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Don't blink folks, 2023 is upon us and will be here as fast as the blink retreats back to open eyes. 2022 felt like a flash in the pan, didn't it? We're not sure what to make of it, and as we begin to comprehend how quickly it fled, we might lose sight of 2023, so, we'll start by saying, we hope it was a fruitful 12 months for you. What did you learn this year that you'll carry through to 2023, or that you're glad to leave behind in 2022. Tell us about your successes. Tell us about your outlook and how you'll navigate the new year. We want to hear it. That's what these pages are for. They're for you to share your stories with the readership, and, to help you tighten your network with folks that can help you accomplish your goals or, are looking for you to help them accomplish theirs.

So, make the resolution to reach out the chris@thegatewaymag.com to fill us in on what's happening on your shop floor.

In this month's issue you'll find a feature on DFF out of Agwam, Massachusetts. DFF was founded in 1969 and specialize in medium to high production of precision machined components and electro-mechanical assembly products. It's astounding all of the growth DFF has accomplished over their 50+ years in business, starting as a 2,000 square foot building and ballooning into the 300,000 square foot facility it operates in today. We hope you enjoy their story!

We hope that each and every one of our readers and loyal advertisers have a prosperous holiday season and get a moment to breathe for a second and reflect on the things that really matter – family, friends, and time. You've earned a quick break! But it won't last long! See you in the new year. We're looking forward to continuing the ride with you and hope to tell great stories together in 2023. (So let's hear from you, eh?)

Happy Holidays from our crew to yours!



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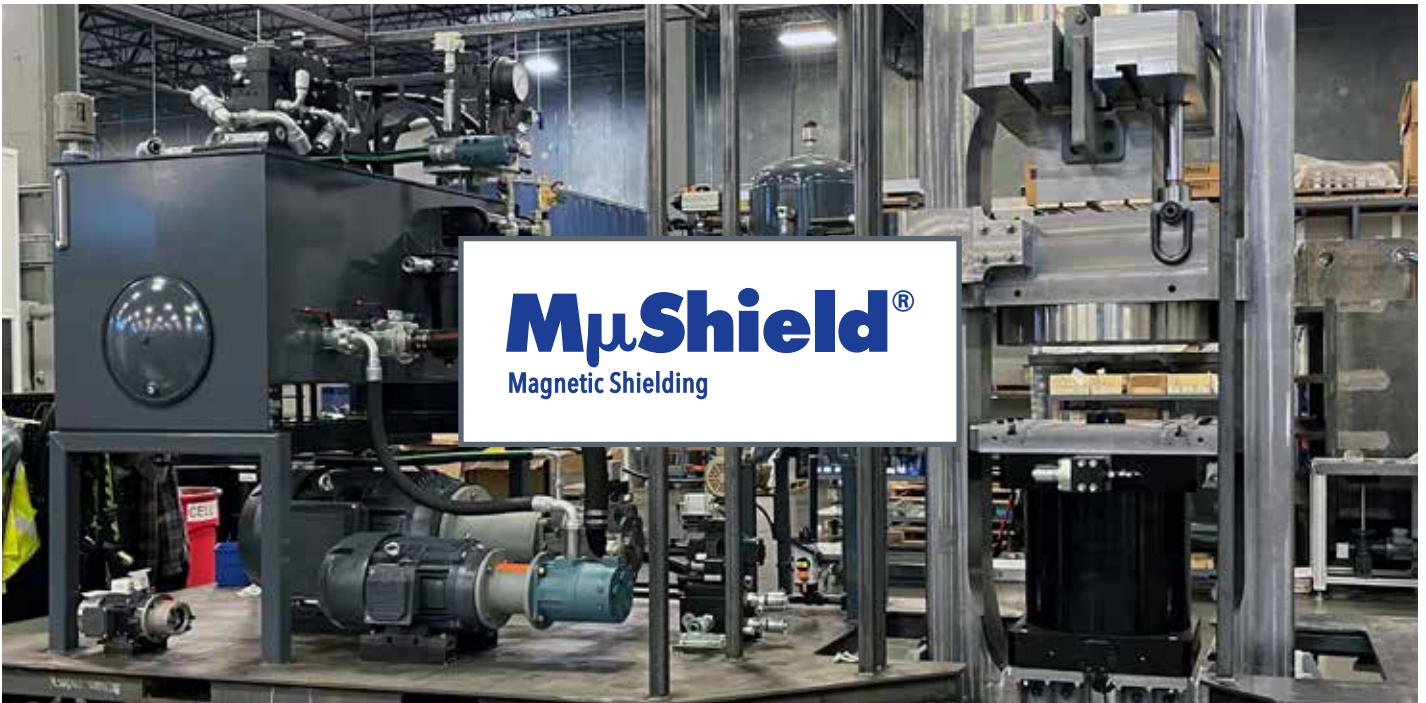
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MUSHIELD BOLSTERS HYDROFORMING SERVICE OFFERING WITH NEW MACHINE ACQUISITION

