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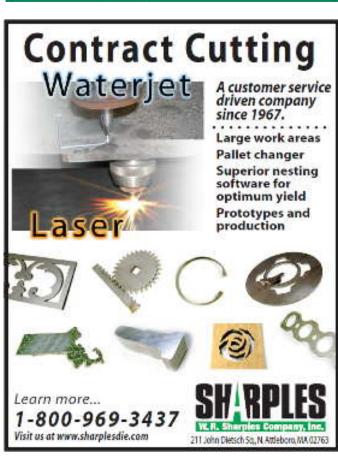


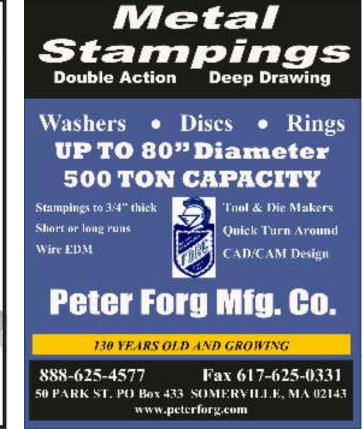












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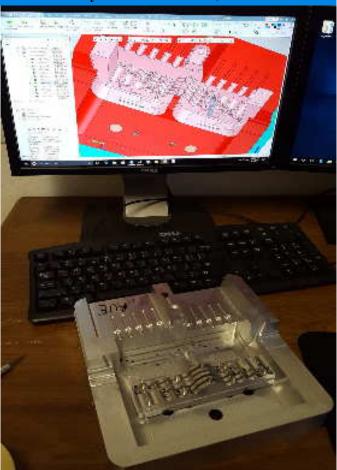
Written by: Charles Daniels, CFO

aldo "Wally" Parmelee, in 1980, who was then a journeyman machinist, desired to better provide for his family. This led him to invest in two milling machines and a saw. He set up shop in his basement, and Wepco was born. He soon purchased injection molding machines and moved into a shop in Rockfall, CT. The business continued to grow and moved again to the current location in Middlefield. Waldo is still the owner of the company, but in 2016, he passed leadership to his son and new president, David Parmelee.



(l to r) Charles Daniels, CFO, shaking hands with (R) State Senator Len Suzio on a recent visit.

Wepco has always prided itself on being a family-owned company that makes American parts. This is evidenced by the fact that in addition to his son, David, Wally's brother, daughter and nephew also work at the company. Many of the other 25 employees have been employed for 10 years or more. While many competitors are outsourcing work overseas, Wepco is honored to have always made 100% of its molds and parts in rural Connecticut.



Great plastic injection molds are where the process begins. It's not about just getting the plastic injected, but how to get it out of the mold in exquisite beauty.

Wally and David know that in order to provide the world-class service that they are known for, it is paramount to have a well-trained workforce that love what they do. Their retention rate is evidence that their family-values approach to running a business works. They are also proud that this year the National Fund for Workforce Solutions named them a Young Adult Employee Champion for their dedication to the apprenticeship program, offering opportunities to young adults. CFO, Charles Daniels, was also honored in 2017 by Hartford Business Journal as CFO of the Year for private companies with less than 100 employees.

Continued on page 7







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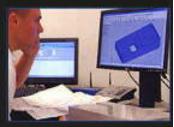
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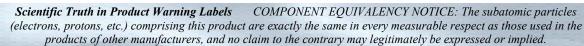
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The mold is mounted in a press where high pressure molten plastic is injected into the cavities which creates in this case a train track.

Below, quality control makes sure the parts not only measure correctly, but that the assembly is spot on. The process begins when companies provide Wepco with drawings of parts that they would like to produce. Wally, David, and their team work with them to ensure their design is cost effective, moldable and of the highest quality. Top-of-the-line CAM software is then used to design the molds in which the parts will be created. Wepco's forte is soft tooling (aluminum), which is much easier to work with, and is significantly less expensive than steel.

Once the designs are complete, the project moves to the tooling department. Moldmaker's (Wepco's have an average of 20 years' experience) use state-of-the art, 3 and 4-axis vertical milling centers to cut the metal. Most molds also require EDM work, which is also completed on site. Wepco understands that delivery time is a very important factor and continuously invests in new technology, equipment and training in order to turn around quality molds as fast as possible. Open capacity is used to make low-volume machined parts and do sinker EDM work for customers. Mold-makers also spend their time maintaining customers' molds and making tooling changes when requested.

Immediately after each mold is complete, it is moved to the molding department for sampling.

