



Steeling the Spotlight: Tallman Technologies

By Amanda Woods

Iron & Steel Technology *visited Tallman Technologies in Burlington, Ont., Canada, for our series that spotlights the grassroots companies powering today's steel industry while positively impacting the communities in which they operate.*

Tallman Technologies is known globally in the iron and steel industry as a supplier of injection and monitoring technologies. With more than 10 U.S. and foreign patents for the blast furnace, basic oxygen furnace (BOF) and electric arc furnace (EAF), Tallman Technologies is focused on solutions that reduce CO₂ emissions and enhance safety and efficiency.

And the company just celebrated its 150th anniversary.

Predating the birth of both the basic oxygen furnace and the electric arc furnace, the company started out in Hamilton, Ont., Canada, as Phoenix Brass Foundry in 1875.

In its earliest days, the company, led by William Hunter, produced brass and bronze castings for local industry, as well as babbitt metal and solder. They also made castings for fixtures and lamps that were sold all over the world.

Hunter was succeeded by Joseph Nelson Tallman and his son William in 1896. The Tallmans expanded the facility with additional furnace and casting capacity and changed the company's name to J.N. Tallman and Sons.

In 1910, the company moved into a new, larger facility in Hamilton; added a brass rod, sheet and extrusion department; and changed its name again to Tallman Brass and Metal.

In the early part of the 20th century, Tallman Brass and Metal's offerings expanded to include ornamental bronze castings, as well as brass components for Ford Model A's and Model T's.



The foundry at Tallman Brass and Metal, 1901.

“We were the first company in Canada to sell windshield wipers,” said Mike Strelbisky, the president of Tallman Technologies.

“We were around before the steel industry really existed in Canada.”

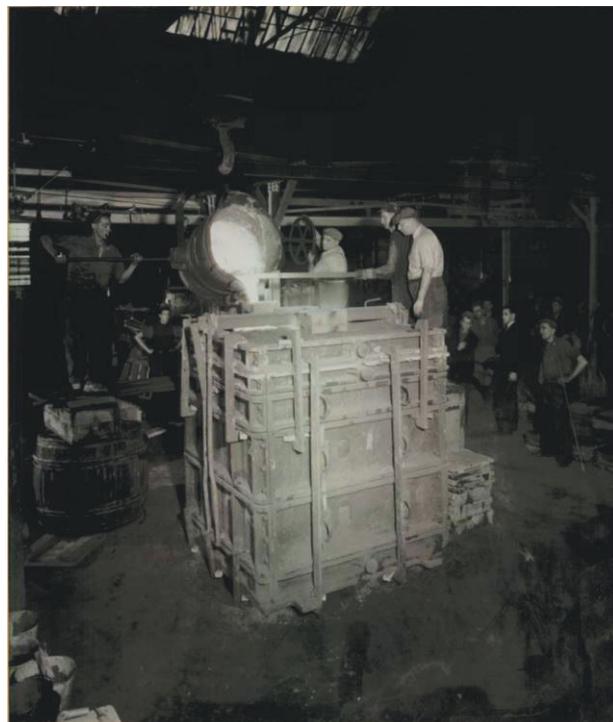
In 1932, A.H. Tallman passed away and was succeeded by his son Addison H. Tallman Jr. Addison Jr. was later joined by his brother Murray in 1940.

The two brothers kept the business going through World War II and contributed to changes that modernized foundry practices at the time. It was around this time that Tallman Brass was one of the largest employers in Hamilton.

In 1959, John McColl and Thomas Langs became the new owners of the company, and with them came the move to a new, custom-designed facility in Burlington, Ont., Canada.

Langs was an engineer who graduated from the Massachusetts Institute of Technology, and coincidentally his family lived on the same street as Clifton Sherman, the founder of Dofasco. Langs went on to use his engineering skills to design the first lance tips for Dofasco’s new BOF converter and later to patent several technologies for the manufacturing process.

It was during McColl and Langs’ tenure that Tallman progressed technologically from shell-molded castings to centrifugal castings, expanding not only their product offerings but their customer base and reach into different countries. The company began working with



A casting taking place in 1936 at A.H. Tallman Bronze Co.

Union Carbide, Reliance Electric, General Electric, Otis Elevator and Corning Glass, for whom they designed special centrifugal cast molds for Corning's Corelle dinnerware.

Most notably with Union Carbide, Tallman began supplying BOF lance tips in the 1960s and 1970s in areas outside of North America.

"We did a lot of work with blast furnaces and making blast furnace tuyeres, but we've always tried to be a solution provider, or offer something that's a little more innovative," Strelbisky said.