From 1 to 10,000 parts (and beyond), MuShield is the trusted source for hydroforming manufacturing. Since 2010, MuShield has been hydroforming magnetic shields and other enclosures made from various sheet metal alloys that were once spun or fabricated. The result is a faster and repeatable process and far more consistent parts from run to run (+/- .002" or better tolerance on all features of hydroformed parts), which means, as loosely mentioned above, overall satisfaction from our customers – who range from such diverse verticals including aerospace, high-tech, medical, utilities, military, and others – happily experience the per piece part price going down while the quality goes up.

MuShield has the expertise, technology, and bandwidth in place to take care of your hydroforming needs, specific to your exact application. For many, the choice to move forward with hydroforming over other manufacturing practices such as stamping comes down to cost and lead time. Hydroforming can be a more economical solution, reducing costs due to the elimination of the need for extra finishing and polishing in a lot of cases with standard cut-driven processes.

MuShield recently informed us here at the Gateway of their new hydroforming machine that they've added to their fleet of machines at their headquarters in Londonderry. We sat down with Luke Grilli, their Vice President of Sales and Marketing, to discuss their new acquisition and what this means for their customers as they enter the new year.



What are MuShield’s current hydroforming capabilities? Describe what you do for your customers. How much is custom vs. standardized work (not sure if there’s a difference or if there is a standard piece or part you offer that people order)?

All work we do here is custom. MuShield does not produce a product, per se, but work to each customers’ specific design. If they need design assistance, we are happy to offer that as well. Currently, we can start with a 12” dia. blank, limiting the size of the final part we can hydroform. Now we are able to start with a 16” dia. blank, increasing the size of the parts we can offer our customers.

How do you help customers realize their custom hydroforming needs?

We like to talk with them about their specific needs. What type of quantities will you be needing now and in the near term? What is your budget for tooling? Is this a final design or more of an R&D design? Answering these questions allows out to determine where we fit in the manufacturing life of our customers’ part. We like to use the scenario where hydroforming is a great way to prove out a design that may be in the thousands down the line. Hydroform tooling costs a fraction when compared to progressive die tooling and takes weeks to build as opposed to months, so if changes need to be made in the design after the initial R&D quantity is produced, it is a long and expensive process.

Tell us about the new hydroforming machine. What is it? How did MuShield land on this particular piece of equipment over others in the market?

We are bringing on a Beckwood Press 16” Triform, which is a state-of-the-art machine that will help take us to the next level when it comes to precision sheet metal hydroforming. Beckwood Press has a long history of producing great hydroforming machines, and this buying decision started about 5 years at the FABTech trade show.

How does the acquisition and installation of this machine bolster MuShield’s hydroforming capabilities?

Not only can we hydroform larger parts with this new machine, but the repeatability from production run to production run will be far more consistent with the CNC controls on the machine, when compared to our 60+ year old hydroform current deployed on the manufacturing floor.





Hydroforming Progression

STAGE 1

Flat blank laser cut to a developed size



STAGE 2

Post draw, the desired shape is formed with excess material creating a flange



STAGE 3

Final height and cut outs/hole pattern cut in a 5-Axis laser



What are the benefits of hydroforming? Why is it important?

Other than the cost and lead time for tooling concerns mentioned above, consistent parts from production run to production run and challenging geometries that cannot be hit from standard sheet metal fabrication are two huge benefits to hydroforming. We can work with many different alloys and have produced parts that would be unachievable for most sheet metal fabrication companies.

How has hydroforming grown as a service offering for MuShield over the years?

We started off as metal spinners, which has become a lost art in this day and age. Most of our metal spinning applications have now migrated to hydroforming and our book of business has grown due to the geometries we are able to produce in the hydroform. In regard to the magnetic shielding application, hydroforming is a great option when producing simple or challenging magnetic shields due to the large radii that magnetic waves of flux are attracted to. Once they hit those radii, they are absorbed by the magnetic shielding, thus protecting the sensitive electronic we are building these shields to protect.