When Wally first started the company, his primary service was providing rapid prototyping. While technology has reduced the demand for this service, it is still offered. Wepco now specializes in quick turnaround, aluminum tooling and low to medium volume injection molding. Wepco styles itself as a onestop shop for companies that want to turn ideas into reality.



Cara proudly stands by a new injection molding machine with four plastic hoppers about to go into production.

Continued on page 9



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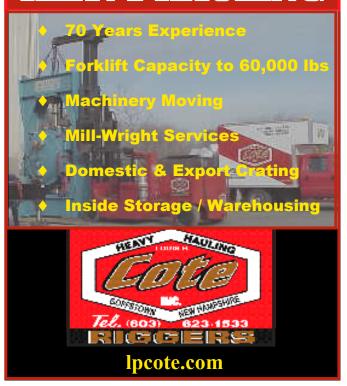
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Dave is operating this Hurco VMX42i CNC machining center. WEPCO has a very well equipped mold making shop to support their plastic injection business.

This department has 10 molding machines, ranging from 28 to 275 tons, which makes it possible to mold a wide variety of parts. Part samples are sent out for customers' approval before production begins.

Most of Wepco's customers require 1000 to 100,000 parts per year. This would categorize them as a short-to-medium run molder. While they are also capable of doing higher volume production runs, they understand the value of their experience in the low-volume niche. Wepco has systematically been switching from hydraulic to more efficient electric machines, purchased from industry leaders. Over the past year, investments in modern, high-tech drying equipment has had a dramatic effect on molding efficiency. While efficiency is most important, Wepco makes a concerted effort to purchase from local and regional providers. Focus on apprenticeships allows Wepco to ensure its workforce is well-positioned for the future.

Many parts require additional attention such as post -molding operations, assemblies and packaging. Wepco, in its quest to be a solution to all of its customers' needs, is happy to provide these value-added services.



Here is a example of one of the parts they produce.

The final steps in the process is shipping to the customers' desired locations and any post-shipment support. Due to their emphasis on short-and-medium run production and rapid tooling, Wepco is free to service many industries. Parts are made for companies in consumer goods, aerospace, marine, automotive, medical, sporting goods and electronics, just to name a few. Customers range from Fortune 500 companies to individuals with an idea, working out of their garage and parts are shipped all over the United States and 5 other countries.

The Parmelees have had a lot of successes through the years and have overcome adversity. Through it all, they have retained the values, integrity and sense of humor that have attracted customers to them for the past 30-plus years. Their goal is to set up their company for long-term success and prepare the next generation of Parmelees to rise to the challenge of being an outstanding American manufacturer.



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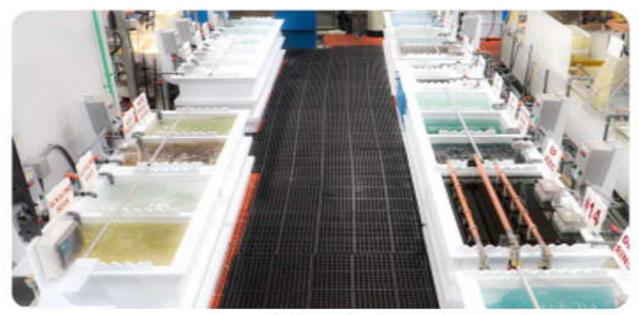




PRESS RELEASE

New England Electropolishing Increases Capacity

New England Electropolishing recently completed the installation of a new state of the art Electropolishing Line. The goal of the project was to increase NEE's existing capacity with a specific focus on new and existing medical customers. With 2017 sales up over 20%, the company saw an opportunity to add capacity while offering new services such as Citric Acid Passivation.



Features of the new line include the Following:

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- Additional Alkaline & Pickling Pre-Cleaning Stations



Process validations (IQ, OQ, PQ) have been planned to ensure that quality standards are maintained.



NEE provides Electropolishing & Passivation Services to a number of industries including medical, semiconductor, industrial, firearms, and precision machining. Shop tours and challenges are welcome and encouraged.

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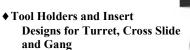
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PRESS RELEASE

Sturbridge Metallurgical Services Inc. of Sturbridge MA has taken their lab into the virtual world. They have given their customers, regardless of geographical location, the ability to tour their facility without leaving their own offices.

3D Virtual Tour

Through the use of the latest 3D imaging technology, Sturbridge Metallurgical has provided a "walk" through tour of each area of their building. The tour allows for freedom of movement in 360 degrees, giving visitors the ability to feel like they are actually standing in each room.

