

A photograph of a man in a blue shirt working on a large metal structure using a power drill. He is wearing a dark cap and safety glasses. The background shows various industrial components like pipes and metal frames.

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JOBBOSS EMPOWERS: BRYCO MACHINE

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THE TURN-AROUND OF A TURNING SHOP

A business that looks ahead

On weekday mornings for the past twentyfive years, Bryon Bettinardi has shown up at his business in south-suburban Chicago to run Bryco Machine, sending off estimates, holding production meetings, and running a \$3 million, thirty-person turning shop that has weathered as many ups and downs as the Chicago Bears.

Before him, Bryon's father, Don, a machinist at Argonne National Laboratory, opened Donson Machine in 1978. Bryon went to work for his father right out of high school and eventually rose to become shop foreman. After a few years as foreman, Bryon asked for a raise and his father replied, "I think it's time you opened your own shop."

Founded in 1983, Bryco Machine grew in fits and starts until the late 1990s when it began losing work to other shops with similar equipment and capabilities. "We had a specialty in the early 90s—small diameter parts requiring precision turning, milling and drilling on our bar-fed CNC Swiss-type lathes," says Bettinardi. "At that time, there were a hundred of those machines in the Chicagoland area. Now there are at least seven hundred, creating too much competition and causing margins to plummet."

Three years ago, Bettinardi made plans for change in order to recession-proof the business and guarantee its future. He hired a director of operations and technology, re-invested substantial amounts back into the business, and purchased new equipment.

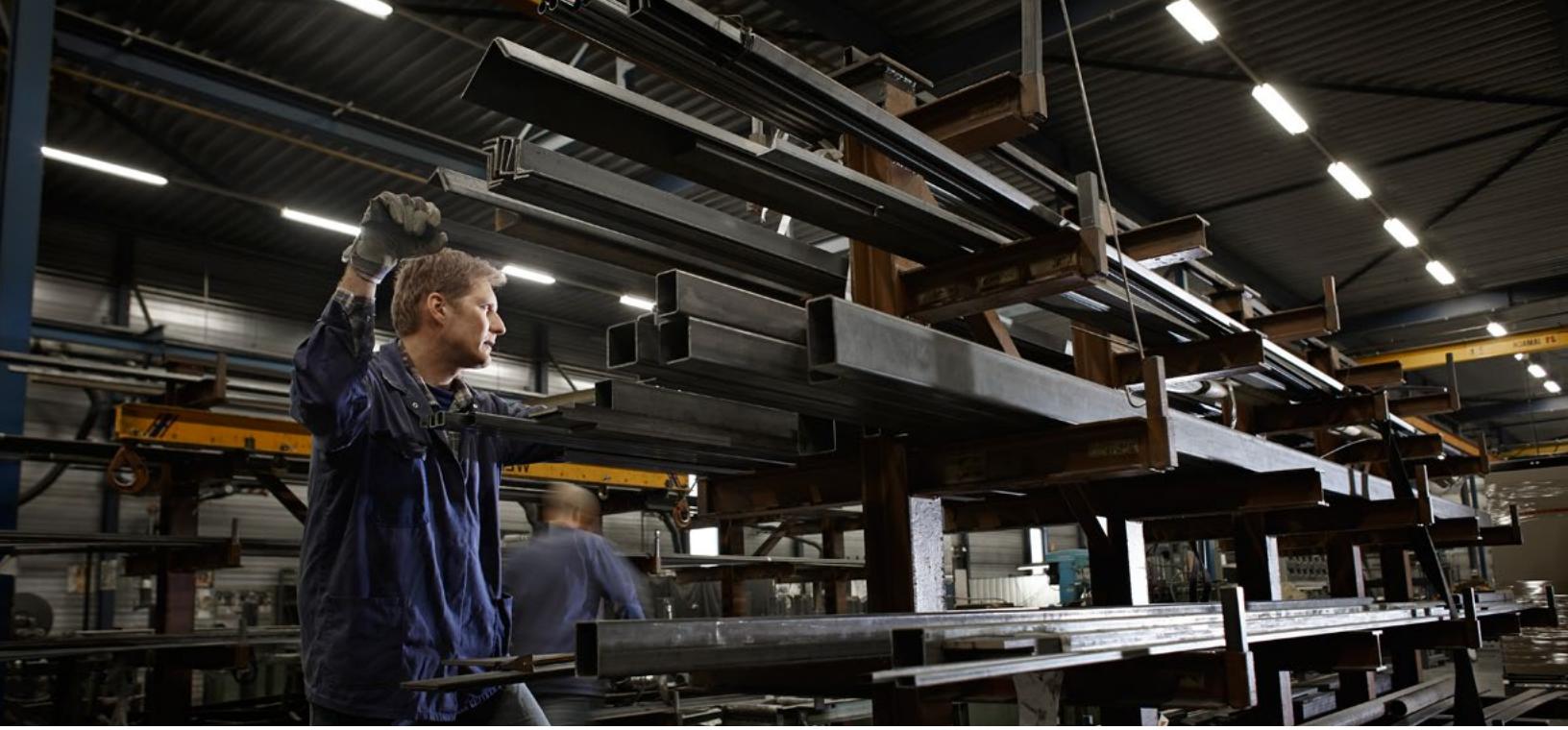
Within a year, Bettinardi had stemmed the red ink and within two years, the shop was expanding at a faster rate than ever in its history. Today, Bryco Machine excels as a fifty-person precision manufacturer of complex parts that require cutting edge equipment and high level machining. The shop produces everything from prototypes to 150,000-piece runs. Sales are projected to reach \$7 million this year.