"The history of the company and its people have grown with the steel industry"

Mike Strelbisky's father, also named Mike, started with Tallman in 1958 in a financial role. He later bought the company from McColl and Langs in 1982. Tom Langs stayed on until 1987.

In his early life, the senior Strelbisky was a hockey player with the Junior Ottawa Senators hockey team. He turned down a hockey scholarship to Harvard and went on to graduate from Queens University. He had worked as a chartered accountant before joining Tallman as controller.

The younger Mike Strelbisky's first job was at Stelco, where he worked on starting up the facility's hot strip mill while on a university work term in 1981. He then joined Tallman in 1985 as a product manager.

"I was preordained to be part of the company, and I focused mostly on the nonferrous side of it," Strelbisky recalled. "So my role was basically to be the process engineer for the foundry."

As product manager and then engineering manager, Mike learned about copper-based metallurgy and BOF steelmaking and ironmaking under the tutelage of Tom Langs.

In 1990, Mike's father retired due to health issues, leaving Mike at the helm.

Straight away, he realized that while Tallman was working with the steel industry, the company operated in a more reactive manner than proactive; so he began reaching out to markets outside of North America.

"We've always tried to be a solutions-driven, technical-driven, engineered solutions provider"

It was during this time that Tallman ventured into the electric arc furnace side of steelmaking, supplying components and lances to Fuchs.

In the early 2000s, the company developed a special injector for injecting carbon into an electric arc furnace. "Everything we do is related to supersonic nozzles," Strelbisky said.

"The technology we designed for carbon injection uses an annular supersonic nozzle (a thin circular jet of air) that surrounds the carbon. The carbon particles are encapsulated by the supersonic jet gas resulting in a 2-m-long coherent stream of carbon."

With this technology, carbon injection efficiency increases by about 50%. And the technology is equally efficient when injecting low-density biochar, which not only leads to a major reduction in carbon usage but also significantly lowers CO₂ emissions.

"Carbon injection is generally manually controlled and can be difficult to convince the operators to reduce the injection rate by 50% to compensate for the increased efficiency," Strelbisky said.

He explained how Tallman Technologies was able to develop a process model to guide the operator:



“Without real-time feedback, it can be hard for operators to trust what the model is telling them,” he said.

“We had the challenge of coming up with something so that the operator could get feedback. The operator has to see what’s going on inside the furnace. When they can see the process, they can recognize when too much carbon is being used and how it negatively affects slag foaming.”

“That’s when we developed a permanent in-furnace monitoring technology,” Strelbisky said. “So for the first time, an operator can now monitor what’s going on in the furnace.”

This opportunity led to Tallman Technologies hiring its first machine learning engineer to automate the process based on the visual feedback from the in-furnace cameras.

The advancements the company was able to implement in the early 2000s gave way to increased production for its customers, and eventually, reduced CO₂ emissions.

“We worked closely with Linde Gas in developing a specialized lance tip to reduce blow times in the BOF. And while productivity wasn’t a big issue in 2008, we brought it back out about four years ago because another benefit was that it could help melt more scrap. Melting more scrap means reduced CO₂ emissions, which is beneficial for steelmaker and the environment.”



Tallman is currently working on in-converter monitoring of the BOF steelmaking process to control slopping along with ignition and endpoint prediction that will further reduce emissions and increase efficiency.

“Ahead of the curve”

“I’ve been here now 40 years, and every five years our top five customers change,” Strelbisky said.

This is due in large part to the shift in the North American industry from BOF to EAF steelmaking technologies.

“One of our biggest challenges now, especially with this monitoring system, is that we have to educate clients on what’s possible, because many don’t yet realize what these systems can do. Nobody really thought you could see inside the furnace during operation, so the thought becomes: Now that we can see inside, what do we do with that information?”

Strelbisky feels this is where the company can educate the industry on the safety benefits that come from a real-time visual monitoring. For example, now operators can see if there’s a water leak in the furnace before they swing the roof off.

“That’s a huge step forward for both safety and operational awareness,” Strelbisky said.

“We had to understand our customers”

During his work with Fuchs in the mid-1990s, Strelbisky realized the importance participating in industry conferences.

“I attended the first year and we exhibited the next year at both ISS and AISE and then through AIST,” Strelbisky said. “So we’ve been going to conferences since 1999. We also go to METECC every year starting in the early 2000s because we saw the benefit of being able to exhibit our technologies to the rest of the world.”