What industries do you serve the most in this space? What are common hydroforming requests from these industries?

Aerospace and defense continue to be the most common industries we serve with the main request being to shield Fiber Optic Gyros (FOG) on guidance systems for subs, ships, munitions, or other similar applications.

Are there other industries you'd like to expand in and hope to with this new machine?

We hope to build out a more robust book of business for the Aerospace, Defense, Medical and Commercial industries, while also breaking into the Automotive Industry with this new machine.

What excites you about the future of MuShield? What else should customers look forward to?

MuShield continues to enjoy steady growth by re-investing in ourselves. Our strategy is to continue to stay on the cutting edge by bringing in the latest technology to streamline our manufacturing processes, while also increasing our capabilities, but it doesn't end with the shop floor. We ensure that our cybersecurity protection and quality continue to be top notch as well. The manufacturing industry has certainly made both of those aspects of our business paramount, and we want to ensure that both are top notch.

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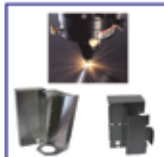
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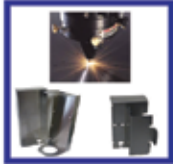
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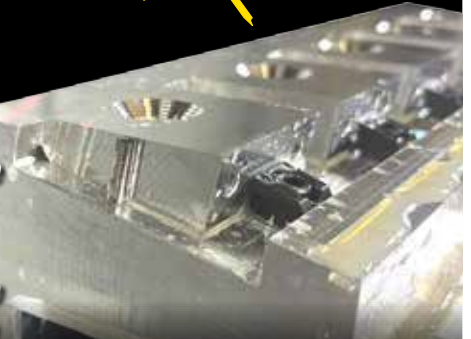


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VISUAL MANAGEMENT HELPS IMPROVE QUALITY



Written by
Paul Critchley

I was recently retaught a lesson that, ironically, I teach for a living. The consulting firm I work in covers not only Lean, but also consults and guides clients along with building and improving their Quality Management Systems. Often, we help clients see the parallels between these two topics, and how they each serve the similar purpose of reducing waste, reducing variation, and ultimately making it easier to deliver value to the customer. In this case, I was reminded of how important Visual Management tools are within reliable and repeatable processes.

As we wrapped up one of the last of countless appointments, the orthodontist repeated the speech that he'd given our oldest daughter years prior when she got her braces off and moved into retainers... "Here are two cases for your retainers. Make sure you use them whenever you take your retainers out. I know it's a pain to carry around with you, but you'll thank me later. Please, please, PLEASE don't just wrap them in a napkin. You don't want to know how many of these we replace because people do just that, and they wind up getting thrown away."

The words rang loudly in my head as I worked behind a restaurant in Pigeon Forge, TN, on a sunny 93-degree day, digging through three garbage bags of food waste looking for said retainers. Three of us worked for an hour, and despite valiant efforts, the retainers were not found.

About an hour before this, we were happily eating at said restaurant, enjoying the second day of our much-anticipated vacation. In a week full of planned amusement park rides, museum visits and nature walks, we were all looking forward to taking

it easy for a while. The kids had just finished the mad rush to the end of the school year, and my wife and I had just each wrapped up some big projects at work, so the timing was perfect to get away. We were focused on fun, and little else.

Somewhere between ordering and receiving our food, our youngest daughter wrapped her retainers in a napkin and slid them into my pocket. As she did so, she verbally said “Here are my retainers,” but I didn’t hear her (This would come out later as we tried to determine root cause). We ate, and as we got ready to leave, I performed my “phone, keys, wallet” ritual, where I reach into each pocket to make sure I’ve got everything I came with and haven’t left something on the table somewhere. When I reached into one pocket, I found the balled-up napkin my daughter had put in there. Not thinking about what it was or how it got there (and not feeling the retainers inside), I nonchalantly tossed it in with our dirty dishes, thinking nothing of it. I just assumed it was a napkin that I’d stuffed in there from some time previous in the day.

We returned to the hotel to freshen up and get ready for our next adventure. As we ran through our plans, my wife asked our daughter if she had her retainers in her mouth (she sometimes likes to conveniently “forget” to put them back in because they are a little uncomfortable). She replied with “They’re in daddy’s pocket.” As soon as the words were out of her mouth, I could feel the blood run from my face. I knew exactly what had happened, and I knew our chances of recovering them were pretty slim...