"We wanted the tour to feel like they were really here, not just some still shot image that doesn't feel real" said Daniel Welton, Sales & Marketing at Sturbridge Metallurgical. "Before going live we sent it around to a few of our customers, family and friends and the reactions were all the same; they really felt like they were in the building. We knew we had it right."

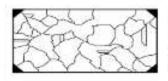
Expanding the Front Door 3D Virtual Reality has become increasingly popular in the gaming industry as well as the real estate industry. It has allowed companies to bring their front door directly to the desk of their customers rather than waiting for schedules to be just right. "We work with customers all over the country and even around the world and we pride ourselves on our facility" says Brendan Fullam, General

Manager and Business Development manager at Sturbridge Metallurgical. "When we invite customers in and give them the tour, they are always impressed and often realize we can provide them with many more services then what we are currently working with them on. To now be able to offer that same experience to people who can't make the trip, is priceless".

Take the TourYou can view the tour of Sturbridge Metallurgical Services Inc here: http://www.smslabs.com/about-smslabs/3d-virtual-lab-tour/ Sturbridge Metallurgical's virtual tour was done using a technology called Matterport® by a local video and drone professional, Thomas Jones of Drone Home Media. (www.dronehomemedia.com)



A nice feature of the tour is the buttons, like shown above, that you press on where it tells you what you are looking at and what it does!



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PRESS RELEASE

Mobius Bionics to Bring DEKA's LUKE Prosthetic Arm to Market

Developed by DEKA Research & Development Corp. (DEKA), Manchester, NH, the LUKE arm incorporates the latest technology in electronics, motors, batteries, and materials. The arm offers state-of-the-art flexibility, strength, and dexterity to provide greater

independence for people with forearm through shoulder-level amputations. "[This arm's] functionality far surpasses anything that I've had so far," said a participant who used the arm in DEKA's clinical study. Mobius Bionics is now accepting names of people interested in owning one of the first LUKE arms.

Unmatched by current devices, the LUKE arm is an advanced prosthesis with many innovative features that give amputees the capability they deserve, including:

- •A powered shoulder with the capability to reach overhead or behind the back
- •A powered elbow with the strength to lift a bag of groceries from floor to tabletop
- A powered, multi-movement wrist with the precision, range of motion, and dexterity to hold a glass of water overhead or at waist level without spilling
- •A hand with four independent motors and a conforming grip to hold everything from delicate items such as a phone or an egg to heavy items such as a gallon of milk without worrying that the item will slip or break
- •An innovative grip-force sensor that senses how firmly something is being grasped and communicates that information to the user
- A variety of ways to control the arm, including electromyographic (EMG) electrodes and foot-mounted inertial measurement sensors
- •Protection against water and dust offering peace of mind when used inside and outside the home.

All of these features and capabilities are provided to the prosthetist as a complete system, eliminating any potential compatibility issues between joints or components.

The LUKE arm is the result of years of research and testing by nearly 100 amputees for over 10,000 hours of use. Mobius Bionics is excited to be able to bring this innovative technology from the research lab to amputees

everywhere. "Up to this point, design in prosthetic arms has been limited to incremental changes. We developed the LUKE arm to change the game for amputees – creating an innovative, integrated system that offers greater functionality and independence to our wounded warriors and other amputees," explained Dean Kamen, President of DEKA.

Mobius Bionics has chosen Universal Instruments

Corporation (Binghamton, NY) to for the LUKE arm. Mobius Bionics is leveraging Universal Instruments' decades of experience manufacturing precision electromechanical solutions to produce the arm. "Universal Instruments is pleased to partner with Mobius Bionics to bring the LUKE arm to market, upper limb amputees," said Keith O'Leary, CFO & COO of Universal Instruments.



Contact Mobius Bionics to join the growing list of people interested in owning a LUKE arm by calling 855-MOBIUS-1 (855-662-4871) or visiting www.mobiusbionics.com.

History of the LUKE Arm - Revolutionizing **Upper-Limb Prosthetics**

The LUKE arm was developed by DEKA Research & Development Corp. as part of the Defense Advanced Research Projects Agency's (DARPA) Revolutionizing Prosthetics program with additional funding from the U.S. Army Medical Research and Materiel Command through a contract with the Army Research Office. Launched in 2006, DARPA's program began with a radical goal: develop an advanced electromechanical prosthetic upper limb with near natural control that would dramatically enhance independence and improve quality of life for

Working with DARPA and the Department of Veterans Affairs (VA) Rehabilitation Research and Development Service under a federal interagency agreement, DEKA spent years directly engaged with amputees in a number of studies, including VA studies, to better understand how the intersection of biology and engineering could ultimately lead to advanced prosthetic technologies. DEKA obtained performance feedback on the design from VA clinical optimization and take-home studies and DEKA take-home studies. "Working one-onone with the amputees and learning what they liked and

See an item of interest? If you contact them, please let them know you saw it in The Gateway! We'd appreciate it and thank you.

