one process to the next, as well as access sMIG ("smart MIG"), the user manual, spare parts listings, and many advanced welding features – all in multiple languages.

### Ready to Go Anywhere

The 40-pound Rebel goes where welders go. Its five-handle roll cage and unibody steel construction makes Rebel tough enough to face any job – in the shop or out in the field.

### Complete Welding Package with Industry-leading Accessories

The Rebel comes ready-to-weld with a professional-grade Tweco® Fusion™ MIG gun, an electrode holder, a TIG torch, and a Victor® gas regulator. Plus, all the welding accessories needed to get started are included.

### Enter to Win a Rebel

To enter to win a Rebel machine before you can buy one, go to [esab.com/truth](http://esab.com/truth). ■

Experience the Rebel first hand at booth N6074 or visit [esab.com](http://esab.com) for more information.

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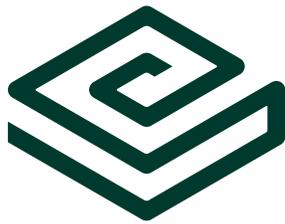


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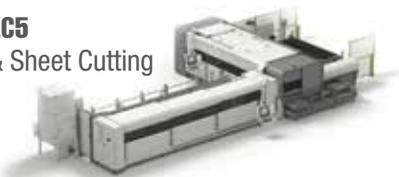
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**Flexible. Productive. Versatile.** From laser tube cutting and tube bending to wire bending, end machining, and cold sawing, BLM is your partner for a wide range of tube processing equipment. And now with the introduction of the LC5, your partner for flat sheet laser cutting. It's equipment that eliminates the need for secondary operations such as punching, drilling, coping and deburring. All giving you the edge in lean manufacturing. Looking to get lean? Look to BLM.

**LC5**  
Laser Tube & Sheet Cutting



**BC80**  
End Machining Center



**E-TURN52**  
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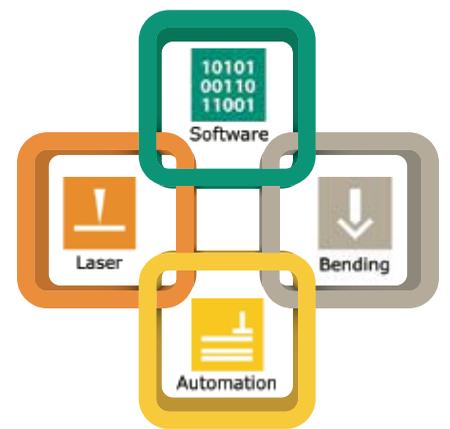
# The Fibernomics Advantage in Sheet Metal Fabrication

Fibernomics is an all-encompassing economic principle and the key to a competitive advantage in today's sheet metal fabricating environment. It is no longer about 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 business solution.

As with most economic principles, there is a basic premise, or formula, that defines the principle:

## FIBERNOMICS



**Lower Operating Costs +  
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### Satisfying the Pull Demand

The pull demand of Fibernomics begins at the front-end where business software systems process orders into bills of materials and job routings, as well as programming systems that provide programs for the fiber laser. All of these systems need to keep up with increased throughput and capacity created by the fiber laser.

Yet the "pull" demand on the front-end does not end with a finished cutting program. The raw material must be ready without delays in presenting it to the laser for processing. Once the laser begins processing the jobs, the consistency of the cut material unloading and raw material loading cycle times becomes critical. Completing the unload/load cycles in the time while the machine is still processing the current sheet is critical to maintaining the advantages gained from high-speed Fiber laser processing.



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## THE FABRINOMICS ADVANTAGE IN SHEET METAL FABRICATION

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### Satisfying the Push Demand

The “push” demand is created by the Fiber laser as it produces up to four times more parts than a conventional CO2 laser, depending on power levels, directly impacting press brake and other downstream capacities. At this point it does not make sense to have stacks of cut parts at the press brake and not have the capacity or the throughput capabilities to take advantage of the increased productivity from the fiber laser. For this reason the “push” demand demands equal attention as does the “pull” demand. Utilizing high-speed press brakes that can produce up to 65% more bends per hour compared with non-high-speed brakes will certainly help keep the pace. Most of the non-productive time in bending can be found during the setup process. Eliminating non-productive time and utilizing the latest press brake technologies plays a major role in increasing productivity and creating additional capacity.

### Economic Advantage

Fibernomics isn't just the economic advantage of owning a Fiber laser cutting machine, but the overall economic advantage that is created when all of the pull and push demands are satisfied to meet the production capabilities of the Fiber laser as well. Reducing the time from the order to the cut part, reducing material utilization costs and reducing processing times are key to the economic principle of Fibernomics. Visit Bystronic at Booth S919 to see the latest in cutting, bending, automation, and software product introductions and experience the Fibernomics advantage. ■

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# The 'Internet of Things' and its Potential Impact on Manufacturing

continued from page 1

“So IoT is not only transforming the way that manufacturers think about their products and their services but in many cases it is actually transforming their business models and the way that they ‘go to market,’” she asserted.

