



DONSCO: FROM CRISIS TO PROGRESS

By leaning into its strength—vertical integration and value-added processes—DONSCO weathered a string of bad luck to emerge well-positioned to meet today’s customer demands.

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When a microburst tearing off a section of your foundry’s roof turns out to be the least of your worries in a five-year stretch of unforeseen disasters, it can feel like a miracle to still be in business. Yet AFS Corporate Member DONSCO, which met wind, rain, fire, pandemic, and supply chain shortages, and lived to tell the tail, emerged strong enough to be making continuous investments. The foundry’s survival wasn’t luck—it was the result of a strong foundation and an agile workforce and leadership.

“After the microburst took off our roof in 2017, we started to get very good at dealing with situations that were unplanned,” said Chris Buck, vice

president of operations at DONSCO. “And then in June of 2018 we had our most significant unplanned event—which was our fire. It ended up being a complete loss of the facility.”

What followed was a frantic year of demolition, re-engineering, and rebuilding—squeezing what would normally be a three-year process into 53 weeks of 80-mph decision-making and implementation.

“We pretty much locked three or four engineers into a room, and they were making decisions on the fly,” Buck said. “We had a couple of monuments intact—the location of the furnaces and the shipping docks. Other than that, it’s like we took a snow globe and shook it.”

Ultimately, DONSCO’s new Wrightsville, Pennsylvania, foundry was up and running pre-fire production levels by fall of 2019. Six months later, COVID threw everyone for a loop. Then came workforce retention challenges and raw material shortages. Yet, now in 2023, the iron foundry remains—pushing to meet demand while continuing to invest in its operations.

The Heat Is On

The fire was started by moisture that caused a steam explosion. It was exacerbated by flammable parting spray. After it was all put out, almost nothing was salvageable at the Wrightsville plant. Immediately, leadership tried to answer



DONSCO's Writingsville foundry, which runs two DISA molding lines, fulfills a need for cored, machined ductile and gray iron castings. This niche came into even more focus while the company was looking for other foundries to pour castings for DONSCO while it rebuilt its foundry. "We'd hear comments like, 'we would never run a core like that on our DISA,'" said Chris Buck, vice president of operations.



DONSCO process engineers tackle areas across the plant that can use optimization or automation, such as this finishing cell for trimming castings.



Automated grinders at DONSCO improve throughput and quality while eliminating hard-to-fill manual labor positions.

the question: What needs to be done for the business to survive?

"We knew that for the business to move ahead, we had to keep our customers," Buck said. "We circled that one-year timeline as when we have to be back making things for our customers in our four walls here. We felt that after a year, our customers would start to forget who DONSCO was.

"And then we just had to jump in the deep end."

DONSCO's surviving four furnaces and shipping dock locations would remain as-is, which determined where the DISA molding machines would go in relation to the furnaces. With the molding machine location locked in, the work-flow

direction—where the sand would come from and which way the castings would travel—was also logically decided.

Staff at Writingsville had a few wish list items at the ready to try to incorporate into the new facility. The original structure was 120 years old. For the first 100 years, it was a gray iron foundry and the set-up largely supported gray iron production. When DONSCO pivoted to ductile iron 20 years ago, certain systems in place were sufficient but not optimal for the different type of iron. For instance, the sand used to make decorative gray iron castings was gentler on the shake-out system than ductile iron, which required more aggressive shakeout to

break the sand off the castings.

"Things like dwell time between tap out and treatment of the metal for delivery to the molding machines was different for ductile iron," Buck said. "The old foundry had a complicated way to get the iron to molding through an overhead monorail system. We wanted to straighten that all out with the new foundry.

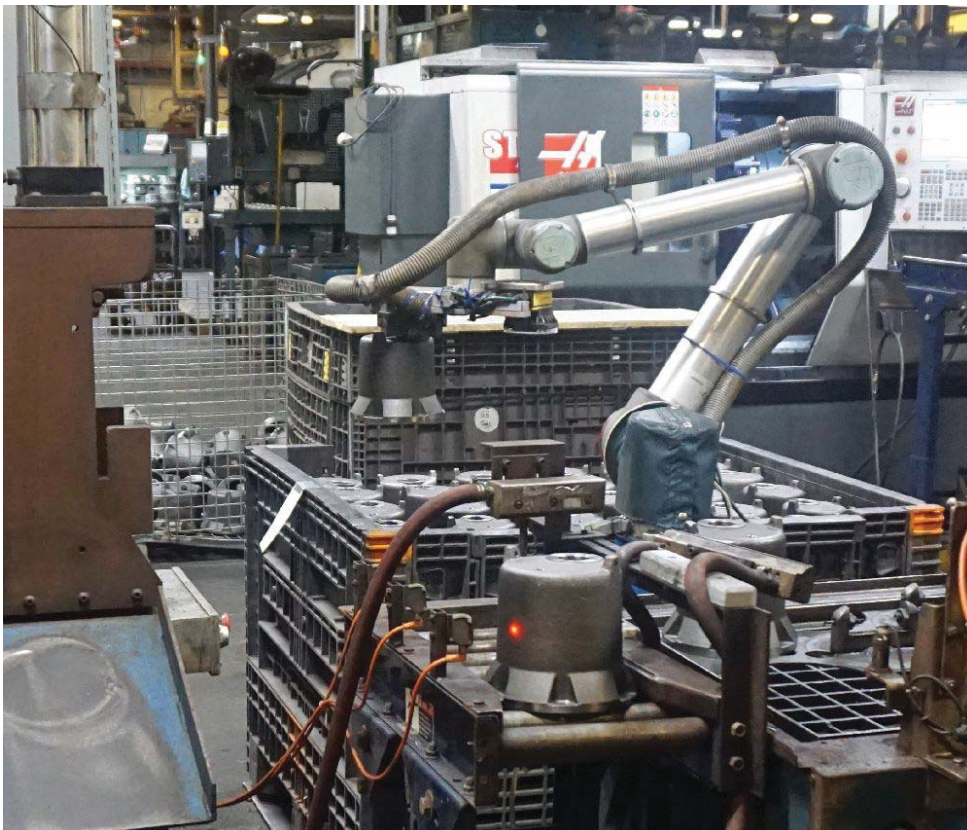
"We also had some very fresh lessons learned about how to prevent a fire in the future."