Reinvestment for regrowth

It is a tribute to its president that Bryco Machine, which just three years ago seemed headed for trouble, is now one of the fastest growing machine shops in the Chicagoland area. While others retrenched, Bettinardi reinvested. He bought eight new Eurotech turning centers, increased use of their shop management software, and embarked on lean manufacturing to ensure success in their new niche: precision machining of larger, more complex parts. He focused the business on hydraulics, wireless



Left to right, Dennis Gilhooley Jr., Director of Operations, and Bryon Bettinardi, President, in front of a sampling of Bryco parts.



communications, electronics, defense and medical industries. The shop began to specialize in parts like cartridge valves and hex bodies, all requiring sophisticated equipment and advanced machining, parts that China and other offshore competitors could not produce competently for U.S. markets. All the while, the business grew. Bryco's lean manufacturing program resulted in a 66 percent increase in sales volume in just two years.

Well-equipped for profitability

The transformation began in 2004 when Bettinardi hired 33-year-old Dennis Gilhooley Jr. away from IBM where he served as a process improvement and supply chain management consultant. Gilhooley's first project was expansion of their shop management software into every facet of the business. Data from their JobBOSS system helped drive more change.

In late 2005, Bettinardi and Gilhooley added seven CNC turning machines to their stable of thirteen. Five were bar-fed turning centers from Eurotech—machines with dual spindles and turrets for simultaneous machining of multiple pieces. They built on 12,000 square feet of workspace to accommodate large-diameter production turning. Bettinardi's total investment that year was \$2.5 million, about two-thirds of the shop's annual sales.

Their new capacity grounded them in the business of producing larger diameter parts. But at the same time, quoting and costing problems developed because Bryco was doing a new kind of turning. Bettinardi could no longer

take a quick look at the shop and determine machine capacity and job cost. So he installed PCs running JobBOSS Data Collection on the shop floor. In 2007, he and Gilhooley launched a company-wide lean manufacturing program combining employee initiatives with consulting and guidance from The Chicago Manufacturing Center. The CMC is a non-profit serving Chicago's 16,000 small and mid-sized manufacturers, part of the Manufacturing Extension Partnership under the U.S. Department of Commerce.

Gilhooley's consulting background and supply chain expertise well-equipped him to oversee Bryco's lean program. Today, about halfway through their lean implementation, profits have risen from 2 percent to 8 percent in two years. "We don't care about \$10 million in sales if it costs \$10.2 million to generate it," admits Gilhooley. "What's key is profitability, and that is gradually increasing."

