

McInnes Rolled Rings: Keeping it

McInnes Rolled Rings utilizes world class manufacturing technology to make seamless rolled rings from 4" to 144" diameters in a variety of materials including carbon, alloy and stainless steels. The rings have applications in a multitude of industries from oil and gas to power transmission and ball and roller bearing to power generation and aerospace.

The ISO 9001, AS9100 and Pressure Equipment Directive (PED) certified facility opened in 1992 in Erie, Pennsylvania and currently employs 80 people including a skilled sales team and a highly trained staff of engineers and metallurgists. Self-directed teams throughout the plant work together to make quality products that can be delivered in as few as five days to customers across North America and even Europe. The McInnes team is always finding ways to better serve their clients whether it is continuously expanding the plant, investing in state-of-the-art technology or improving their lead times.

Stainless Steel World Americas recently visited McInnes Rolled Rings and toured their impressive plant before sitting down with Shawn O'Brien, VP-sales & marketing, and John Christie, general sales manager, to discuss their focus on customer service, their stainless steel products and their exciting upcoming projects.

By Candace Allison



An impressive aerial view of the recently expanded McInnes Rolled Rings plant.

"We have a team-oriented customer-focused group of people that have shared productivity and profitability goals. We are all stakeholders in the outcome of things and each team is part of the overall fabric that contributes to productivity bonuses and profit sharing," explained Mr. O'Brien. "It's always our goal to be one of the most state-of-the-art facilities in the world. We always want to stay on top of that whether it is with material handling, maintaining controls on the forging equipment or our associate training; it's all about ensuring quality."

State-of-the-art machinery

Helping to ensure product quality is the continuous expansion of the plant as well as investments in the most technologically advanced mills and presses. In 2012, the plant doubled in size, to 120,000 square feet, in order to accommodate the three

mills and in-house heat treating area with quenching, tempering and spheroidizing capabilities.

Mr. O'Brien detailed that the smallest ring mill, which services the aerospace bearings industry, is a KFR 630 Wagner Dortmund table mill, which makes rings starting at 4" in diameter. The next size mill is a Wagner 63/63 Radial Axial Ring Rolling Mill supported by a 1,200-ton Erie Press Systems Hydraulic Press, made locally in Erie. McInnes is a big proponent of supporting the local community and the presses have been an especially good product for them. The newest mill is a Wagner 160/160 Radial Axial Ring Rolling Mill supported by a 3,500-ton Erie Press Systems Hydraulic press. Also known as a square mill, it is able to roll heavy wall rings and will play a key role in making the stainless steel rings.

What helps in the forgeability of the



The McInnes Rolled Rings facility in Erie, Pennsylvania.

stainless steel rings is that McInnes, sparing no expense, optimized the size of the press, so it's able to feed the mill anything it can handle. Previously, the stainless steel rings were made on the 63/63 mill, however they were limited to approximately 700 pounds in the 300 stainless series. With the addition of the 160/160 mill they are now able to handle stainless steel rings up to 4,000 pounds. This substantial tonnage increase allows them the freedom of supplying a large share of the stainless market that they were previously unable to reach, placing them ahead of much of their competition.

A speed-driven approach

Also helping the company to stand out is their emphasis on productivity and speed. For them it is all about providing a quality product with impeccable service that will satisfy existing customers and help them attract new ones.

"I think that the emphasis on speed throughout the process from the initial request for quote, through to shipping, really offers value. We never charge expediting fees and we make that our way of life, doing everything fast. We're constantly eliminating any wasted space and time in our process because it's not uncommon for us to receive an inquiry in the morning and deliver the job to the saw within our workday. It's more the norm than the exception anymore and a lot of it is based on how fast our customer is willing to operate and reduce their inventory cycle times."

As Mr. Christie substantiated, "It is common to see material going right off the truck and onto the saws. This happens in a lot of cases." It's this need of the customers' to have the products as soon as possible, ideally right away, which McInnes is really keyed into and takes very seriously. It is therefore essential that all operations throughout the company run as efficiently as possible.

As recently as last month, a lean program was completed in the office to ensure that the flow of paperwork is on par with the speed in the plant. This is also an important step in maintaining their quick-turnaround time for quotes. Over 90 percent of all quotes are returned within four hours of receipt, which certainly helps the company stick to their promise of shipping in as few as five days.

Secrets to success

Simplicity is also an important factor to the company's success as Mr. O'Brien explained, "We keep our process simple by focusing exclusively on the forgings. If we were to delve into machining and fabricating we would essentially be competing with our core customer base. We would prefer to leave the machining to the experts and focus exclusively on delivering the best overall value in seamless rolled rings."

According to Mr. O'Brien, working with great suppliers goes a long way in helping to make the company successful. The plant is located in close proximity, within 120



The McInnes plant floor.



