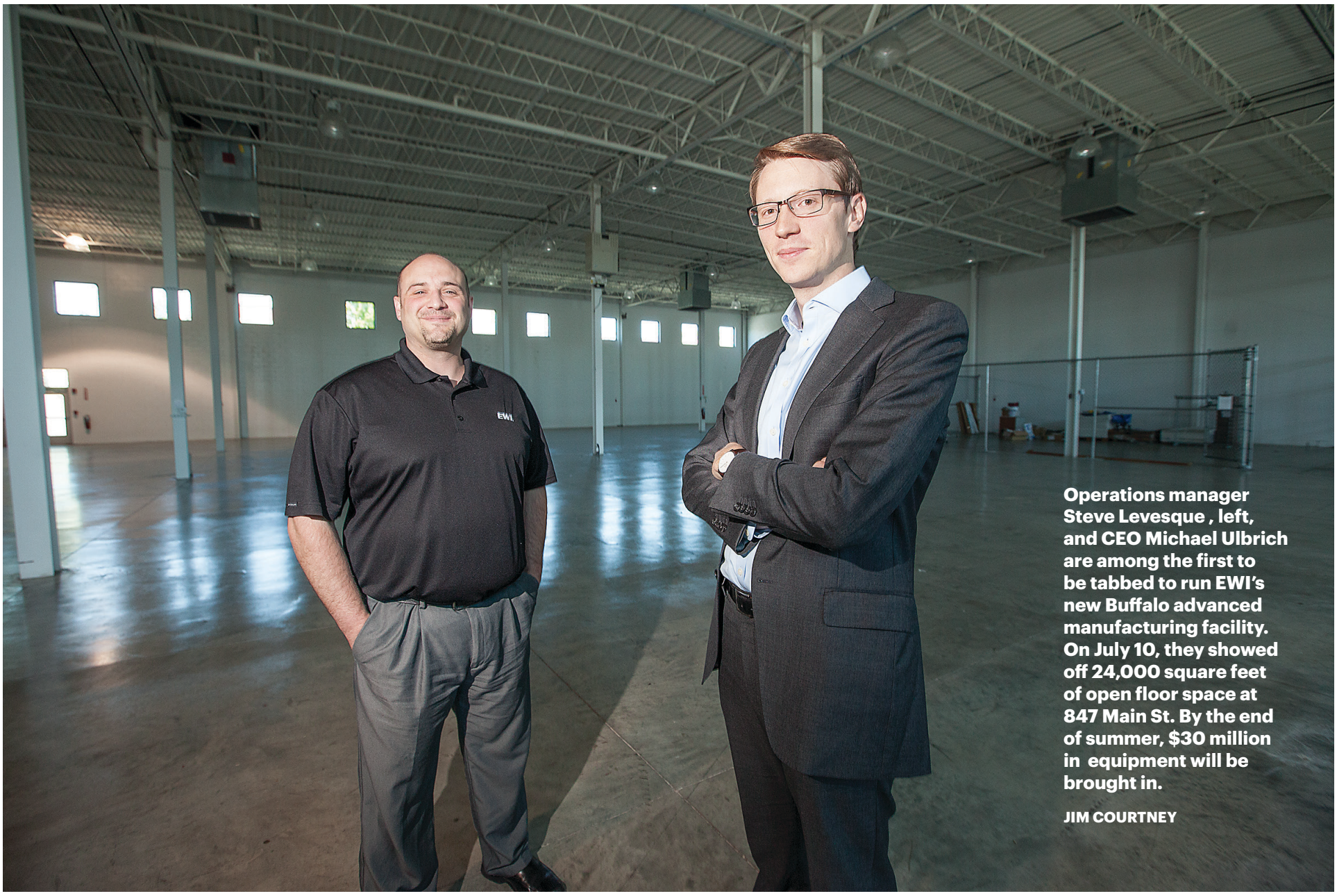
COVER STORY



Operations manager Steve Levesque , left, and CEO Michael Ulbrich are among the first to be tabbed to run EWI's new Buffalo advanced manufacturing facility. On July 10, they showed off 24,000 square feet of open floor space at 847 Main St. By the end of summer, $30 million in equipment will be brought in.