Continued on page 16







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PRESS RELEASE

didn't like about using prostheses proved invaluable to our product development process. Thanks to their insight and input, we have been able to construct the most advanced FDA-cleared design that the world of upper-limb prosthetics has seen to date," noted Kamen.

DEKA's efforts on the Revolutionizing Prosthetics program resulted in the LUKE arm being the first advanced, integrated prosthetic arm cleared by the FDA. The LUKE arm has many features that offer greater functionality and independence to amputees, such as

- •Up to 10 powered degrees of freedom
- Available in different configurations to serve amputees from transradial to shoulder disarticulation
 - •Grip-force feedback
 - •Resistance against water and dust
- •Innovative, new inertial measurement sensors worn on the feet as an option to control the arm

Since the inception of the Revolutionizing Prosthetics program, DARPA has supported efforts to bring this advanced technology to market with the objective that Service members with arm loss would regain the independence and capability that they lost. DARPA's most recent support provides resources to assist in establishing Mobius Bionics so that the arm can be provided to

amputees, particularly to veterans.

About Mobius Bionics LLC

Mobius Bionics is an innovative new medical device company focused on bringing advanced prosthetic technologies, such as the LUKE arm, to upper-limb amputees. Fueled by years of research-driven product development, the Mobius Bionics team brings together extensive experience in delivering pioneering medical technologies to market.

To learn more about Mobius Bionics LLC or the LUKE arm, call 855-MOBIUS-1 (855-662-4871) or visit www.mobiusbionics.com.

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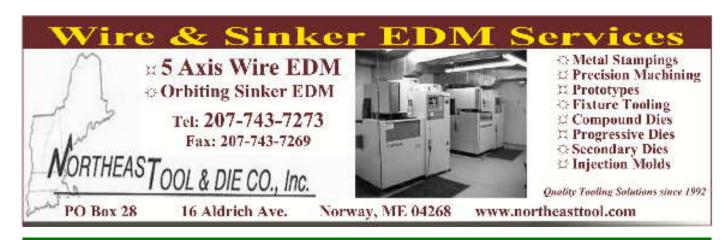
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A GATEWAY EDUCATIONAL ENLIGHTENMENT ARTICLE

Subject: SINGLE POINT TURNING INSERTS

A CNC machine cuts (removes) metal as a metal stock is rotated rapidly against a sharp cutting edge formed of carbide, which is considerably harder than the material being cut. Two elements are involved: the toolholder and the tool (or cutting edge). The toolholder is a square or round shaft of high carbon steel which is secured in a toolholder block or slide. The tool which does the actual cutting is generally made of tungsten/titanium carbide, an exceptionally hard material.

Many machines have a turret or slide into which the toolholder is secured. A typical turret may have the capacity hold and use from five to twenty-four cutting tools in a single manufacturing operation.

Tools for Swiss style CNC machining are highly specialized. Tool dimensions and grades are dependent on numerous variables, including the type and hardness of the metal to be cut, cutting speeds, cutting depth, cutting precision, and how the tool is held and handled by the machine.

Traditionally, the tool was permanently attached to the toolholder by brazing. This attachment method had the disadvantage that as the cutting edge on the tool wore down, the entire unit (toolholder and cutting tool) had to

be removed to be replaced or reground (resharpened). The CNC machine could not be used for production while the tool was being replaced. After the replacements, the machine had to be recalibrated for the new tool. The total downtime while the tool was being replaced could run from several minutes to more than an hour. Tool replacement could occur frequently, from under one hundred cutting operations to several hundred.

In most modern machine shops today, the cutting portion of the tool is secured to the toolholder by a clamp or screw, rather than the old-fashioned brazing method. ETCO services exclusively this modern approach, which allows the tool to be replaced without removing the toolholder from the machine, reducing downtime significantly. This process is analogous to replacing razor blades in a razor. Additional several cutting edges can be placed on a single tool. When one edge is worn, the tool is simply rotated or "indexed" to an unused edge.

Submitted by:

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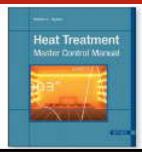
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