Seamless rolled rings.

simple is the key to their success



Team Leader, Dan Maher, rolls a ring on the 160/160 mill.



An overhead view of the ring making process.

miles to be exact, to the best steel suppliers in North America and has established good working relationships with all of them.

McInnes consumes a consistent list of material grades in standard sizes which helps maintain a simple and mutually successful relationship with all of their vendors. Having solid support from their supply chain assists with the company's fast-turnarounds. "It's fairly common for a heat of material to be melted, delivered to our plant and shipped out as rings within a matter of days. Compared to the rest of the industry, we are moving the gross input weight of the steel over a shorter distance and shipping the net weight of the rings from the centerpoint of most of our customer base."

Additionally, McInnes doesn't charge premiums for their fast and reliable service because it is just their standard way of doing things. All of their customers, whether it is a large global company or an independent local operation, have access to the same high-quality service level. No customer is put ahead of any other, which keeps the plant running smoothly and efficiently. "None of our customers have to worry about being bumped down the rolling schedule for us to make way for a larger order," clarified Mr. O'Brien.

Focusing on stainless steel

Since the addition of the 160/160 mill supported by the substantial 3,500-ton press, McInnes is much better equipped to

meet the demand for stainless steel rolled rings anywhere from 4" to 144" outside diameter and 1.25" to 24" tall. They are able to offer a wide variety of stainless steels including 300 series, 400 series, duplex and the PH grades.

The forgeability of stainless steel rings is considerably more difficult than those forged in other materials such as carbon or alloy. Mr. O'Brien explained that producing a quality steel blank is where the process begins. The blank is cut to size and loaded into a pre-heat furnace. Once the blank is up to temperature, it is delivered to the 3,500-ton hydraulic press where it is "upset," essentially the height of the blank is reduced and center pierced. It is then ready to be rolled on the 160/160 mill.

Seamless rolled ring forgings are relatively new to the industrial world. There are still many industries that are working with outdated and heavy fabricating methods such as cut plate or rolling and welding. Mr. O'Brien described, "If they have been relying on plate for stainless rings, they have to stock the plate inventory, which is expensive and bulky. With a seamless rolled ring we typically yield 97 percent of the gross input weight, where as in a fabricated plate ring the center drop is lost. Many fabricators believe that they'll use the drops again, which may or may not be true, but with our method you don't have to stock the inventory at all, we can make you a near-net forging where you don't have the corners that fall off or the center that drops out and the handling that goes along with that." Therefore, the seamless rolled

ring not only has a superior grainflow compared to one cut from plate, but it is also a more economical use of the metal. There is also a common misconception that rolled ring forgings have too long of a lead time compared to cut plate, but with McInnes' focus on speedy service and delivery, this isn't the case. If anything, the lead times are even better with the rolled rings. Moving forward, an ongoing priority for the company is to translate the industry leading cycle time standard they have set for over 20 years in the carbon and alloy business into the stainless steel market.

Upcoming projects

Besides the increased focus on the stainless steel market, McInnes has several other exciting projects lined up over the next few years such as expanding their heat treat operations. They are currently in the process of selecting suppliers and expect by early next year to be heat treating in larger volumes and diameters, which will help them keep up with demand.

As well, the company will begin offering forged discs in stainless steel. There is a disc rolling software that accompanies the 160/160 mill that will be installed later this year, after which the staff will undergo training. Mr. O'Brien was quick to assert that McInnes is not planning to change their focus on selling rings, but that they will look for opportunities to pair both the rings and the discs and provide one stop shopping for customers that require both products.

He concluded, "Keeping it simple and keeping the focus on what we do well is the key to our success. We are willing to say no to things we don't do well. We have the ability to pass on projects that aren't a good fit for our culture and it keeps the speed of the process going quickly. We can't create demand, but if we continually satisfy our customers we will continue to grow and meet our goals."

All photos: McInnes Rolled Rings



The McInnes team from left to right: Shawn O'Brien, VP-sales & marketing; Brandy Cunningham, inside sales associate; Lisa Robbins, inside sales associate; Lori Wallis, inside sales associate; John Christie, general sales manager; Heather Danowski, inside sales associate; and Laura Myers, inside sales associate.



The 3,500 ton Erie Press.

McInnes Rolled Rings at a glance

Company Name	McInnes Rolled Rings
President & CEO	Tim Hunter
Number of Employees	80
Location	1533 East 12 th St., Erie, Pennsylvania 16511
Distribution	North America and Europe
Products & Services	Rolled rings from 4" to 144" in diameter in carbon, alloy and stainless steels
Industry Markets	Oil and gas, power transmission, ball and roller bearing, power generation, food processing and aerospace
Website	www.mcinnesorledrings.com