JIM COURTNEY

STARTING FROM ZERO

Buffalo's new advanced manufacturing institute brings investment and hope to a core WNY industry

EWI®

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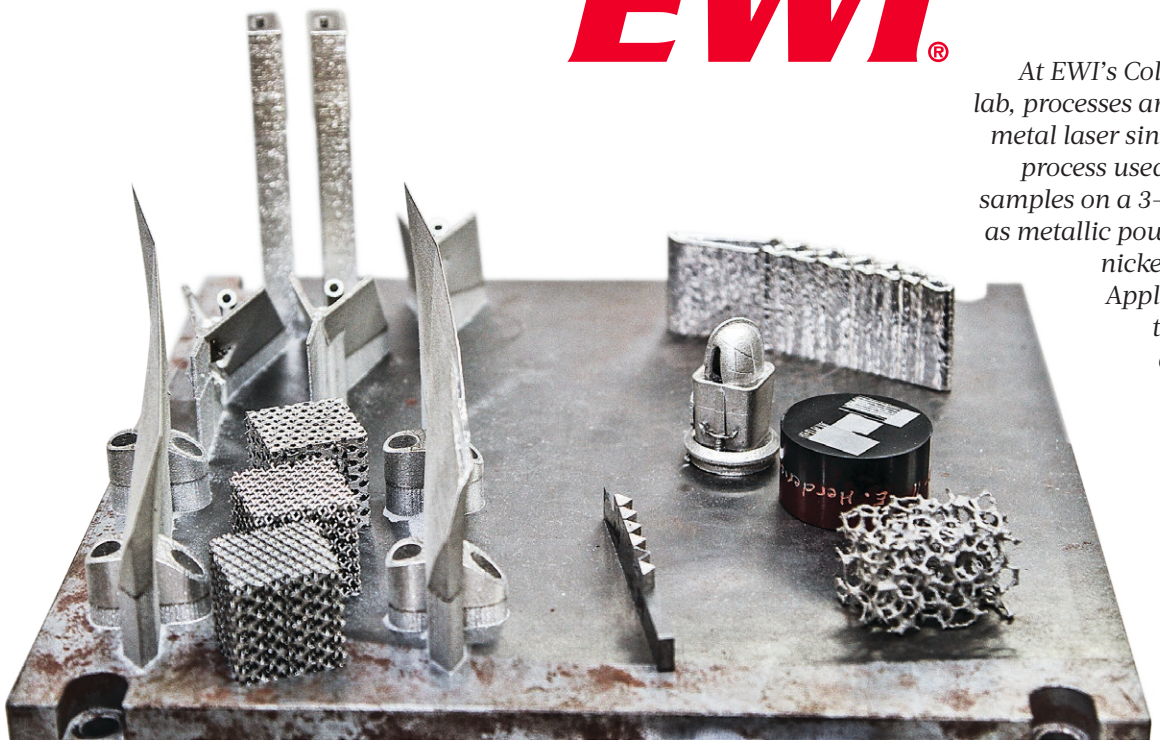
Area manufacturers are getting excited over a whole lot of nothing.

Nothing, as in what occupies the wide-open 24,000 square feet of floor space at EWI New York's facility at 847 Main St. in Buffalo.

Nothing, as in what will be made there even though $30 million in manufacturing equipment will be delivered there this summer.

Nothing, as in the grand total of zero products to be packaged, loaded onto pallets, shrink-wrapped and shipped from there.

That's because the equipment to be delivered, installed and turned on will be used to create giant labs and



At EWI's Columbus laser sintering lab, processes are developed for direct metal laser sintering, a trademarked process used to create these metal samples on a 3-D printer. They began as metallic powders that can include nickel and titanium alloys. Applications created using this technology are for a variety of industries including aerospace, automotive, heavy manufacturing and consumer products.

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▸ WHAT IS APPLIED R&D?

Applied R&D is developing processes and technologies to a mature point for manufacturers to implement them on the shop floor. Regional industry stakeholders were asked to identify manufacturing technology areas that would have the biggest impact. High-priority areas are:

- **Flexible automation and controls:** This helps manufacturers adopt best-in-class automation solutions.
- **Advanced materials and testing:** A set of expertise and services to support the application of advanced, non-metallic materials – including ceramics, polymers and composites - in new ways.
- **Additive manufacturing:** Develop expertise and services in application of innovative manufacturing and functional printing technologies to advanced, non-metallic materials.
- **Advanced fabrication:** Develop capabilities and expertise in the application of emerging materials removal, cutting and finishing technologies using high-power ultrasonic energy, lasers and cryogenics.

represent what area manufacturers consider a milestone. One manufacturing executive called it part of a Buffalo renaissance where the finished products are knowledge and technology that will shape the industry's future.