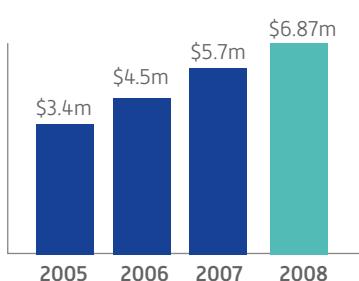


BRYCO SET UP OPERATOR, BRIAN HATKE, PROGRAMS A EUROTECH. BELOW RIGHT IS ONE OF THE SHOP'S SEVEN SET UP CARTS. MOST OPERATORS WERE USED TO RELYING ON THEIR OWN TOOLBOXES, BUT THE CARTS LED TO TIME SAVINGS, ORGANIZATION, AND MORE RELIABLE CALIBRATIONS.

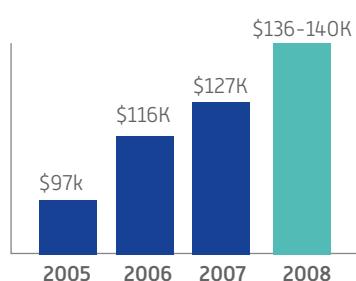
The results in numbers : 2005–2008

While his competitors retrenched, Bryon Bettinardi re-invested in his Chicago turning shop by pouring capital into equipment, personnel, and lean improvements. In just three years profits have increased, sales have doubled, and productivity has skyrocketed. Inventory levels and set up times continue to fall. Bettinardi has recession-proofed the business.

