

Larger than life Velona tackles a man's world

The foundry industry is probably the least glamorous of all the manufacturing engineering industries you can choose to make a career move into when you have very little experience to speak of, and especially if you are a woman.

Velona McCall, owner of Intervention Engineering, a foundry that has been in existence for just over two years

However, these days it is not that unusual anymore to find a woman heading up or finding herself in a senior position in the male-dominated world of foundry production, a far cry from what it used to be 10 years ago. Employed in a management position in a foundry is one aspect though. Getting your hands dirty with the possibility of breaking your perfectly manicured nails is a completely different story.

"If you do a search on women in the foundry industry, the shoveling and mixing of sand and other unskilled types of labour to fairly skilled work in the fine finishing of moulds, goes back to the early 20th century and probably before. As was the case in most industries, women were employed to fill these positions in the steel mills and foundries, while the world was at war and the men were away fighting, as foundries were crucial in providing components for the equipment and weapons used in the war. Foundries were an

essential industry in wartime and needed workers to carry out the war production programme of many countries. However, they were limited because of the heavy nature of much of the work required in a foundry or a steel mill," said Velona McCall, owner of Intervention Engineering, a foundry that has been in existence for just over two years.

"Later on, the positions of metallurgist and other skilled laboratory work, machine operators, assemblers, inspectors, material handlers and other types of work that did not require strength and muscle power would be filled by women. Today there are some highly qualified women working in all departments of a foundry, including in South Africa."

"So it is not unusual for a woman to be employed in the foundry industry. I do fall into a small category though. Women that own their own foundry."

"My entry into the industry was almost inevitable. My father Frans Fourie has been in the industry for his entire working career and my husband Byron has also been in the industry for most of his working career."

"I did not intentionally want to get into the industry. That was until I visited my father at the foundry that he was working for at the time. I needed some inspiration and a new challenge and sought his advice. I had been working at Execujet for 13 years and at the time that I decided to start my own business I was their Project Manager for maintenance (aviation). I really love the technical aspects of manufacturing and this is probably why I ended up in this position."

Mentors

"The visit left a lasting impression on me. Manufacturing castings is a mind-blowing process and I knew immediately that I wanted to get involved in the foundry industry somehow. With the knowledge that I had two mentors readily at my disposal, the brave decision was made to start my own foundry even though I had no experience."

"People think I am mad when I tell them my story. However, I have surprised a few men when I start talking technical. As women, we have to work harder to prove ourselves and we do not fit into the boys' clubs. The only



Various components that Intervention Engineering has cast. The company has cast kick plates, stoppers, beam guides, side walls and channels mainly for the mining, power and general engineering industries



Intervention Engineering's foundry floor



A furnace being prepared before charging

reasons why a woman would not succeed in a male preserve are a lack of self-belief and lack of effort. We even threaten them a little with our sixth sense."

"The truth is, many of us women in the manufacturing industry just put up defenses and avoid thinking about these issues at all. I've done my best to downplay my gender and prove to the men I approach for business that I know my stuff. I've simply tried to dissociate from gender altogether."

"From the beginning I did not want to become an expert in management of a foundry. I wanted to know how castings were made, the pitfalls, identifying the inherent waste and losses within the foundry operation, bottlenecks and all the factors that limit effectiveness and development of a foundry."

Undeterred by her youth and lack of product and procedural knowledge, Velona plunged in with enthusiasm and determination to succeed.

"It was tough in the beginning but with my father as my main mentor - who better to learn from - I learnt quickly. In consultation we had decided to concentrate on casting the non-ferrous metals such as the gunmetals/LGs and other bronzes."

"For the first nine months of the foundry's existence I operated in the Vereeniging area from a garage on my father's small holding."

"When I decided to move into an industrial facility he encouraged me to go on my own with the reassurance that I could phone him anytime for advice. I must add that he is not part of Intervention Engineering."

"Initially I had one oil fired 125 kilogram crucible furnace and a 25 kilogram crucible. There was no crane or any other

form of lifting equipment at our disposal so we went through an extensive period of unsolicited weightlifting and gym work. The crucible limited us to what size castings we were able to manufacture. But as we were in a learning period we were not too perturbed. We knew that as we started to prove ourselves and gain more experience we would be able to expand."

"My move to an industrial facility took place in early 2017 when I learnt that Oom Hannes Smith of AB Castings, which was previously known as S&B Castings, was wanting to retire. This gave me the opportunity to rent about 500m² of his factory, which is situated in Anderbolt, Boksburg."

"He had been running a foundry in the facility for many years so it was already set up for supply of gas as an energy source. This was important to me as I have subsequently purchased two more furnaces and intend to continue with gas and oil as my energy source. The factory next door is a food manufacturer so we are not allowed to create any emissions that could affect them."

"Intervention Engineering is an air set alkaline resin sand foundry for jobbing and short runs and we manufacture a wide portfolio of non-ferrous castings up to 550 kilograms net weight. We have three furnaces of various capacities capable of supplying a range of castings in various alloys. We have cast kick plates, stoppers, beam guides, side walls and channels mainly for the mining, power and general engineering industries."

"We also have a couple of sand mixers and a shakeout for reclamation purposes."

"Our range of metals that we have cast include phosphor bronze (PB1, PB2, PB4), lead bronze (LB1, LB2, LB4), ▶



The pattern store



Intervention Engineering reclaims most of its sand



Intervention Engineering only uses certified ingot in all melts, and the certified certificates of analysis from the ingot supplier are always available on request

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gunmetal (LG1, LG2, LG4), brass (SCB1, SCB 3, SCB4, SCB 6, DCB1, DCB3, PCB1), aluminium bronze (AB1, AB2, AN3), copper manganese aluminium, pure copper and aluminium (all grades).”

“Additionally we have set ourselves up as foundry brokers for those sizes that we are not capable of casting. On the non-ferrous side we have access to castings up to 3 000 kilograms to supply to clients.”

“We have done the same for ferrous castings, from small to large castings in all grades of grey and SG iron. The ferrous metals are cast using an induction furnace and castings of up to 7 500 kilograms can be sourced.”

“If clients require castings to be done in stainless steel, steel, cast iron, chrome irons and manganese steel, we can also source these.”



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“Although we have a pattern shop on our premises that we have access to we are not set up to use it yet and outsource all our patternmaking to two pattern shops in the area.”

“Castings are supplied as cast but where it is required, we can supply them proof machined or final machined.”

Certified ingots

“From the beginning we wanted to reduce scrap and not have any porosity issues. One way to do this is to only cast with certified ingots. We do not use scrap material. Only certified ingot is used in all melts, and the certified certificates of analysis from the ingot supplier is always available on request. All material, by alloy, is kept separate in the manufacturing process so there is no contamination between alloys. Test bars are available, upon request, which will supply the customer with physical and chemical properties of the various alloys.”

“At this stage on average we are casting about four tons of the various bronze type metals a month and 200 kilograms of aluminium a month. Considering there are only four of us that work in the foundry, in total five staff, this is not bad for a company that has only been established for just over two years.”

Velona credits passion for the work she does, and self-belief and getting on with the job as vital elements to her success in making inroads into an industry that is difficult to break into, especially if you are a woman.

“Women in Metalcasting is an AFS (American Foundry Society) special interest group focused on providing a platform for women in the industry to develop avenues for networking, mentorship and the sharing of ideas, experiences and best practices that will benefit members both professionally and personally. I wish we had something similar in South Africa.”

For further details contact Intervention Engineering on TEL: 011 894 6761 or visit www.interventioneng.co.za