The impact may not be felt for years, but that doesn't stop industry leaders from talking enthusiastically about what's happening today and what tomorrow will bring.

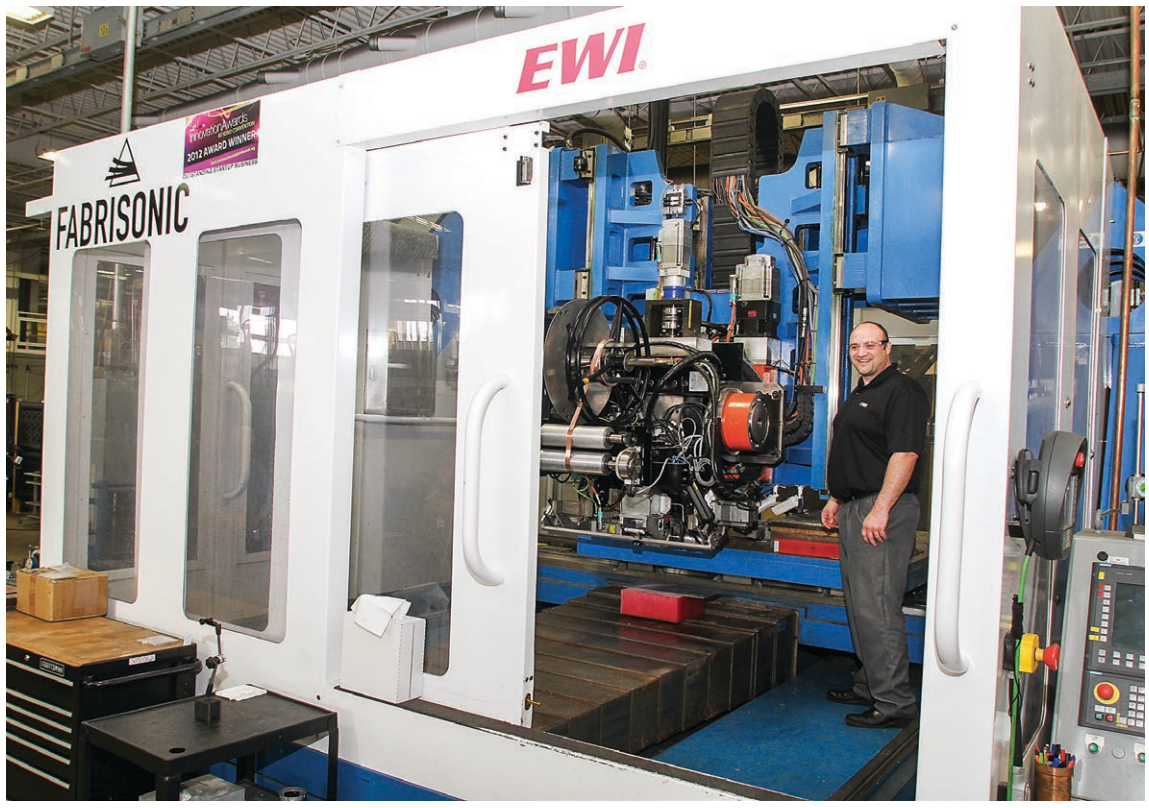
The advanced manufacturing institute, run by EWI New York, a branch of Columbus, Ohio-based EWI, was built to support growth of the Western New York's manufacturing sector. It's part of an initiative within the state's Buffalo Billion economic development plan.

Shortly after that announcement, a Feb. 7, 2013, report by the Western New York Regional Economic Development Council called for the creation of a Buffalo Niagara institute for advanced manufacturing to conduct research and development to spur growth of area manufacturers.

The idea is to assist the region's 1,500 small and medium-sized manufacturers and attract forward-thinking ones. The next steps were taken in January, when the former SmartPill building at 847 Main St. was chosen as a temporary site for the institute and EWI was selected to run it.