“This is where connected products and IoT really come into play,” she said. “In some cases manufacturers are selling ‘outcome based services,’ where they are charging for things like power by the hour or the use of an engine or forklift; versus selling the forklift and then selling maintenance and support for that.”

“Basically we’re on something of a ‘precipice,’ with all of the technologies – social, mobile, Cloud and big data analytics, as well as what we at IDC call ‘innovative accelerators,’ like IoT, cognitive computing, robotics, and augmented reality – coming together and pushing toward the notion that we can actually change the way that products and their customers interact with each other and the types of services that manufacturers provide,” she claimed.

Ashton pointed to the significant role that the Cloud plays in this process, equating it to

connectivity – “connectivity of products; connectivity of suppliers; and connectivity of ecosystem players.”

“Think of an automotive OEM connecting to their suppliers but also connecting to the dealerships and then connecting to the end customer or the consumer,” she said, “or, if I’m John Deere, the ability to be able to connect or link with my suppliers upstream and also downstream to my dealer network, many of whom are independent dealers.”

“What is really important is that at the same time we are all talking about IoT we are really talking about digital transformation for manufacturers,” she continued. “And by that we mean taking all of the existing business processes – everything from purchasing to supply chain management to ordering to sales to support – and digitizing them. That means taking some of those technologies that I mentioned – social, mobile, Cloud, analytics – and applying them to these business processes and bringing them forward through modernization.”

Much of that modernization involves Enterprise Resource Planning (ERP) business management software.

“Specifically, if you think about manufacturing companies, there is a system of record. And in most cases the systems of record are ERP,” Ashton explained. “So all of the information housed in those ERPs is critical to the business. It’s about the customer. It’s about the product. It’s about parts. And it’s about suppliers and partners.”

“So there is a move towards modernization of the ERP platforms – those systems of record – while at the same time we are considering how we can make parts of the data in those ERP systems accessible, via the Cloud, to our partners or our customers as needed in specific areas. For example, if I have a product in the field, and I have put some type of connectivity or sensors on it, I am tracking that product and I actually

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## THE 'INTERNET OF THINGS' AND ITS POTENTIAL IMPACT ON MANUFACTURING

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know what the product is; what its specific configuration was when it left the factory; or what parts were used to fix it. Then I can do some things like predictive maintenance, and when it looks like I'm capturing certain fault patterns indicating this piece of equipment is about to go out of service, creating downtime, now I can get ahead of that with a service call and a technician with the right parts delivered on site when the technician visits," she said.

"Again, much of that requires pulling the information from existing ERP systems and then surfacing it

in a way that field service technicians, dispatchers, and call center employees can make use of it," she observed. "So the notion of Cloud is fundamental. But also increasingly we are seeing situations where Cloud ERP and parts if not all of these ERP systems are becoming advantageous – because they increase the agility of the manufacturer to be able to respond to market opportunities and market pressures."

One of many examples here at FABTECH is being presented by KeyedIn Manufacturing, a Cloud ERP software provider.

Company representatives note that the point of leveraging the IoT is to gain manufacturing efficiency and accuracy using automated data to perform predictive analysis that enables better decisions across departments, functions, and geographies.

However, they quickly point to challenges stemming from the fact that some existing ERP software may not have the computing power necessary to leverage the volumes of data collected.

To address these challenges, they are highlighting new Cloud ERP solutions that utilize the significant computing power only available in the Cloud to support the IoT.

"To achieve the twin benefits of productivity and profitability, look for natively written Cloud solutions that leverage the capabilities of well-architected and flexible web services, enabling systems interoperability, said Lauri Klaus, CEO of KeyedIn Manufacturing. "This unlocks the powerful combination of ERP and the IoT by enabling data sharing, computing and analysis in real time."

### And the benefits of IoT are not just for big companies.

"The Cloud has become 'the great equalizer,'" observed Dave Lechleitner, product marketing principal for Exact Online. "Where we see the Internet of Things today is typically with the Tier 1 and Tier 2 manufacturers, but as that technology grows and expands, the natural inclination is that it will reach downstream and allow small and mid-sized manufacturers to take advantage of it."

Emphasizing his own company's commitment to the emerging technologies cited, he added, "We can enable even the very small manufacturer to take advantage of IoT. There is a lot of hype out there, in many different technology areas. So the role that we see ourselves playing at tradeshows like FABTECH is being that 'thought leader,' hopefully in front of the curve, helping the manufacturer sift through the information and presenting them very practical ways that they can take advantage of this new and emerging technology."