So, what does this have to do with Lean or Quality? Plenty. This same scenario plays out in shops across the globe, albeit with different players and different materials. I’ll admit that I’ve had to go dumpster diving at work more than once to retrieve something (parts, fixtures, etc.) that had been thrown away when it shouldn’t have.

As we practice Lean, we put things like 5S and Visual Management tools into place. We train folks, sometimes multiple times, on these tools in order to “error proof” systems and processes, only to have them

fail. We’re left scratching our heads, wondering how in the world we got the outcomes we did despite these efforts. So, we change the process, the tools and/or retrain operators and hope it doesn’t happen again. Sometimes we get lucky... and sometimes we have to dig through garbage.

The purpose of Visual Management is to quickly and accurately communicate standards (where things go, how they should be, etc.), and to be able to show quickly if an abnormal condition exists. The gas gauge in your car is a good, everyday example. At any given time, you can see how much gas you have in the tank – that’s a simple visual. As the fuel level gets close to empty, there is usually a chime that sounds and a light in the dashboard that illuminates to tell you that you may want to stop and refuel soon. Those are visual management tools. My wife’s car’s “miles to empty” graphic will supposedly turn red once it’s within a certain range of hitting zero. That’s another good visual management tool example, but I have yet to test it.

In our case, there were multiple failures. Using a napkin to wrap the retainers, putting it in my pocket and not making sure I knew it was there, and me not questioning what it was or where it had come from before tossing it away. Had we used the retainer case that 1. The orthodontist had given us and 2. My wife had purposely brought along with us in her purse, this whole situation could have been avoided. We wouldn’t have lost 3-man hours digging through hot, smelly garbage, we would incur the cost of a new set of retainers, and my daughter wouldn’t be saddled with feeling bad about having “failed.” A simple solution that we possessed would have avoided a lot of badness.

We see this in industry quite a bit. Parts/fixtures/tooling and even paperwork (routers, inspection reports) that have no set destination or home wind up getting put “here for right now.” Taking this approach is asking for trouble. One of my favorite questions to ask new clients is “When you clear out an area on the floor, how long does it stay clear?” As of today, no one has ever said anything longer than “about three minutes.” This is pretty typical and is indicative of larger issues of either not having strong visual

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management, or just plain not using it. Either way, bad things can, and will, happen. Tools go missing, parts get lost or can accidentally miss a process and people have to spend time, money, and effort to overcome those mistakes.

Having clear visuals that communicate abnormal conditions make life a whole lot easier and more productive. Similarly, those visuals have to make sense and be easy to understand and follow. If they're not, the tendency will be to avoid using them, which can sometimes lead you right to the dumpster, grasping at straws (literally), hoping to recover.

About Paul Critchley

Paul Critchley is a recognized thought leader on employee engagement and continuous improvement and has helped businesses around the world achieve greater levels of success through the application of Lean techniques. A frequent speaker, he has keynoted at numerous corporate events, as well as at international conventions such as AME's annual Lean conference and at OpEx Week. He's also the host of "The New England Lean Podcast," a weekly show that focuses on Lean leadership and New England-based businesses.

Paul is a former Board Member of the Northeast Region of AME, holds a B.S. in Mechanical Engineering, a M.S. degree in Management and a M.S. in Organizational Leadership.

He is passionate about Lean and creating organizational cultures that are sustainably engaged. He co-authored his first book - *The Whole Professional, A Collection of Essays to Help You Achieve a Full and Satisfying Life* to bring a fresh perspective on Work/Life Balance and how individuals and organizations can work together to achieve greater levels of attainment.

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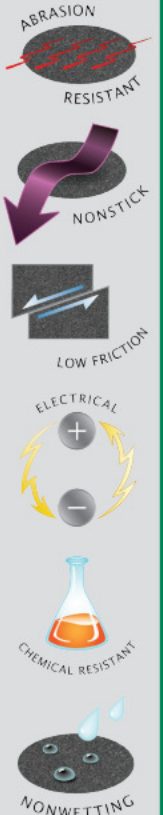


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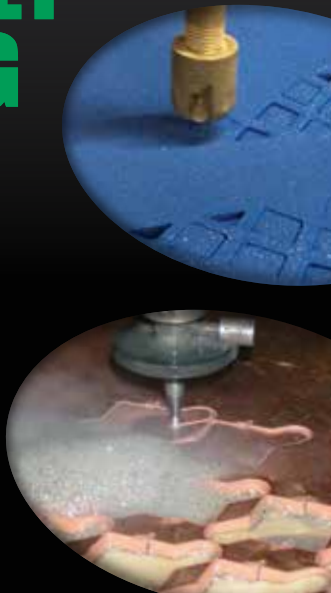
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HUTCHINSON, INC., COMMITS TO BECOMING A MORE INCLUSIVE EMPLOYER, FINDS A SOLUTION TO THE LABOR SHORTAGE

Partnering with Mid-Michigan Industries to provide jobs and training for people with barriers to employment through business and human services.