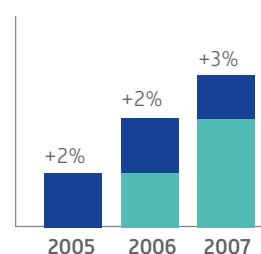
Increase In Sales



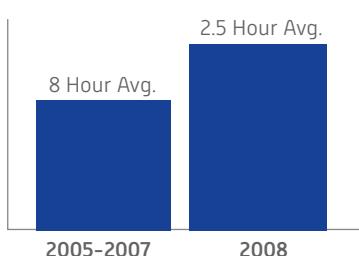
Increase In Productivity Per Employee



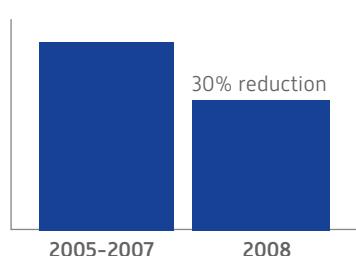
Increase In Profits



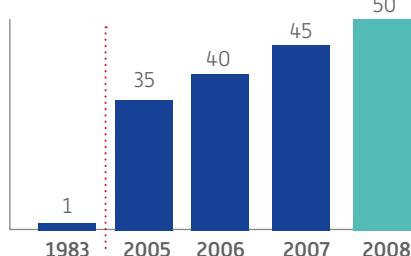
Set-up Times

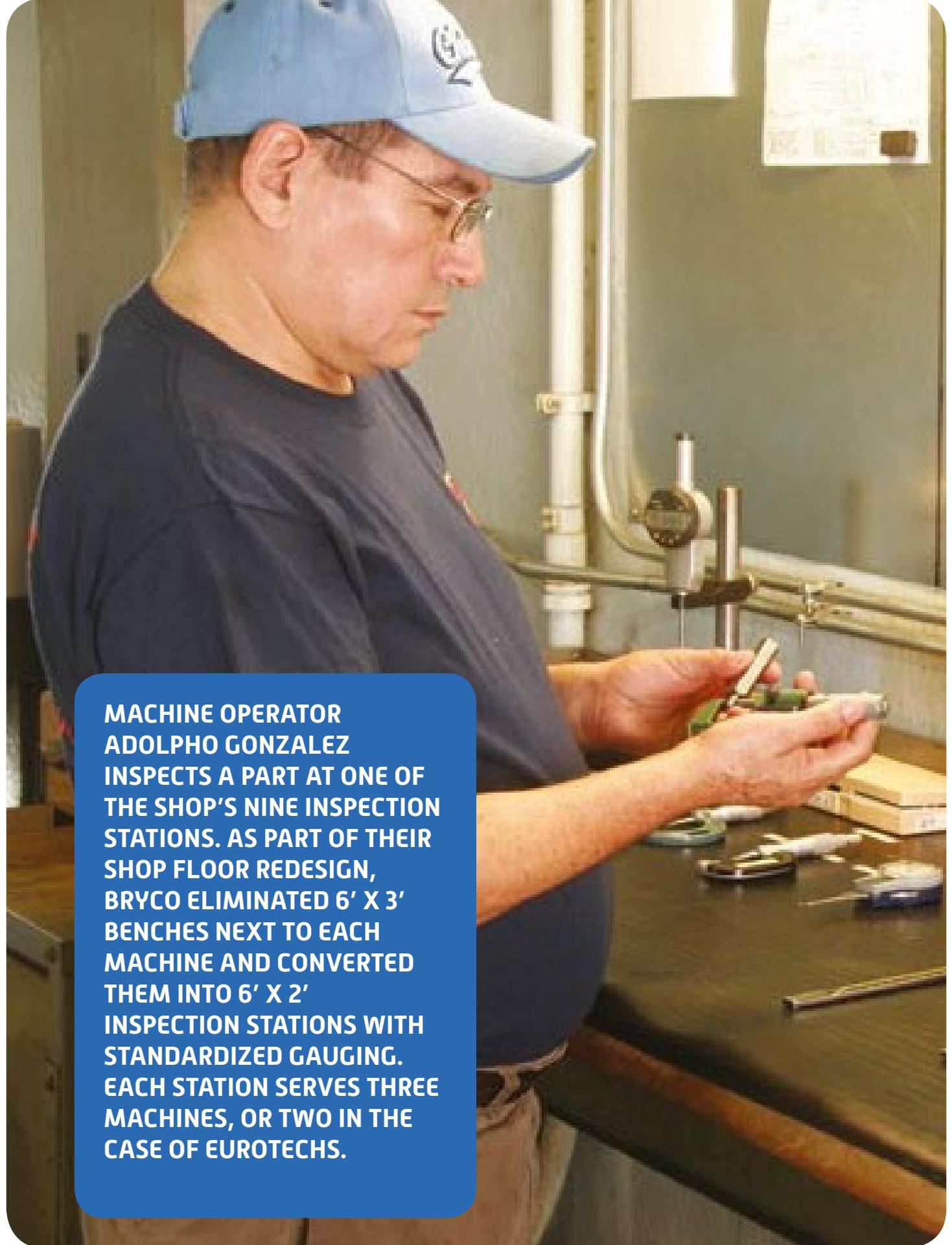


Reduction In Inventory Levels



Increase In Number of Employees





**MACHINE OPERATOR
ADOLPHO GONZALEZ
INSPECTS A PART AT ONE OF
THE SHOP'S NINE INSPECTION
STATIONS. AS PART OF THEIR
SHOP FLOOR REDESIGN,
BRYCO ELIMINATED 6' X 3'
BENCHES NEXT TO EACH
MACHINE AND CONVERTED
THEM INTO 6' X 2'
INSPECTION STATIONS WITH
STANDARDIZED GAUGING.
EACH STATION SERVES THREE
MACHINES, OR TWO IN THE
CASE OF EUROTECHS.**



For Bryco's raw stock inventory, thanks to an employee's lean manufacturing suggestion, operators walk over to the last rack, or job rack, to pull the materials needed for their next job.

The How: Business-wide involvement with re-organizing, streamlining and training

In February of 2007, Bettinardi and Gilhooley attended a free Lean 101 workshop at the CMC to learn the basics. Realizing there was much they could implement themselves, they launched the Bryco Lean Team. The team began by re-organizing tooling, then moved on to streamline more processes and reduce nonvalue-added work.