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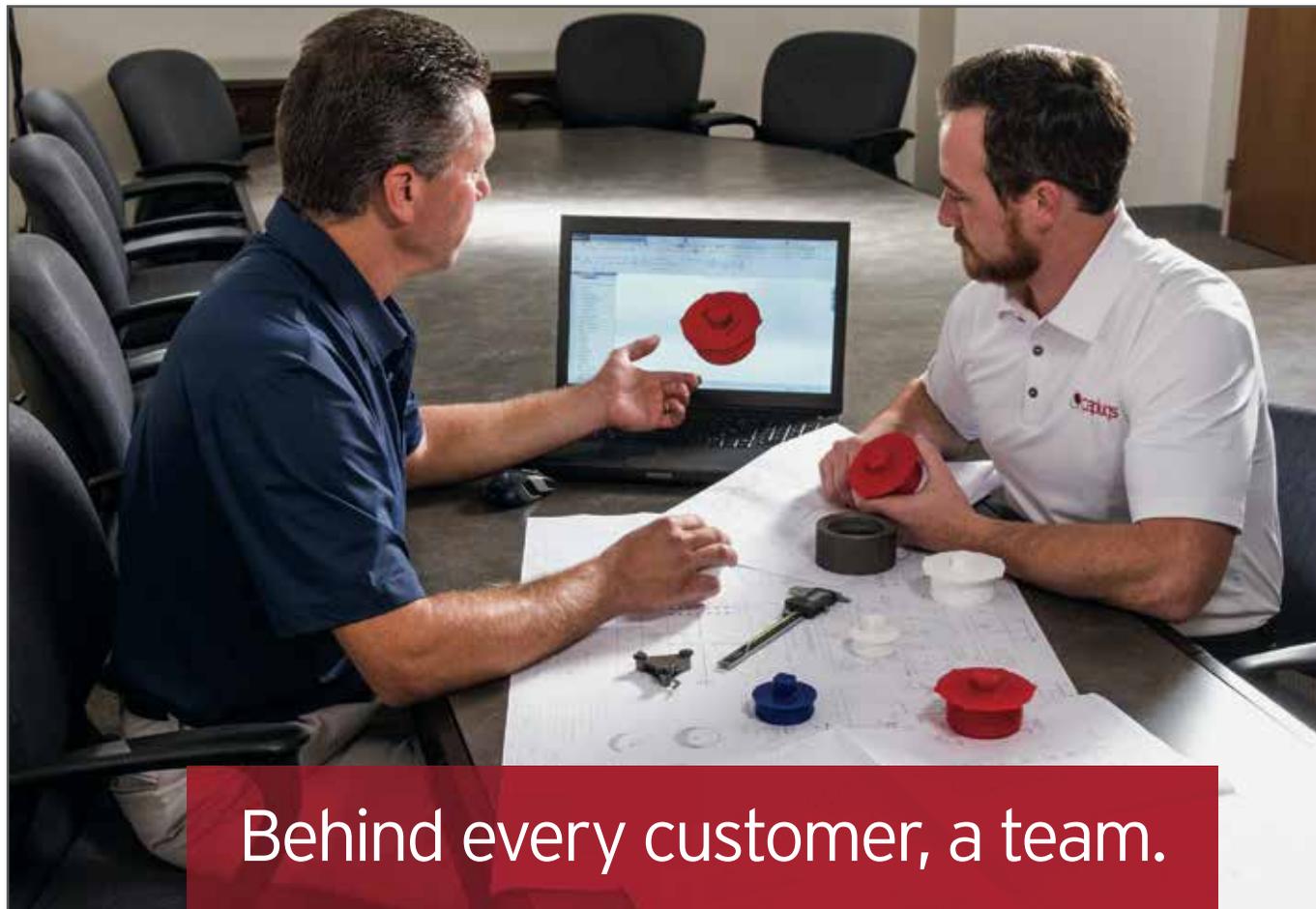
**W**orkshops for Warriors is a 501(c)(3) nonprofit that trains, certifies and places veterans and wounded warriors into advanced manufacturing careers. Please stop by booth S518, sponsored by Amada America, Inc., to meet Hernán Luis y Prado, founder and president, as well as veterans who have been through this program and faculty members from the welding school.

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## THE 'INTERNET OF THINGS' AND ITS POTENTIAL IMPACT ON MANUFACTURING

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Asked about her own message for FABTECH attendees, Ashton emphasized that the IoT is here to stay.