ITHACA, Mich. – Hutchinson Aerospace & Industry, Inc., a manufacturing innovator and global leader in engineered shock, vibration and motion control solutions, found one solution to a growing labor shortage by committing itself to becoming a more inclusive employer. When its Ithaca location was struggling to hire workers, Hutchinson teamed up with Mid-Michigan Industries (MMI) to help train and employ individuals with intellectual or developmental disabilities, creating a more inclusive and enriching environment for current and new employees.

“Our partnership with MMI has been a win on all fronts, for the business, for Hutchinson employees and for the MMI people served,” said Bob Anderson, CEO of Hutchinson Aerospace and Industry, Inc.

In November, Hutchinson received a 2022 Apex Award as an “Outstanding Community Partner” for its work with MMI. This award recognizes an individual or organization that has dramatically improved the quality of services and support for people with disabilities and others facing barriers.

Hutchinson and MMI expressed mutual interest in working together in 2021, leading to a program that currently includes six employees across two different shifts. Darrell Cojocar, MMI’s onsite job coach, was immediately impressed with Hutchinson’s integration of these individuals.

“They are truly an inclusive factory; it’s not lip service,” said Cojocar about Hutchinson. “Our team is 100 percent incorporated into the facility processes. They are performing the same tasks as other Hutchinson employees like cleaning and inspecting parts, applying barcode labels, running presses and handling overload from other operators.”

MMI has been helping improve the quality of life for people with disabilities for more than 50 years. Partnering with businesses and organizations throughout central Michigan, they are committed to



helping people make connections that lead them to meaningful employment, advanced skill enhancement and greater independence.

“We are truly proud of the partnership between MMI and Hutchinson, and we are grateful to have MMI as part of the Hutchinson Team,” continued Anderson. “The program has continued to expand and is more successful than we could have ever imagined.”

The MMI process is not one-size-fits-all. Each individualized program meets the person served at their current level and helps them take the next steps toward an improved quality of life. MMI meets annually with each person served, along with their guardians or case workers, to determine that person’s interests, needs and benchmarks. Every few months, the goals are reexamined as progress is made.

Employment specialists then work one-on-one with the individuals to find suitable community employment, whether in manufacturing or another industry of interest. Individuals receive help finding and applying for jobs, as well as interview training and job coaching.

“Employment partners like Hutchinson are a critical part of the process, providing the individuals with not just a paycheck, but a sense of fulfillment and purpose,” said Cojocar. “To be an important part of creating something, each and every day, is invaluable. This program breaks down the stigma that workers with differing abilities can’t be safe in a manufacturing plant—or any other setting for that matter.”

Anderson added, “We are honored to receive the Apex Award and we look forward to building upon the success of our partnership with MMI.”



About Hutchinson

Hutchinson Aerospace & Industry, Inc., formerly Barry Controls, was founded in 1943 to solve shock and vibration problems for the U.S military. Acquired by Hutchinson in 2000 and serving wide range of diverse global customer applications with extensive materials expertise, today the company is recognized as a world leader in the development of unique and custom mounting solutions needing shock attenuation and vibration isolation. Additionally, Hutchinson is now well recognized as specialists in custom system design and analysis, innovators in manufacturing, and engineering partners with their customers. To learn more about Hutchinson, visit, hutchinsonai.com.

ABLE MACHINE TOOL SALES HOSTED WESTFIELD TECHNICAL ACADEMY STUDENTS AND PRESENTED THE SCHOOL WITH A LARGE DONATION

AGAWAM, MA—ABLE Machine Tool Sales, an award-winning Northeast Region distributor for nine top machine tool brands, recently hosted students from Westfield Technical Academy and gave them an educational tour of its showroom and technical center.

