



## **American Rheinmetall Systems Gets Smaller to Grow Bigger**

*A GBMP Client Case Study*

American Rheinmetall Systems (ARS), LLC, formerly Vingtech, is located in Biddeford, Maine. Established in January 2007 as part of a Norwegian company that had received a supplier contract for the US Army's CROWS remote weapon station program, the company was acquired by the Rheinmetall Group in June 2010. In 2016 the company changed its name to American Rheinmetall Systems to better associate itself with its parent company in Germany, Rheinmetall Defence.

ARS is a mechanical and electro-optical engineering company specializing in sophisticated system integration, assembly and R&D. Its core business has not changed over the years, ARS still supports the remote weapon station but has also won additional contracts with the U.S. Army and Navy. Electro-optics and fire controls are their specialties; assembly and testing is done at their plant in Biddeford. They don't do fabrication; all the components are purchased from suppliers.

These are militarized products that must perform in rigorous environments, in both high and low temperatures and through heavy vibration. The tolerances to make them work across this wide band are incredibly tight; everything has to go together exactly.

ARS got in touch with the Greater Boston Manufacturing Partnership (GBMP) in 2015 because they felt that their hands-on assembly processes had a lot of inefficiencies. Bruce McGill, one of GBMP's Continuous Improvement Managers, was assigned to the project. Within a little over two years, all of their existing work centers have gone through Lean events and all production employees have participated in at least one project. Brad Hittle, President and CEO, oversaw the initiative:

*"We picked one work center at a time to do the inch wide, mile deep approach and by the time we got to the last couple of projects there was a real enthusiasm. It's infectious, when one group*

*starts to take off on their own, the others see that and it's inspiring. As we approached the last couple of projects employees were saying I've been waiting for you to pick my work center. That's when I knew we had gone about this in the right way as it had started to build on itself rather than being a flash in the pan. By the time we got to the last project, there wasn't any more selling to do."*

ARS' products were designed in Norway and not originally expected to sell in great numbers. When the company landed a contract for 15,000 pieces, they found that their processes weren't suitable for that kind of quantity. As they tried to scale up to do volume, they naturally did things like building huge batches and sub-assemblies, carrying a lot of WIP inventory and sharing tools.

Brad Hittle: "GBMP's Bruce McGill has been an awesome fit for us because he has such broad experience. We needed to communicate to staff that using single piece flow and 5S will make your job easier. That's a hard sell, sometimes, to people who have been doing things the same way for several years. That's where Bruce was invaluable to us because there wasn't any objection that people came up with that he couldn't counter with a demonstration proving that the Lean approach works better."

"ARS is serious about thinking differently," according to GBMP CI Manager Bruce McGill. "Brad recognizes that Lean is good for employees AND for customers. He understands that sustainable change must come from their people, by allowing them to quickly apply what is learned through education and training to their own processes. I expect them to continue to make good gains as they use lean methods such as Value Stream Mapping to uncover more opportunities to strip non-value-added activities from their daily work."

ARS' Production Lead, Chris Lamont, shared his perspective: "When first approached with the prospect of introducing Lean into our organization I was admittedly a bit skeptical. Sure, larger organizations with tons of resources could benefit, but would there be a positive impact on a modest operation such as ARS? The answer turned out to be yes. By simply removing as much waste as possible from each process, we improved productivity in measurable ways that were visible immediately by the whole team. With full support from top management, I believe we'll be able to sustain continued improvements well into the future."

ARS is in the process of transforming from a workshop to a stand-alone U.S. business. Parent company, Rheinmetall Defence, has made an investment in its future development. In order to accommodate growth, ARS needed to streamline its operation, create more space and free up

employee's time to take on additional contracts.

Brad Hittle: "When the corporate folks are here from Germany, we show off a little by demonstrating that we are still doing the same amount of work in less space and they are very interested in that. We didn't want to constantly be expanding the building and hiring new workers because there are inevitable ups and downs in the defense business. We've tried very hard to keep our workforce as steady as possible. In order to do that, we had to have a lot more flexibility in time and space. Our KPI's for these projects asked how much cycle time can we reduce and how much floor space can we open up?"

Through the various Lean events, they have freed up a huge block in the middle of their mechanical assembly production floor and are doing the same amount of work in 9 thousand square feet of space as they were doing two years ago in 20 thousand square feet. This gives them the ability to put an additional line in on short notice.

As part of the training, participants were shown how to create spaghetti diagrams to document their existing processes. This enables people to identify redundancies and wasted motion. Initially, one process had 72 different steps before it was reduced to 31 steps.