Robotics is focus of EWI New York

In Columbus, Ohio, follow the signs for parking for an Ohio State University football game and the roads lead to EWI's front door. The brick building on campus resembles older structures at the University at Buffalo's Amherst campus and has about 132,000 square feet of lab and office space.



At EWI's Columbus site, operations manager Steve Levesque stands inside an ultrasonic additive manufacturing machine, a 3-D printing device that employs an ultrasonic welding process to fasten strips of metal. Bonds are created without melting the materials, which can include titanium, copper, silver, stainless steel and aluminium alloys. The Fabrisonic name on its side belongs to an EWI spin-off that now employs six.

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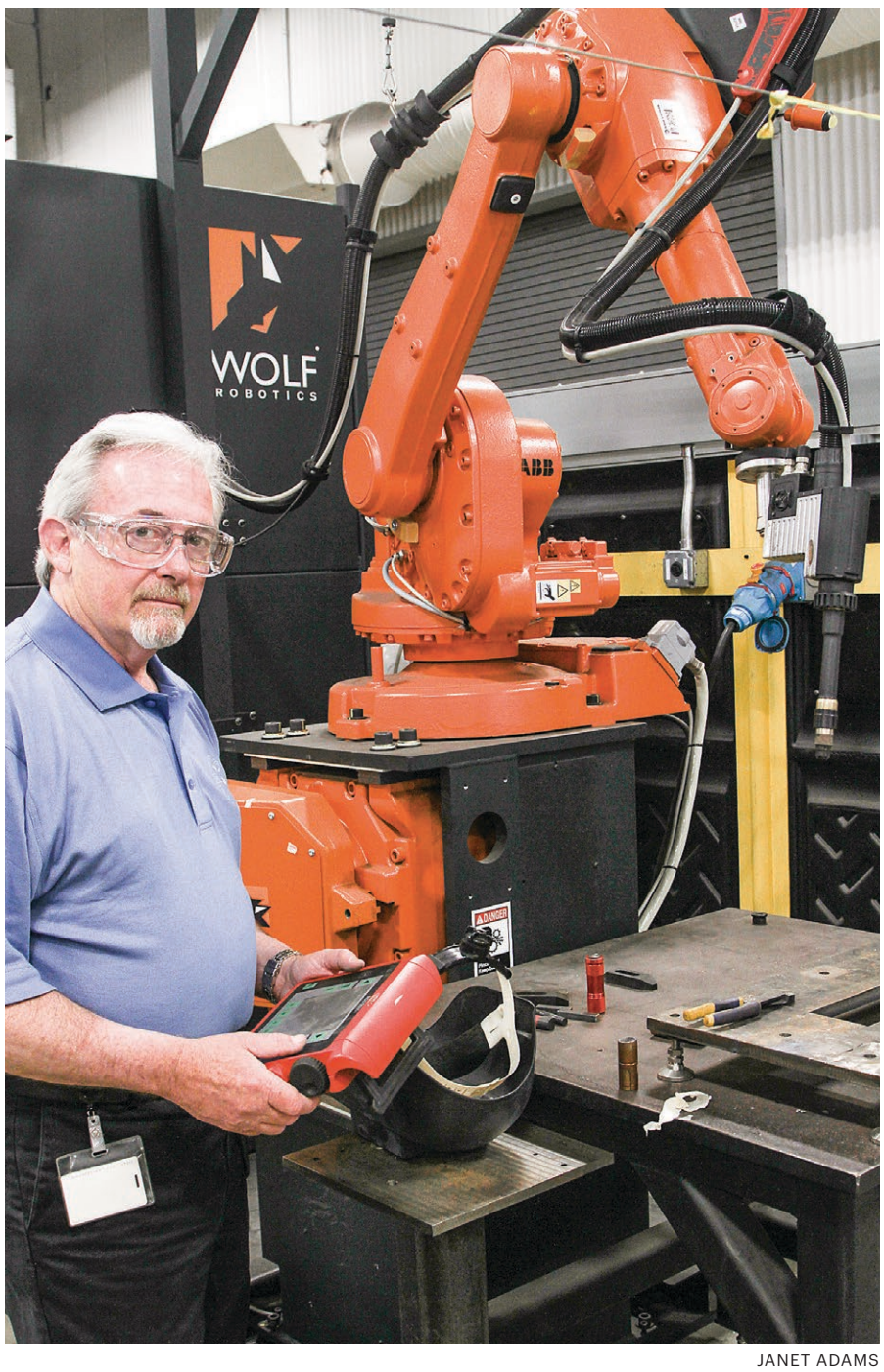