“It will transform the way manufacturers conduct business,” she said. “And the key for them is to identify the areas within their organization and their business processes that most can benefit from IoT. Is it in 3D printing of parts? Is it in putting trackability and traceability into the supply chain? Is it in after market services and being able to offer value added services for which they can charge more and monetize? The key thing to think about is how we can best leverage this technology for our specific use case and our specific business.”

“Ultimately – and this is the number one message with double underlines – with manufacturers today it really is all about the customer,” she concluded. “So identify your customer’s needs; understand what your customer wants and what they are willing to pay for; and then go and use the technology to deliver it.” ■

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# Going Off-Script to Build Loyalty

When employees share a purpose and connect with one another, culture benefits



Rutland Walker

*Why do employees leave for a few cents more an hour? It goes back to culture—but what is culture, really? Rutland Walker of Atlanta-based The Academy of Marketing gives a relatively concrete explanation. It's about connecting with employees with a shared purpose or belief.*

When Rutland Walker spoke to welders at a Louisiana shipyard last year, they listened. Why, exactly? Perhaps it's because he went off-script. He didn't pontificate about employee engagement, loyalty, communicating better ideas, taking ownership over one's work, having initiative, being an enthusiastic self-starter, collaborating—those hollow buzz phrases that populate

the script of corporate culture. He instead asked a simple question: "Why do you come to work?"

Walker's Atlanta-based company, The Academy of Marketing ([www.theacademyofmarketing.com](http://www.theacademyofmarketing.com)), specializes in communications in the skilled trades, including the building trades as well as manufacturing, although "communications" is a vague term. Walker really is about building connections in business between salespeople and clients and prospects; between supervisors, managers, and front-line employees; and between hiring managers and prospective talent. It all really boils down to what Walker asked those shipyard welders last year: Why do you come to work?

To build that connection, people need to relate to each other — not just understand what each person does, but also understand why. Money is a big reason, but if it's just about money, there's a problem, particularly in manufacturing. If money is all that matters, there are easier ways to make a living. Ideally, the real reason goes back to a purpose, something more than just the company's bottom line. "A connection strategy is building a business around a purpose that's higher than just getting the work done," Walker said.

Walker conceded that many in the skilled trades shy away from talk of connecting with people and uncovering a higher purpose, those "touchy feely" aspects of human psychology. Both engineering and the skilled trades involve people working on building tangible products. There's always more than one way to manufacture a

mousetrap, but the mousetrap is still a mousetrap. It's something concrete. But connecting with people doesn't mean managers need to turn into a psychoanalyst.

Instead, they just need to tell stories about what's important in their lives with honesty, earnestness, and humility. Those stories reveal the "why."

"In many markets, there is such a shortage of people who can do the work," Walker said, "that manufacturers and contractors get shortsighted. So anybody who can turn a wrench gets hired, because they have a work flow that they've got to manage. And that's problematic, because people are a reflection of your brand. And if they don't get along with the staff, or if they don't feel connected to the business itself, it won't work out in the long term, and you're going to have to replace that person."

This is where building what Walker calls a "connection strategy" comes into play. "This involves building a culture within a company where people feel connected to the company, and they feel like they can make a difference in that company," Walker said. "And that cuts down on turnover and gives them a reason to stay. People leave for money, but it's not the only reason. If they don't feel connected to an organization, then when the next person comes along to pay them 50 cents more an hour, they're gone."

## How do you build that connection?

"First, you have to believe in the principle of attracting people who believe what you believe—and that money is one factor, but it's not the only factor," Walker said. The first step is for company owners or managers to identify the things that are important to them, "so that they can then attract others who believe what they believe. Whatever bait you put on the hook, that's what



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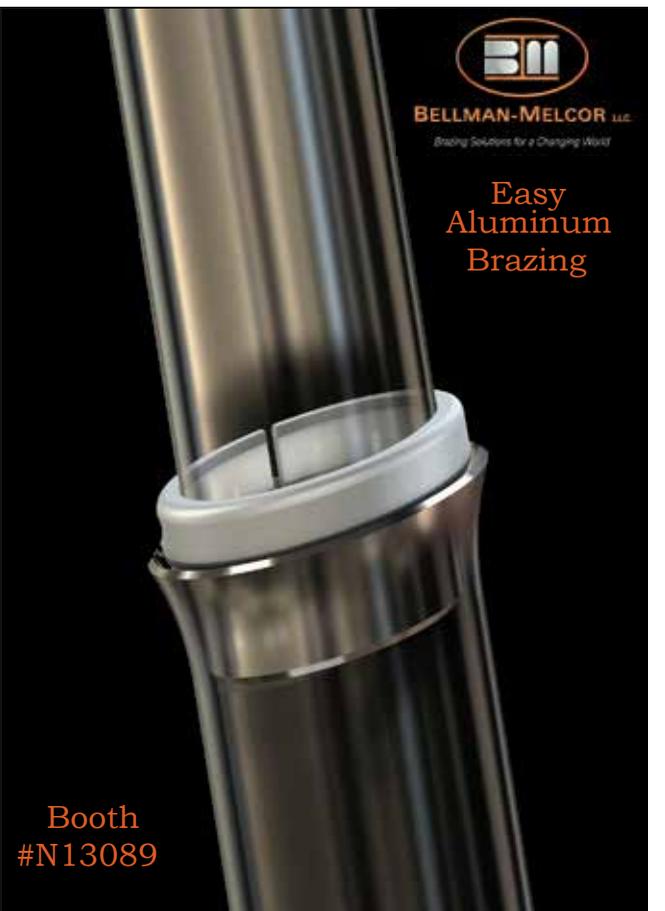
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**GOING OFFSCRIPT TO BUILD LOYALTY** *continued from page 32*