These lessons included head height, proximity of sand belts to molten iron, and the general amount of space between machinery and departments.

"Everything had been so tight,



DONSCO's engineering capabilities enable the foundry to produce complex cored castings on its DISA molding machines. Engineers also design tooling for cores and machine tooling, which is key for this vertically integrated company.



A custom-engineered robotic cell in the machining department.

so we really wanted an open floor plan," Buck said. "And we completely changed the way sand is delivered to the molding machines to avoid any type of fire we had."

The First Seven Days

Knowing the foundry would be offline for at least a year, DONSCO had to figure out how to continue to deliver castings to its customers before they started shopping for a new source. With 350 active part numbers, it was a tall task. Fortunately, the company had a few advantages. (1) DONSCO operated another foundry in Mount Joy, Pennsylvania, about 15 minutes away. (2) The machine shop and other DONSCO-owned buildings in Wrightsville, adjacent to the foundry, went unscathed.

Since the 1980s, DONSCO has invested significantly in capabilities to make it a single-source for customers seeking vertical integration. The result has been a robust machining operation with considerable advanced CNC equipment and skilled personnel. To support the growing machining capacity, DONSCO began expanding its engineering department to design and build tooling and coreboxes, and conduct all the CAD work and simulations.

So when it came time to find a path forward to delivering castings to its customers during the foundry's rebuild, DONSCO found the answer was in its strengths.

"We learned we could protect our business if we controlled two things: the front end, which was making cores, and the very backend value stream, which is machining," Buck said. "And as lifelong foundry people, we said 'what are the two things foundries hate to do?' And that was making cores and grinding castings. So immediately, we put a hyper-focus on coremaking."

As soon as possible, DONSCO brought in rental air compressors, equipment, and portable restroom and locker rooms, and cleared out space in the foundry to start making cores. This makeshift coreroom met about two-thirds of the core demand, while the

Mount Joy plant picked up the slack.

Once coremaking was established, DONSCO turned an adjacent 15,000-sq.-ft. building that it owned into a grinding center. It now could produce cores and grind castings—making the handshake agreements with nearby foundries for help more palatable for all involved.

“We could truly go out to the foundries and say, we will send you the cores and the patterns, here are our process sheets and our process instructions,” Buck said. “Once you pour the molds, degate, and blast, send the product back to us and we will then grind it and direct ship to the customer or move it on to the next stage of machining, heat treating, painting, etc.”

Meanwhile, DONSCO leadership also decided that losing its workforce and then trying to rehire in a year would put the foundry at a severe disadvantage and further delay a return to full production.

“If we didn’t keep our workers, we weren’t going to have anybody to run a plant no matter how nice the new one was,” Buck said. “So, we decided everyone would continue to get a paycheck, and there would be work for them to do helping fill in gaps in machining and at the Mount Joy facility. Some of them helped clean up the Wrightsville plant. We had to keep our customers, and we had to keep our workers.”

All this was accomplished the first week after the fire.

Emerging From Crisis to Face Another One

One year and one week after the fire, the first furnace of iron was melted in the rebuilt plant. Then the foundry worked through three months of commissioning—getting out the kinks in all the machinery and systems to eventually reach smooth, consistent production. This process was almost as stressful as the rebuilding stage, Buck said. But by September of 2019, DONSCO’s Wrightsville foundry was up and running.

During the plant’s rebuild, DONSCO continued to also invest in its machining facilities—installing eight



DONSCO’s machining facility, housed in a separate building from the Wrightsville foundry, was able to continue to operate during the rebuild and was critical to the business’ ability to fulfill customer orders.

CNC machines in the same timeframe.

“We never lost sight of that value-added machining,” Buck said. “It’s really one of the biggest growth areas for us, because so many customers want that vertically-integrated supply chain.”

DONSCO had about six months of drama-free, steady casting production before the COVID pandemic hit. However, this time the crisis hit nearly everyone.