"Bryon and Dennis involved all of us from the start," says plant foreman Ricky Hamilton. "Anywhere from the simplest things like garbage cans in every area to more complex decisions like changing tools and tracking inventory, they made the employees a part of the process."

That same year, shop floor personnel underwent 5S training, pinpointing where they could cut waste. "Right off the bat we identified that we could reduce set ups," says Gilhooley. "Then we identified the inefficiency of everyone having their own toolbox and buying their own tooling. Instead we created set-up carts and standardized the tooling in a cart with every tool a set-up person would need. Now our set-up personnel just wheels the cart over and are assured they have what's needed." Bryco also hired a timesaving job puller to select the tooling and gauging for the job based on the schedule board. That and other lean improvements reduced set up times by 66 percent.

Meanwhile, enthusiasm grew and morale improved. In August of 2007, Gilhooley and the Bryco Lean Team began collaborating with the CMC to intensify lean improvements. They initiated a total reorganization of the shop floor.

Bryco Machine spans two buildings totaling 15,000 square feet. Originally when they moved into the buildings, machines were placed wherever they fit. As part of the lean journey, Gary McGregor, Manufacturing Specialist with the CMC, evaluated Bryco's plant for inefficiencies. He and the Lean Team then redesigned it to accommodate improved job process flow and new machines, mapping out what Bryco wanted the future to look like.

They also collaborated to visually map a job's production path from estimate to shipping. This value stream mapping led to the running of parts in families, and freed up space for four new pieces of equipment along with two more down the road.

As part of the shop floor redesign, Bryco also eliminated 6' x 3' benches next to each machine and instead, installed 1.5' x 1.5' tables. The team then converted nine of the old benches into 6' x 2' inspection stations with standardized gauging, where each station served three machines.

Periodically, Bryco employees formed 5S teams and engaged in a Kaizen blitz, a short-term project to improve a process. The blitz focused resources on a specific objective, leaving little time for resistance to a new paradigm. Training and Kaizen blitzes were followed by analysis and possible re-arrangement of an area.

Now, nearing the end of year one, lean improvements at Bryco have permeated the culture, transformed the shop floor, and strengthened the bottom line. According to McGregor, employees have more respect for cleanliness, neatness, and organization, management places a high value on employee training at all levels, and machinists understand the cost of changeovers and the importance of reducing inventory.

The WOW: Profitability, outstanding service, and ahead of the competition

"Bryco is already far ahead of their competition, primarily because Bryon and Dennis have embraced change," says McGregor. "They're actively learning and teaching new techniques, technologies, and ways of applying them. Not many small companies do that; most don't think they need to."

According to Gilhooley, the shop is running at 95 percent capacity. He believes profits in 2008 will jump significantly because most investments into the business occurred during the previous two years.

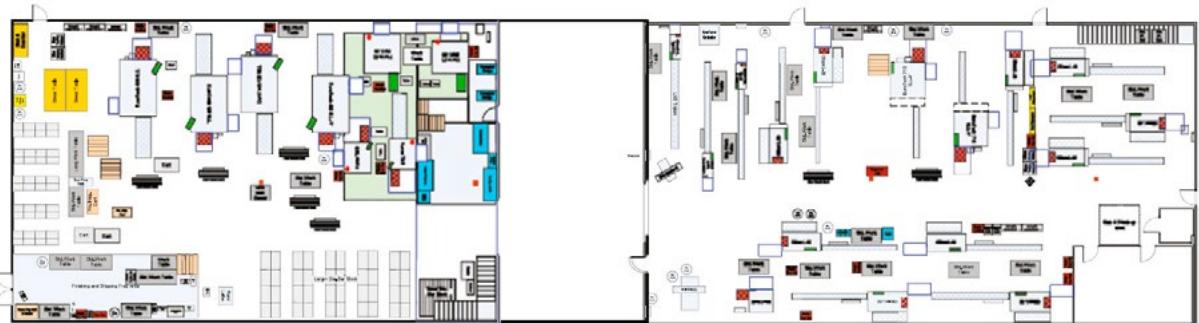
Bettinardi agrees enthusiastically and cites statistics. "Output per employee has increased 30 percent in two years, and will increase even more as the program continues. All eight new Eurotechs, worth \$300,000 each, are running at 95 percent capacity."