you're attracting." Walker added that a shop can't just communicate a "higher purpose" and expect people to be happy working overly stressful jobs at wages far below market norms. And sure, enough money can draw the most loyal talent away. But if a company has a good company culture, full of purpose that aligns with what's important to workers, no employee should leave for just a few cents more an hour.

"If you don't have good communication, you have fear," Walker said. "When people can communicate better internally, that improves the work environment, which improves the chance that employees will refer other people who believe what the people at the company believe."

Walker added that, yes, manufacturing is cleaner than it once was. "But let's be honest. Some of it can be hot and dirty work. If you don't trust and like the people you work with, and recruit people who can get along with other people and understand the vision that you have — that you're not just a fabrication shop, that you're in it for something more — it makes it easier to get along, people want to work there, and they will want to come to work."

The reason buzzwords — so common in corporate literature, marketing material, and job postings — sound so empty and lifeless is that they aren't rooted in a story that implies a person's beliefs.

"These stories have very little to do with the actual work," Walker said, "and much more to do with what's important in that employee's life." This may include the importance of family, community, of serving others. "If we can tell the story from the employee's perspective, that story resonates with other people who might be attracted to that business."

Walker added that the best narratives reveal human vulnerabilities, especially during job interviews. "If it's all about checking their resume, you're on-script. 'Where do you see yourself in five years?' Who really knows the answer to that? You have to get everyone off-script so you can get to the vulnerability part of the human relationship. It won't happen if you use those scripted questions."

When a company tells these stories and communicates its purpose, managers can identify with people who share it, and this includes both current employees and, especially, potential hires. "Doing this, you don't recruit for a job," Walker said. "You recruit for culture." ■



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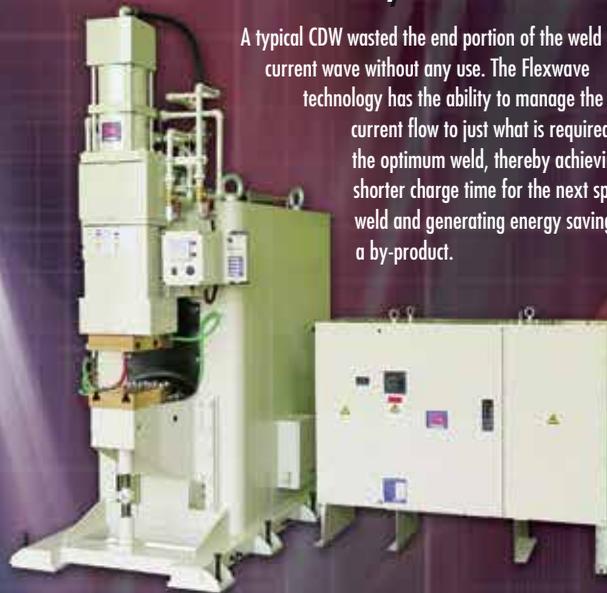
The feature of CDW that provides less thermal distortion with its large current in a shorter weld time is combined with the stability of MFC supported by its constant current feedback.

### Makes It Easy To Set Weld Parameters

While the weld current for CDW is configured by increasing or decreasing the charging voltage, which makes it more difficult for operators to understand the welding parameter setting, the Flexwave allows direct configuration of weld current values.

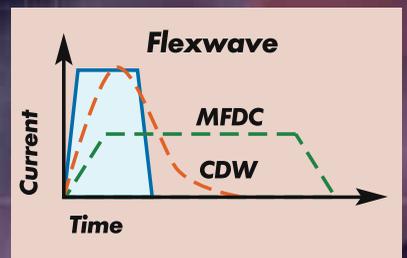
### Provides Energy Savings And Shortens Cycle Times

A typical CDW wasted the end portion of the weld current wave without any use. The Flexwave technology has the ability to manage the current flow to just what is required for the optimum weld, thereby achieving a shorter charge time for the next spot weld and generating energy savings as a by-product.