“We never shut down, but our orders did dip,” Buck said. “It wasn’t as stressful as the fire because we didn’t have to build, but demand was down, and we saw our first case [of COVID in the plant] in April and it worried us a bit.”

Thankfully, DONSCO’s workforce remained relatively healthy, and as casting demand returned in full force to make up for lost time in August 2020, the foundry faced another crisis: retaining and expanding its workforce at a time when COVID cases and hospitalizations were high enough to discourage people from being among large groups of people.

“We met with our workers to see what they were comfortable with,” Buck said. “They said, ‘we make castings.’ So, they were open to coming in. We have a lot of ventilation in the plant, with six to eight air exchanges in an hour.”

The open floor plan of the new plant also helped the workers maintain distance from each other.

The pandemic’s effect on supply chain disruptions has had a positive impact on OEM purchasing strategies in terms of buying regionally.

“One of the things we have seen through this whole thing is the trend of moving product back from China and keeping it here,” said Don Mann, vice president of DONSCO. “The customers that made it through the best without massive supply chain issues were the ones that understood their markets and basically manufactured the products where they were being used.”

Focus Shifts to Mount Joy

During the rebuilding and commissioning of the Wrightsville foundry, DONSCO’s Mount Joy was forced to live on the backburner in terms of investment, while also stepping up to fill in production gaps as needed. Now the attention is being refocused there.

“We pretty much had to put Mount Joy in the corner and tell them, ‘We know you guys are there and we’ll get to you eventually,’” Buck said. “But we needed them to pull the weight then. Now we’re able to start looking at moving ahead to make upgrades to catch Mount Joy up.”

BUILDING COMMUNITY



Retrofitted vending machines located throughout the plant provide employees with quick access to tools and supplies they can retrieve with their key cards. Transactions are limited and tracked. The vending machine idea was implemented to give employees an easy way to get the resources they use frequently and eliminate the need to stockpile items.

DONSCO started its Mount Joy revitalization with investments in its corerroom and now it's moving on to a multi-year sand system upgrade. As part of that, it recently purchased a sand muller, baghouses, shakeout equipment, and two dust collectors. The goal is to expand the capacity and produce more product. Currently the plant is constrained leading up to melting.

"We said, 'OK let's break every bottleneck from the first step of the process working towards melt,'" Buck said. "So ultimately, when we do make the investment in furnaces or power supplies, we will see a step change in the output. But right now, if I double the size of our furnaces, nothing more is going out the door—the molding machines can't run fast enough because they're not getting enough sand. And if we had the sand system, our corerroom wouldn't be able to keep up. So, we started in the corerroom, and now we're moving on to sand."

As Mount Joy gets its turn in the spotlight, DONSCO will also continue to tie up what Buck calls the

DONSCO's Wrightsville, Pennsylvania, foundry is located on the banks of the Susquehanna River just off the Veterans Memorial Bridge. Over the years, the Mann family, which owns DONSCO, has purchased land, buildings, and homes in the area—rehabbing the neighborhood into an attractive place to live and work while keeping its historic charm.

"We were seeing an issue with employees not being able to find housing, and the buildings in the surrounding area were rundown," said Arthur Mann Jr., DONSCO president.

Remodeled homes and apartments are made available to rent to employees, who can benefit from affordable housing steps away from work. Currently, there is a waiting list for DONSCO housing.

"I think we are seeing a trend toward the industry town again, especially with rising inflation," he said. "We've been tracking how many people are actually walking to work here, and a lot of them are."

The Mann family also opened two restaurants contiguous to the foundry, and help with local fundraising for police and fire departments, as well as youth sports and town fireworks.

The site where the foundry sits holds national historic significance for its role in the Civil War. In 1863, Union militia burned a bridge crossing that river to keep Confederate forces from advancing further east. The skirmish was one of the factors setting up the battle of Gettysburg.

Prior to COVID, the "Burning of the Bridge" was honored annually with an event that brought many to the area to celebrate and have a good time.

"We are trying to build up the community through sponsoring events, investing in revitalization, and supporting the local police and fire departments," Mann said.



One of the Mann family's restaurants is located across the parking lot of DONSCO's foundry in Wrightsville. The picturesque area is experiencing a revitalization thanks in part to efforts made by DONSCO ownership.

final 20% of that foundry's rebuild.

"There are some things we knew we'd tackle later and other things that we just didn't know yet," he said. "The big open floorplan of the factory visually helps the supervisor to view product flow and recognize bottlenecks occurring. But we didn't realize that, in the 100-year-old facility, all its nooks and crannies helped absorb the noise.

"So now we are working on things like noise abatement, continuing to brighten up the foundries, and eliminat-

ing positions we constantly have trouble filling through automation."

While DONSCO saw more than its fair share of trials from 2018–2022, the metalcasting business has emerged with increased capacity, a skilled workforce, and a stronger grasp of what sets the foundry apart.

"We like working with customers that can take advantage of our core competency of integrating all these different processes, from coremaking to machining," Mann said. "We are best when we are adding value." **MC**