“ABLE is passionate about helping students,” said ABLE’s Manager Marcy Venne. “Having exposure to machine tools and machine shops and having good equipment in their schools helps students early on to learn occupational skills and develop a lasting interest in manufacturing technology. I especially like to encourage girls to join the industry. It was nice to see so many attend with the guys today and ask questions.”

Westfield Technical Academy focuses on integrating academic and technical achievement with career and college readiness. During their visit, ABLE’s CEO Alan Lockery presented a \$5,000 donation to attending teachers Eva Fuller and Timothy Mosijchuk to support Westfield Tech’s mission of preparing students academically, technically, and professionally to meet the challenges and opportunities of the 21st century.

“Hosting students is our way of promoting Manufacturing in the USA and bringing more young people into the profession,” said Alan Lockery. I am a tech school graduate myself, and a lot of my staff are as well. The manufacturing industry needs engineers, technicians, trained machine operators and support personnel, such as trainers, administrators, and salespersons. Manufacturing is a wide open and rewarding field with opportunities ranging to the highest-level technology global manufacturing has to offer today.”

Students asked many questions as ABLE’s engineers talked about what they do and explained features of machines on the showroom floor. Staff talked to students about machine controls and precision requirements and showed hand tools used for routine service calls. Students were given a glimpse into the types of manufacturing businesses ABLE serves regionally and the products its customers make for their end user, such as automobile, airplane, military firearms, and ship building parts. Students were also interested in machine costs.

“I was lucky. After I graduated, I worked for Pratt & Whitney Aircraft, where I was given the opportunity to participate in a wonderful apprenticeship program,” said Alan Lockery. “It was a springboard to where I am today. So, ABLE supports students and local schools by offering long-term paid internships; and we’ve hired a lot of tech school grads. We want these students to succeed. Giving a donation helps the school meet student needs. These kids are the future.”

ABLE Machine Tool Sales has distributed name brand OEM machine tools to customers throughout the Northeast for 36 years. ABLE provides customers with sales, training, technical support, service, parts and turnkey solutions. ABLE helps customers modernize operations and integrate the right machine tools into their system to streamline their manufacturing process, find new efficiencies, create improvements, and increase profitability.



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Equipped with a patented safety spring hanger for easy positioning and clamping, the Dictator II MILLHOG® Pipe Beveler uses one mandrel and a set of three wide clamps that provide six points of contact to the pipe I.D. to mount rigidly and ensure chatter-free operation. This machine requires no cutting oils and is well-suited for use in fabrication shops or on-site.