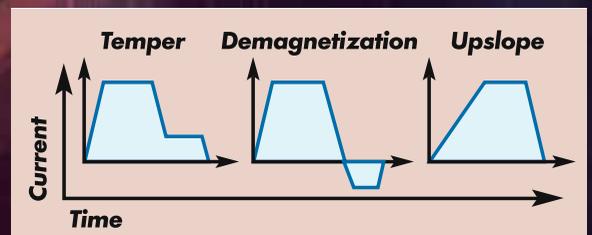
### Optimizes Weld Nugget Quality

As for weldability, a large current in a shorter weld time allows welding with less thermal distortion or indentation, even for materials such as aluminum that have high thermal conductivity as well as a thermal diffusion tendency. Additionally, the constant current feedback of the MFC function provides stable welding without fluctuations of weld current. This even includes the conditions of projection welding, which tends to display load variations because of protrusion changes, or even for high tensile materials, which tends to cause fit-up gaps because of its hardness. As another benefit, the capacitor is always fully charged, providing the fastest current start-up required by projection welding every time.



### Maximizes Waveform Flexibility

Waveform of current can be freely programmed in polarity at every 1 ms, allowing necessary welding parameter settings such as tempering, demagnetization, upslope, etc. Also, if the controller unit of your single-phase AC welder is replaced with the controller unit of Flexwave, it can be used as a Flexwave welder as well.



Flexwave series includes N1CP-050, N1CP-100, and N1CP-150 with the maximum weld current of 50,000, 100,000, and 150,000 amps respectively.



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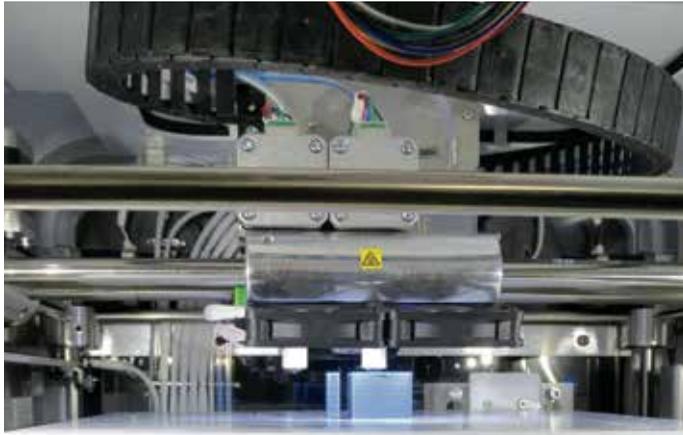
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# Quality springs forward with 3-D printing

## Spring-maker/stamper uses additive manufacturing to improve quality assurance



Newcomb Spring Corp. makes its quality assurance more efficient by upgrading its inspection equipment and investing in 3-D printing. The company's move shows how advanced inspection and additive manufacturing work together.

The thinking goes that our grandchildren will look back at the early 2000s as a quaint time when companies actually made things by cutting and shaping them out of larger elements, be it by machining a rough casting or cutting a blank out of a larger piece of sheet metal. Why go through the trouble? Why not build up the part, layer by layer?

Additive manufacturing is making its mark in the machining world. Hybrid systems now allow machinists to mill or turn a component — a subtractive process — then build up certain areas via an additive process. In sheet metal forming and fabricating, additive manufacturing has piqued interest, but it still takes time for an additive process to build up a component

layer by layer, while a stamping press still can blank and form a sheet metal part in a matter of seconds.

So why exactly has Newcomb Spring Corp., a 400-employee spring-maker and stamper with nine locations in North America, embraced additive manufacturing? Don Jacobson III, technical salesperson at Newcomb's Ooltewah facility, outside Chattanooga, Tenn., pointed to a small sheet metal part that was stamped on a four-slide machine. Its odd shape prevented it from lying flat, which meant that the quality department had to build a fixture to measure it.

Today an engineer designs a fixture in CAD and exports it to the 3-D printer in the next room. In short order he has a fixture capable of holding the small component at the correct orientation for the quality department. It boils down to saving time, and 3-D printing saves plenty of it, not for the actual stamping or spring-making, but the steps that support those core manufacturing processes.

Newcomb Spring has grown not by offering millions of a certain spring or stamping; that commodity work has moved overseas. It instead has specialized in lower-volume work, measured in thousands instead of millions of parts a year, and much of it requires a lot of upfront design and prototyping. Customers range from small start-up companies to major players in power generation, automotive, aerospace, lawn equipment, and other sectors.