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EWI New York technology leader Ron Brown demonstrates a welding robot that was retrofitted over the years with various EWI technologies to test and develop a range of flexible automation capabilities. Flexible automation, a focus area of the new EWI facility, includes robotic enhancement for functions such as force control, gripping, vision guidance and inspection.

ROBOTIC TECHNOLOGY

While manufacturing robots are programmed to perform certain tasks, EWI retrofits them to add functionality.

In Buffalo, the first new robotic technologies slated to be developed will be to inspect more than 4,000 spot welds used by the automotive industry when building new vehicles.

Typically, an operator uses an ultrasonic wand that looks like a microphone with a cord and presses the tip down onto the joint where two pieces of metal meet. While rotating it, 100 crystals steer sound waves into the joint and data is sent to a portable monitor.

Operations manager Steve Levesque said to automate that with a robot, a company such as PCB Piezotronics Inc. in Williamsville may be contacted to design a new probe, and Applied Sciences Group in Cheektowaga could integrate software. The institute will be built on four areas of applied R&D: flexible automation and controls, advanced materials and testing, additive manufacturing and advanced fabrication.

The University at Buffalo, Insyte Consulting, World Trade Center Buffalo Niagara and Empire State Development also are working with EWI New York to provide support that includes a range of capabilities, including technology and workforce development. Now, as the new facility is prepared, pilot activities are underway through various EWI partnerships.

Among the partnerships that EWI President and CEO Henry Cialone wants in place are those that train the next generation of advanced manufacturing workers, as EWI does not offer those services. Instead EWI will collaborate with a growing number of area training centers, community colleges and tech schools that teach those skills.

"We are not trainers; that's a different skill set than ours," said Cialone, who added that within five years, he expects to have a Buffalo staff of more than 50 who will focus on applied R&D services.

CONTINUED

Inside, machines are running, but the output is new technologies for member companies. Welding robots and 3-D printers are geared toward streamlining processes. Testing involves determining material strengths, examing non-destructive methods and layering metals onto each other.

President and CEO Henry Cialone said the Buffalo and Columbus facilities will focus on different technologies. Then they'll share information to help clients and member companies increase production and reduce cost. They'll market what's learned nationally and internationally.

EWI New York's focus areas, he said, will include flexible automation that can be implemented cost effectively for low-volume, high-mix product cycles.

Flexible automation is programming robots with EWI technology to add function to what they originally were programmed to do. Tasks may include sorting through finished pieces, packing boxes and preparing them for shipping.

Lancaster native Michael Ulbrich started June 23 as CEO of the Buffalo site. Joining him are Steve Levesque, operations manager, and Ron Brown, business development manager. They expect to hire 12 employees there within a year.

Ulbrich, an industrial engineer by training, joins EWI from JP Morgan Chase where he spent the last decade in New York City and London.

"There's a manufacturing renaissance going on across the U.S. and Buffalo is part of that, which was a driver to move back," he said.

Wanted: Member companies that give back to EWI, industry

Chris Sansone, president of the Buffalo Niagara Manufacturing Alliance and project manager for Keller Technology Corp., was on the committee that selected EWI. He said member companies will immediately benefit from EWI's vast library of technical data, accumulated from 30-plus years of research.

EWI engineers can teach member companies how to meet product demand when a facility has little capacity. Companies in similar industries can sign non-compete agreements and use EWI's R&D labs to learn how to streamline processes.

From the Buffalo Niagara Manufacturing Alliance's standpoint, Sansone said, "We need to get the word out and make people aware that it's here and getting started; that they are staffing it and explain the benefits."

Companies pay up to $25,000 for EWI memberships. Original EWI New York members include Praxair Inc., Eastman Machine Co., Sherex Fastening Solutions LLC, Harper International, TAM Ceramics LLC and Pfannenberg Inc.