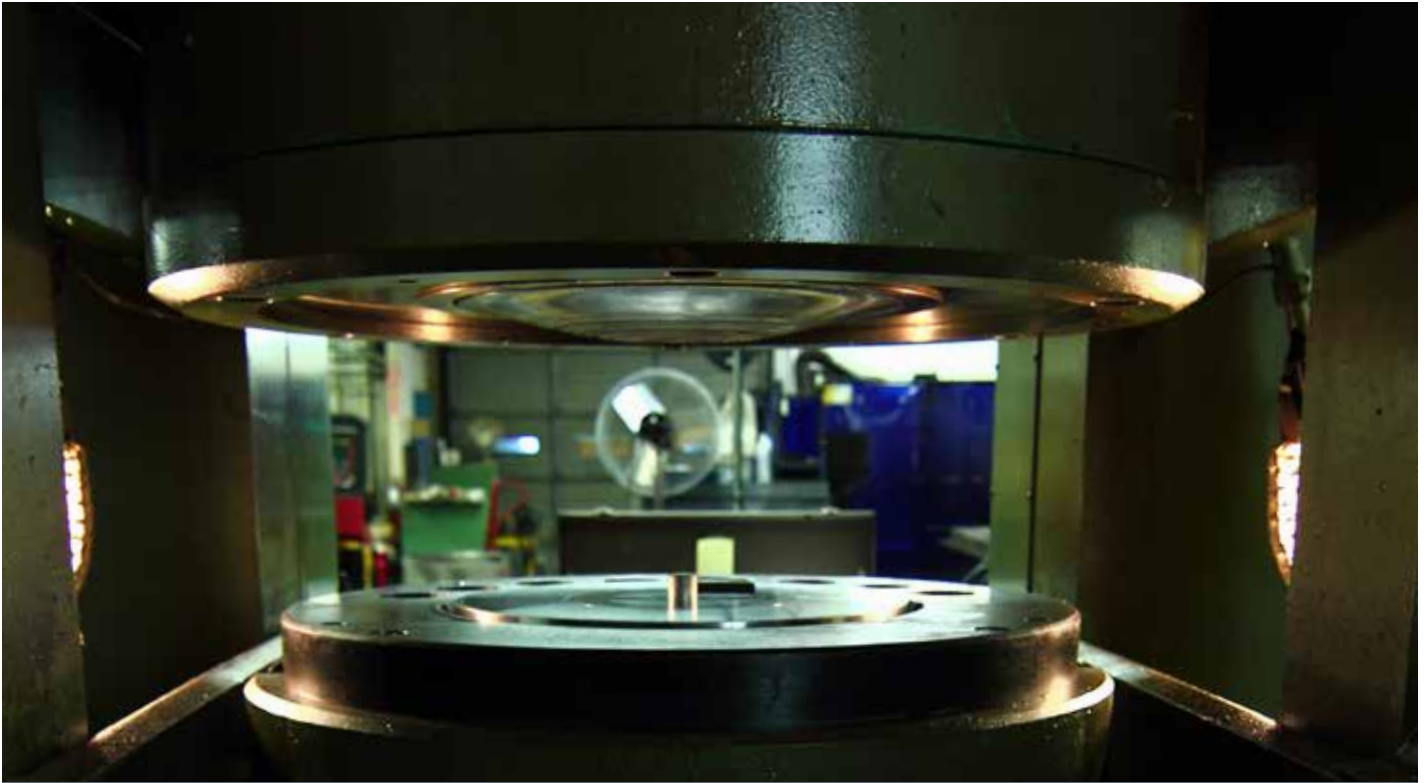


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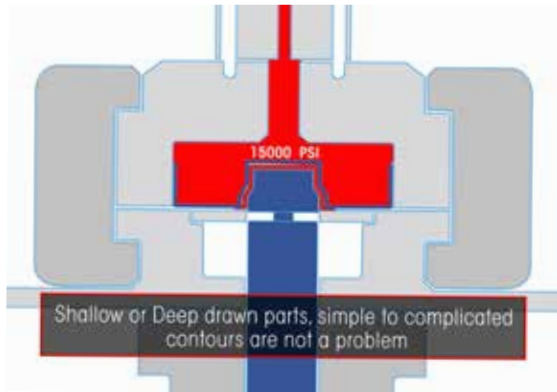
Thank you to MuShield for kicking off a new industry “advertorial” series that showcases thought leadership and process specific machinery and services that apply to different areas of the manufacturing process.

Hydroforming is a unique process that offers many benefits over traditional sheet metal forming and fabrication. In most applications, only one form tool is needed which pushes a piece of sheet metal into a pressurized rubber bladder.

Since the form tool is pushing the sheet metal into the bladder, and there is no need for matched set tooling, there is limited metal-on-metal contact that may create scratches, gouges, or blemishes on the surface of the material. Hydroforming is an attractive manufacturing process due to the minimal tooling cost and limited secondary operations needed post hydroforming.

A hydroform machine utilizes a forming punch machined to the inner dimensions of the desired sheet metal part and can make both simple and complex sheet metal shapes. Hydraulic pressure (up to 15,000 psi) behind a specialized rubber diaphragm provides the force required to wrap sheet metal material onto the punch as drawing force and motion is applied. The resulting large radii on the finished part is preferred from a magnetic shielding standpoint because the magnetic flux permeating through the magnetic shield turns easily on large radii and eliminates any chance for flux leakage.

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Tooling cost is minimized since only one or two form punches are required for most piece parts and MuShield has in-house machines to build each tool, which will often last the life of the part cycle due to a hardening process done to the tool after it has been proven out in production. You will see consistency from part-to-part and production run to production run with tolerances of +/- .001" on most dimensions.

Hydroforming can also be cost effective when comparing it to a fabricated part. For most hydroformed parts, the production steps are as follows:

- One to two forming operations
- In-process anneal
- Laser cut details, cut outs, or excess material

While MuShield specializes in hydroforming mumetal and other magnetic shielding materials, we are not limited to just those. We hydroform materials such as stainless steel, brass, aluminum, inconel and other alloys on a daily basis.



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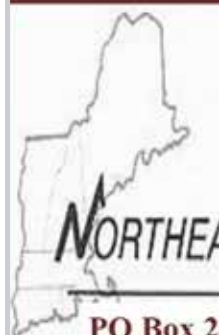
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