Maintaining a competitive edge has required continual scrutiny to increase efficiency and quality. The company designs proprietary spring-making machinery to

eliminate or reduce the number of secondary operations and ensure quality. Such machinery has streamlined production significantly, but until six years ago, inefficiencies remained in a small but critical department: quality assurance.

Quality Engineer Daniel Lewis walked toward what looked like a small refrigerator, only it wasn't a fridge. It was a 3-D printer, a CubePro® Duo made by 3D Systems of Rock Hill, S.C. As its name implies, the printer can deposit two different materials at once, and two different colors. It can process several types of plastic (including polylactic acid, or PLA, and acrylonitrile butadiene styrene, or ABS), as well as nylon. Lewis hit a few buttons to call up a job, and in about 30 minutes the system printed a fixture with a side support and several posts. He inserted the part, which fit neatly inside. (See Figures 1-3).



Figure 1  
This stamped component doesn't lie flat, so it needs a custom fixture to be measured. That's where 3-D printing comes into play.

This in a nutshell is how 3-D printing goes hand in hand with stamping and spring-making at Newcomb. The system prints the fixtures that hold parts so that Newcomb's measuring machines can inspect them efficiently and accurately.

"Traditionally, when inspecting a piece like this, you have to orient it by hand to several different positions," Lewis explained, "which has room for error in and of itself. And when you measure each piece, a lot of time is consumed, which slows down the quality and manufacturing process as a whole. That's not a good thing when you're trying to get parts out the door."

"We didn't know we needed a 3-D printer until we began

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continued on page 37

## QUALITY SPRINGS FORWARD WITH 3D PRINTING

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researching advanced measuring equipment," Jacobson added. "That's where it started."

To inspect parts, quality techs use a system called Instant Measurement, or IM, from Keyence Corp. The system can measure multiple parts at once, as long as they're the same part, and they all fit within the work envelope. The 4- by 8-inch worktable moves under the camera, which can view an area that's about 4 by 4 in. "The base can move and stitch together an image that is 4 by 8 inches," Jacobson said, "and we can stitch together multiple 4-by-8 measurements to check larger parts."



Figure 2  
The component in Figure 2 sits in a 3-D-printed fixture for measurement. Still, one hurdle remains — the fixturing — because the overhead camera needs to be able to see certain features. If a technician can't set a part in a way that presents the features clearly to the overhead camera, he still needed to build a fixture in a hurry.

Enter 3-D printing. Last year the company invested in its 3-D printer, sold and serviced through NovaCopy, which has a branch near Newcomb's Tennessee operations. "We wanted to do work with a local company that had a local representative," Jacobson said. "You can buy these printers through Amazon and Home Depot, but 3-D printing is still a developing industry in general, so it helps to have local customer service."

It can take anywhere between 30 minutes to two and a half hours to build a fixture, depending on the material thickness and density. "Most initial items are run at a lower quality scale and with the highest speed to check the design," Jacobson said. "Once we have a fixture or item we like, we build the item in the highest quality and thickness density."

Some fixtures are quite complex, with multiple supports and posts; others are simple. For instance, to measure its in-service condition, a technician bolts a bracket to a 3-D-printed block with two threaded

holes. Of course, the beauty of 3-D printing is that making a highly complex workpiece isn't cost-prohibitive. The system doesn't care how many posts, supports, crevices, contours, or other complexities a workpiece has.

3-D printing has gotten a lot of hype, though the reality is that it's not set to transform manufacturing overnight. But it can certainly change the game for some elements in metal manufacturing. At Newcomb, that change happened in the quality department. ■