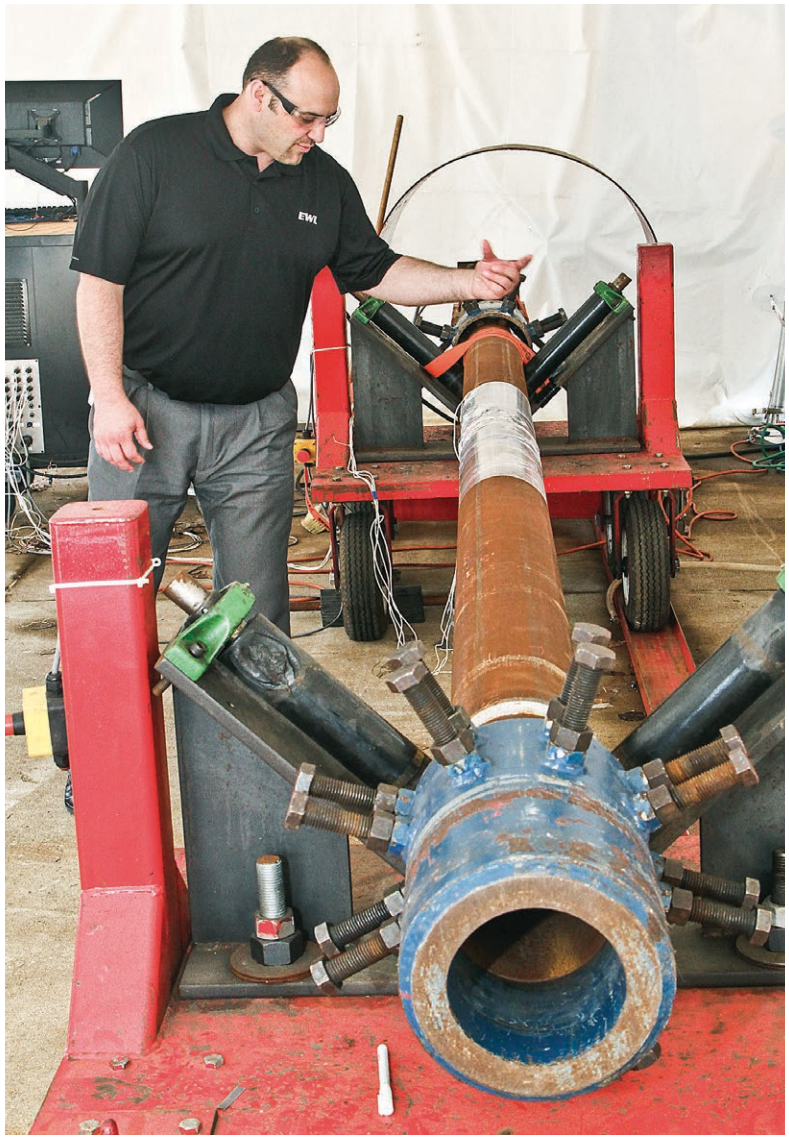
The list includes Clarence-based Jiffy-tite Co., which employs 271 and makes quick-connect fluid couplers and fittings for hybrid and electric vehicle engines.

Jiffy-tite President Michael Rayhill said he looks forward to first quarter 2015 when EWI New York should have a lab ready that will focus on automation, materials and manufacturing processes. This, he said, will advance Jiffy-tite's technology and keep the company ahead of the competition.

Like Sansone, Rayhill has been involved with EWI New York from the early stages. He likes its model of attracting companies that give back to the institute and local industry. Not just anyone can sign up and become a member.

"They want people who are fully engaged," Rayhill said, adding that Jiffy-tite is donating a CNC machine as part of its in-kind services.

"We think (EWI) will create a feeder stream of new employees with skills we need," Rayhill said. "And we'll have a great return on investment by adding our energy and knowledge to the institute to better serve manufacturing in Western New York."



Operations manager Steve Levesque shows off a custom-designed inspection system used in the oil and gas industry to test weld fatigue in pipelines. The device has the capability to evaluate potential stress on a pipeline over its life. In Buffalo, similar test equipment will be built to validate new materials and manufacturing processes.