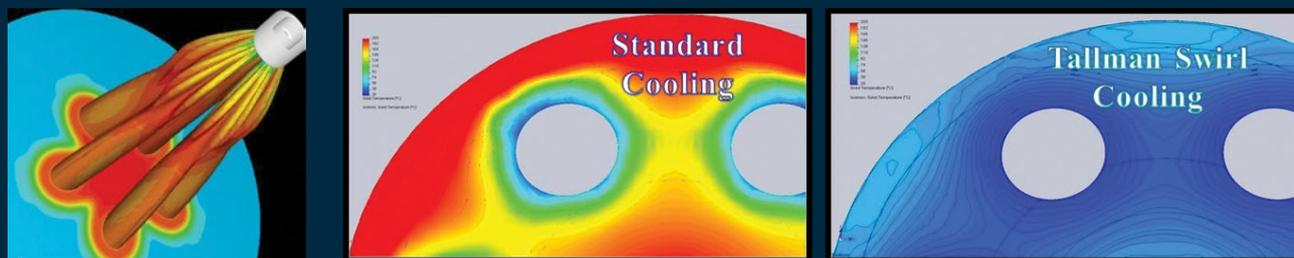
“I started to do a lot of traveling because I saw the need to understand the various steelmaking processes around the world. One of the things we had to do is understand our customers.”

Part of that journey was to understand steelmaking.

“I went from being a nonferrous metallurgist to a ferrous metallurgist. I had to understand the process to be able to design technologies appropriate for the market.”

In his travels to visit clients, Strelbisky had the opportunity to observe the different steelmaking processes around the world.

“You could see how Brazil and India were very similar because they used high hot metal ratios; whereas in North America and Europe, they used more scrap,” he said. “So the discussions with the steel mills got more interesting because we would be able to explain to them,



Examples of Tallman’s computational fluid dynamics modeling on its injector technology.

‘In Europe, here’s how they do it,’ and we were able to bring a lot of insight to the customers.”

In 2005, Strelbisky met Ralf Bruckhaus, then the steel plant manager at Dillinger Hütte, at a conference in Canada, where they discussed the differences between European and North American steelmaking.

“It was through that conversation that we arranged the first official AIST Study Tour,” Strelbisky recalled. “We brought 25 North American steelmakers to Germany to see firsthand how other plants operated.”

The initiative stemmed from a simple goal: to broaden understanding and collaboration within the global steel community.

“We wanted to expand our markets and share the knowledge we’d seen around the world,” Strelbisky said. “At the time, most steel companies were quite insular — they don’t often see beyond their own operations. The study tours gave them the opportunity to see not only what others do, but why they do it.”

Strelbisky’s role in the creation of the AIST Study Tour program was instrumental in his receiving the AIST Distinguished Member and Fellow Award in 2017.

“As the iron and steel industry evolves, so will Tallman”

Keeping tabs on the trends of the industry is key to Tallman’s success.

“We keep an eye on all the technology innovations — and that’s one of the reasons why we try to attend all the conferences and the technical papers is to understand where the industry is heading,” Strelbisky said.

“You can look all over the world: Japan is changing from BOFs to EAFs; so you can see it in North America, you see it in Canada.”

Material selection for Tallman’s supersonic injector is one such avenue for innovation that the company is currently investigating, including biochar and plastics.

“The benefit of our injector also is that it’s cooled only with air only,” Strelbisky said. “And the cooling process also prevents plastics from melting at the end of the injector.”

And with their camera technologies, Tallman is now looking at thermal cameras and eliminating the need to take physical temperature measurements in the EAF and ladle metallurgy furnace, which may help to improve efficiency.

“We’re not limited to camera systems, but radar and other technologies to enhance the steelmaking process.”

In 2018, the company changed its name from A.H. Tallman Bronze Co. to Tallman Technologies Inc. to better reflect the direction of the company in the 21st century.

While Tallman Technologies continues to innovate for its customers, its own future is being shaped by Mike’s son, Aaron, who serves as the company’s vice president.

Like his father, Aaron was “preordained” to join the company and the steel industry at large.

“As far back as I can remember, my father would visit customers and steel plants around the world,” Aaron told *Iron & Steel Technology*. “Even as a child, I knew I wanted to be a part of an industry that allowed me to travel and work with people from various cultures and backgrounds.”

Looking to the future, Aaron said, “we will continue to push the boundaries of innovation and lead the transformation toward a cleaner, smarter and safer steel industry. We are driven by a commitment to sustainability, developing technologies that meaningfully reduce CO₂ emissions and support the global transition to low-carbon steel production.”

“At the same time, we are reimagining safety through AI-powered systems and intelligent automation that protect people while optimizing performance.” ♦