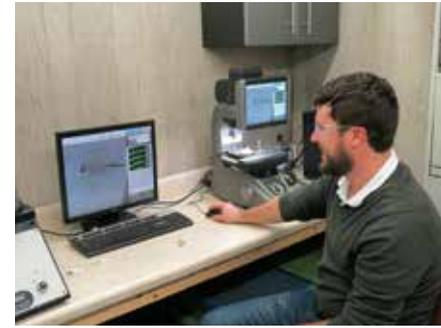
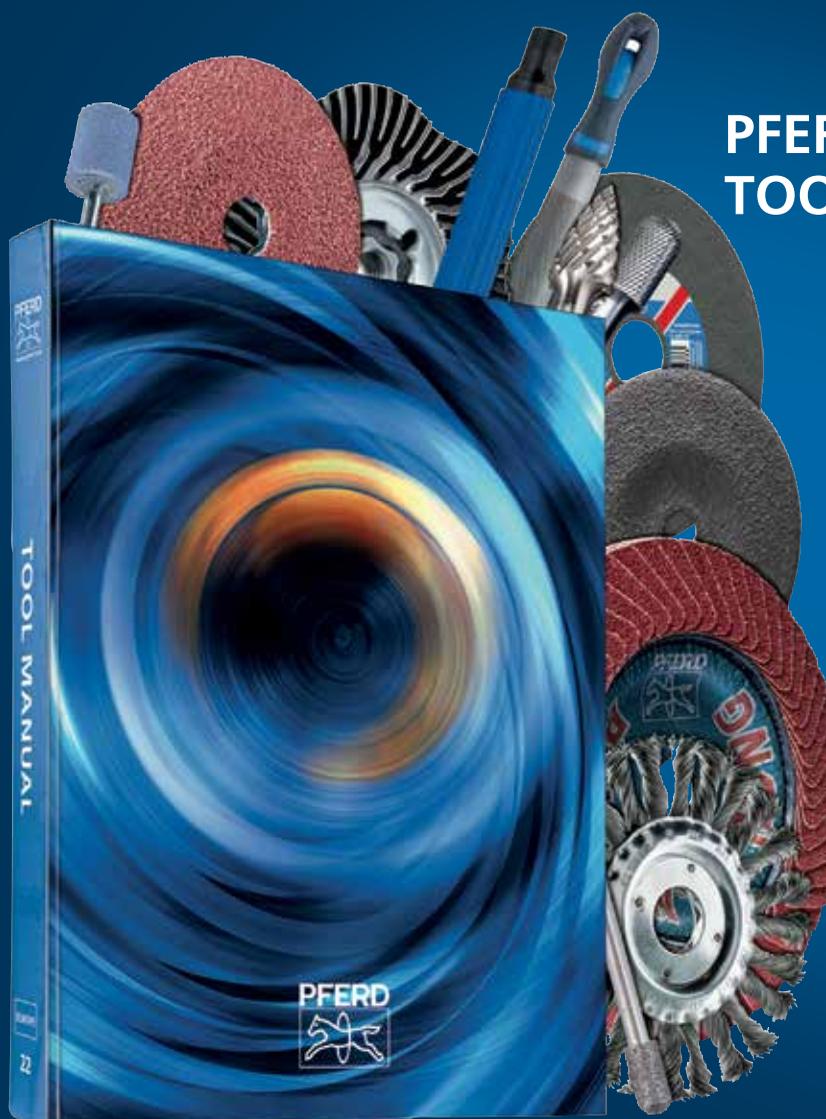


Figure 3  
Quality Engineer Daniel Lewis measures a part using Newcomb's new inspection system.

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# Gema Powder Coating Equipment Technology at FABTECH

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FABTECH attendees can find out more about the OptiSpray AP01, OptiCenter OC04/OC05 and other Gema products by stopping by Booth S5356 or by visiting [www.gemapowdercoating.com](http://www.gemapowdercoating.com).



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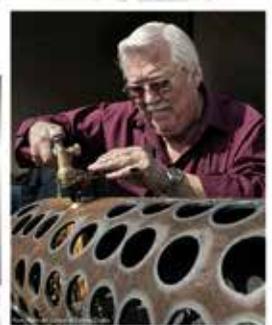


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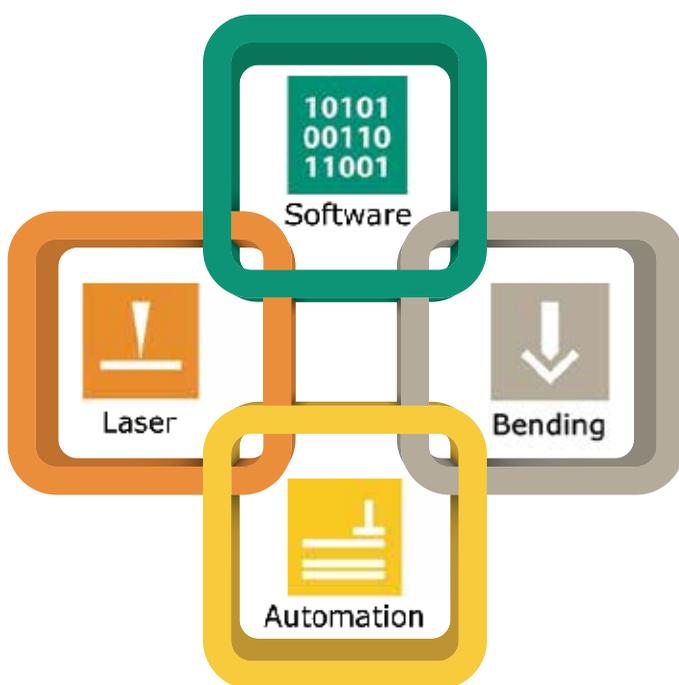
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