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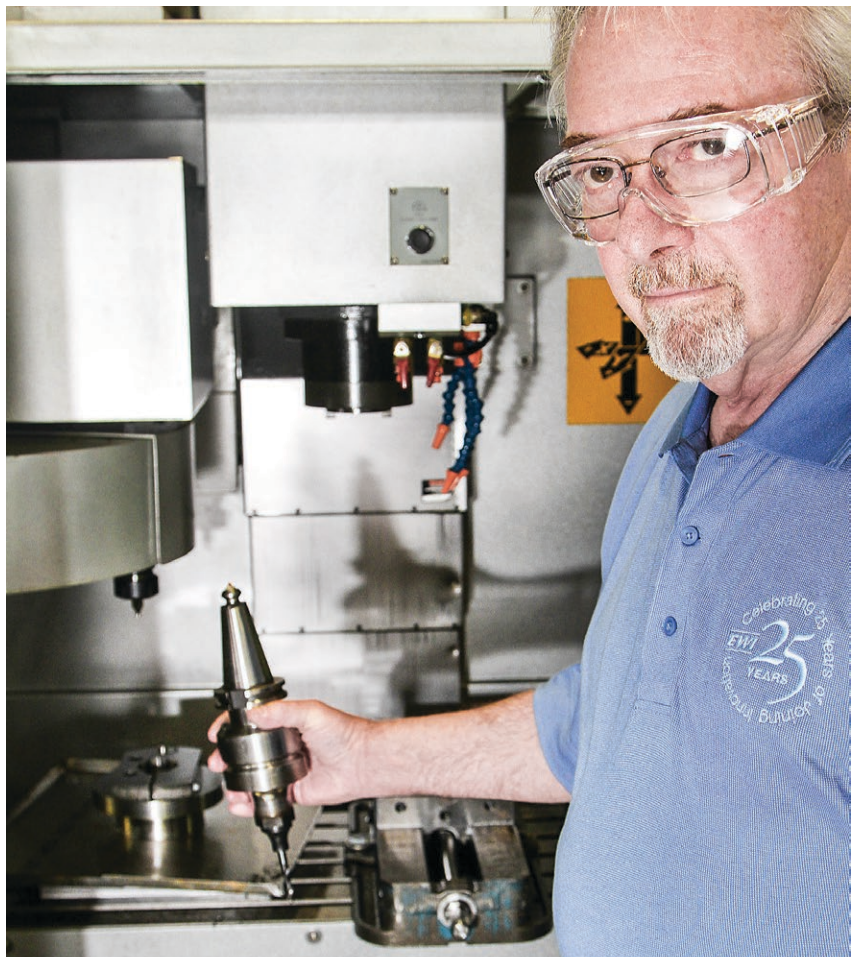

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Ron Brown at EWI's AcousTech machining center in Columbus, which uses high-powered ultrasonic vibrations for increased speed to drill through high-strength metal alloys. Using shorter pulses, less stress is put on equipment such as drill bits, which results in a reduction of friction and heat, extending the lives of the tools.

▸ CLOSER LOOK

EWI COLUMBUS

- **Founded:** 1984
- **Employees:** 140
- **Technology focus areas:** Welding and joining
- **History:** EWI began as a state initiative in Ohio to help manufacturers that were struggling to modernize. Manufacturing centers were created so that research and early development could be transferred to manufacturers that needed it.

  In the beginning, the focus was on welding so it was called Edison Welding Institute. Over time, EWI increased what it offered, and the client base grew beyond Ohio. The Buffalo facility is the first where research labs are being constructed. EWI has sales offices in Detroit and Washington, D.C.

EWI NEW YORK

- **Founded:** 2014
- **Employees:** 3; plans to hire up to 12 within a year
- **Technology focus areas:** Robotics, ceramics materials and testing expertise
- **History:** In January, EWI (ewi.org) was selected by New York state and a committee of local manufacturers to operate the new advanced manufacturing institute. The state-of-the-art facility will support growth of Western New York's manufacturing sector as part of the Buffalo Billion initiative to spur regional economic development. The institute is at 847 Main St., Buffalo, in a building purchased by Buffalo Niagara Medical Campus Inc. with an $8 million Buffalo Billion grant from Empire State Development (ESD). The agreement calls for the medical campus to provide, at no cost, space to house EWI for startup operations. Empire State Development also provided $800,000 in start-up funding support.