The shop's service remains topnotch thanks to Bryco's longstanding reputation for 99 percent on time delivery. "Our on time delivery is one of our trademarks," says Bettinardi. "This lean program with its focus on continuous improvement has strengthened our ability to keep that up."

McGregor agrees. "Lean has set the stage for continued outstanding service, impressive in itself, but the over arching benefit is profitability."

Looking back, Bettinardi admits his investments in equipment, space, talent, and lean manufacturing were risky. Nevertheless, time, growth and profitability have justified all of it. Productivity at Bryco has risen 30 percent and keeps increasing.

Meanwhile, Bettinardi's morning routine remains the same. He's at his desk by seven a.m. every day, walks the shop floor, meets with Gilhooley and others, and handles all the quoting. The only difference is, now he's running a shop in the midst of gravity-defying growth.



Before. Machines were put wherever they fit.



After. Machines and equipment are placed in such a way as to facilitate lean production.



Dennis Gilhooley stands in the aisle of Bryco's 'Citizen Shop,' in between a line up of inspection stations, Citizens, and adjacent bar feeders. Operators step just a few feet to reach an inspection station.

LEAN SCHEDULING IN ACTION

A Bryco customer orders 2000 pieces of a component. The customer only needs 800 right away. Plant Foreman Ricky Hamilton must decide whether to keep running up to 2000, or stop at 800. He quickly figures out exactly how many he should make based on projected demand seen from that customer, cost of changeovers, and the most efficient use of available materials. He could run all 2000, or he might run 1400, ship 800 and put 600 into inventory. Using data from JobBOSS, Hamilton determines the most profitable course is to make an extra 150, stopping at 950.

McGregor says small shops do a seat-of-the-pants version of this constantly. "But if you're competing against a Chinese machine shop that pays their people \$5 a day, you do better than seat-of-the-pants or you don't survive." He adds that now Bryco can ascertain the best course of action statistically, and can confidently tell their customers the precise day parts will ship. Says McGregor, "That cements customer relationships."

BRYCO'S SCHOOL AND COMMUNITY INVOLVEMENT

As part of a unique public-private partnership, the city of Chicago opened Austin Polytechnical Academy in September of 2007, a new high school focused on manufacturing. Bryco Machine has stepped forward as one of twenty private corporations sponsoring

the new school on Chicago's West side, the first of its kind, to combine liberal arts courses with a focus on manufacturing.

Austin Polytech's first class of 130 freshmen will graduate in 2011. This non-traditional, technical high school will prepare its student body for college, at the same time giving them insight into manufacturing, and opening their eyes to options such as going into the trades right out of high school.

"It's a well known fact that kids are not going into manufacturing anymore," says Gilhooley. "It's a dying trade. By sponsoring this school, we're doing what we can to encourage kids to get into the industry." According to government statistics, about 4,000 out of 7,000 manufacturers in Chicago have closed since the 1980s. To stem that tide of business failures, the city, its mayor, and its industrial base are crafting a manufacturing renaissance.

Bettinardi and Gilhooley learned about the school after seeing a presentation at a Chicago Manufacturing Renaissance Council meeting last year. Both believe the school will open kids' eyes to other options besides college and the military. "There are people in our shop, not even high school grads, making \$80,000 or \$90,000 a year," says Gilhooley. "Kids need to know that."

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JobBOSS is an ECi Software product. Our innovative technology is aimed at specific business needs, providing an overview of today and insights into the opportunities of tomorrow. ECi Software inspires businesses to grow. Our 1,600 employees love, share and support our customers’ ambition. Like them, we aim high. Like them, we aspire to lead the way. That’s how we know it’s a bumpy road to success. And that’s why we build software to help smooth it out, enabling our customers from all over the world to grow.

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