Significant cycle time improvements occurred in ARS's Electro-Optics Assembly area. Originally there were multiple jobs and everyone controlled a small piece of the process. With some cross training, they've gotten to the point where each employee can build an entire camera from start to finish and the amount of time needed to build a unit has been reduced by 40 percent. This was a fundamental change to how this assembly was approached.

Brad: "We had such a disjointed process with so many bottlenecks that if one person called in sick it could really throw a major wrench in the works. Now, if one person calls in sick, it just takes out 1/6<sup>th</sup> of your production for the day and doesn't affect the other 5/6ths. We don't have machines that do the work, we have people. For us, they are our greatest asset."

Another lesson from the training was that "it doesn't have to be perfect." One group worked out of a makeshift cell for weeks and found more things that they wanted to improve as time went on. Eventually they got to the point of wanting to build a more permanent set up but had gained greater insight into the process by taking baby steps.

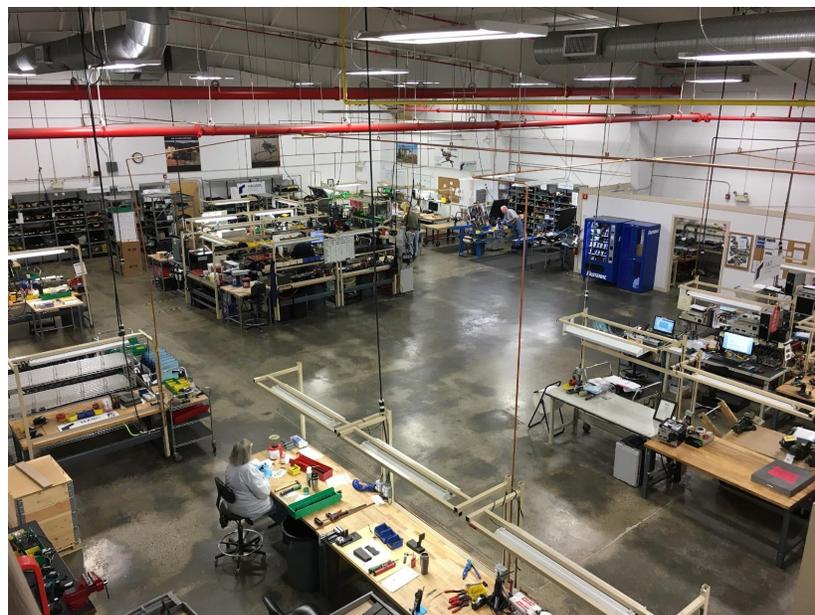
Brad summed up the experience: "We used a typical kaizen approach, we didn't spend hundreds of

thousands of dollars, we didn't take years and we didn't have to take lines down. Employees just found a better way to do what they were already doing. They eliminated waste that was mostly in the form of empty space and lost time searching for tools and walking great distances. Now, everyone understands that continuous improvement is what we do, it's a part of our culture."

*ARS: Before Lean*



*ARS: After Lean*



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**About ARS:** [American Rheinmetall Systems](#), located in Biddeford, Maine, USA, was established under the name of Vingtech in January 2007. Since June 2010 the company has been a member of the Rheinmetall group and forms part of the Mission Equipment business unit. With its 35 employees, American Rheinmetall Systems is a mechanical and electro-optical engineering company specializing in sophisticated system integration, assembling and R&D, working in close cooperation with customers worldwide. The company is a key sub-supplier to Kongsberg for the US Army's CROWS II remote weapon station program, producing mounts, firing mechanisms and video imaging modules, and is currently under contract for multiple fire control programs supporting the US military. American Rheinmetall Systems is an established player, well positioned to provide defense-related products to the US market for many years to come.

**About GBMP:** [GBMP](#) (The Greater Boston Manufacturing Partnership) is a not for profit offering customized Lean and Six Sigma training with a mission to increase global competitiveness and employment opportunities in the United States. GBMP is a licensed affiliate of The Shingo Institute with 4 certified instructors on staff. GBMP also produces the annual Northeast L.E.A.N. Conference which attracts more than 600 manufacturing professionals from around the country each autumn in New England, now in its 12th year. GBMP provides a membership community for Lean practitioners from manufacturing, healthcare, insurance and other industries and produces an award-winning library of Lean training materials comprised of more than 30 DVDs (available streaming by subscription at [www.leanflix.org](http://www.leanflix.org)), games, manuals and workbooks, including Toast Kaizen, the #1 selling Lean training video in the world. Learn more at [www.gbmp.org](http://www.gbmp.org).