Manufacturing stainless steel vessels for process industries

Interview with Faye Healy, Director of Spectac International

Stainless steel tanks and vessels are widely used in a range of industries to ensure a corrosion-free and highly hygienic process and storage environment for a variety of substances, as well as a trouble-free service at minimum life-cycle cost. Among well-established companies that specialise in the design, manufacture and installation of stainless steel tanks, vessels and turnkey solutions is Spectac International, a family-owned business based in Dundalk, Ireland. In this interview, company Director Faye Healy talks about material selection, procurement, and the manufacturing process of stainless steel vessels.

By Matjaž Matošec

Although officially joining the company quite recently, in 2013, Ms. Healy grew up with Spectac International. "My father established the company in 1986 and I used to work there during my summer holidays, gaining a foundation of business understanding and experience already in my teenage years," she begins. "Following the completion of primary and secondary education, I first pursued a Business degree and later obtained Honours and Master's degrees in Psychology. I worked for a year in that line of work but quickly realised that it wasn't what I wanted for myself. I had worked in a number of companies during my time at college, which deepened my understanding of business in different markets and industries. When the opportunity to work with my father was presented to me, I gave it a try, realising from day one that this was probably the best decision I made until that point in my career."

"As Director of Spectac, I focus on sales and marketing, and am heavily involved with the overall management of the company, including all the projects we run. Since 2013 when I joined Spectac, we have grown our workforce by nearly 50% and, in 2015, increased the size of our facility from 15,000 square foot to 40,000 square foot, enabling us to gain larger contracts. I have completely remarketed and remodelled Spectac, which was a risk that has worked out well."

Materials specification

The company designs, manufactures and installs stainless steel tanks and vessels used across the process industries, including the brewing, distilling, food & beverage, chemical and pharmaceutical industries. All of their products are made entirely from stainless steel, using one of two standard material grades.

"In terms of material, we either use grade 304L or 316L stainless steel, depending on the industry for which the vessel is designed," explains Ms. Healy. "These two grades meet all of the requirements our customers have for their applications, so there is little change and variation in this area. We use a specification listing to establish what kind of liquids/solids the vessel will be holding, if there are any corrosive elements in the material to be stored in the tanks, etc. If the client is unable to provide all the information we need, or does not have the required knowledge in this area, we use our expertise to guide them through the process or generate the specification listing ourselves. Oftentimes we meet with the client to gain a good understanding of larger projects that require our input. Once all the information is gathered, we select the material, using our extensive knowledge on all relevant industrial applications as well as our expertise in the field of engineering. If needed, our team of highly qualified engineers uses detailed software packages in order to determine corrosion risks, stress and pressure levels, etc. The data obtained is then analysed at the premises to ensure the best quality of manufacturing. These procedures help us clearly identify our materials and manufacturing procedures."

Faye Healy

"Health and safety are of paramount importance for us, so anything that contains a level of acidity in either liquid or solid form requires us to be very strict with our procedures and materials," she continues. "Quality is our key word and an essential part of manufacturing at our production facility. This comes to the forefront particularly when dealing with any biotechnological/pharmaceutical company where health and safety are critical. We have procedures and quality checks in place in our lean facility. We generally ask our clients to provide us with a data sheet specifying the ingredients that they will be using the tank for, and from this we can capture any details that may not have been apparent otherwise."

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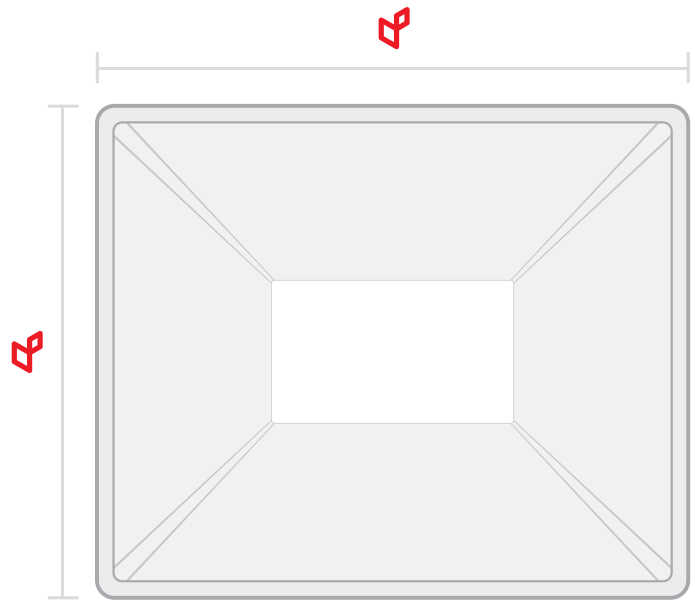
Procurement

For a company whose only material of construction is stainless steel, stable supply and product quality are crucial.

"In order for us to keep a strict environment at our facility in terms of procurement, we always tend to buy directly from a mill," explains Ms. Healy. "Buying material in bulk is not only more economical, but it also provides greater reliability and credibility when it comes to quality, ensuring that your steel is 100% without flaws. I, for one, had many experiences in the past when I wasn't satisfied with the level of quality coming from suppliers, so I took matters into my own hands and decided to buy directly from mills in Europe. This has enabled the company to make significant savings and improve product quality. This is very important to

Spectac International's premises in Dundalk, Ireland



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us – quality is key. We work with a number of European mills, but also rely on suppliers for finer details such as fittings, mixers, etc., from across mainland Europe as well as from the UK and Ireland."

When asked about challenges concerning procurement, Ms. Healy replies: "There are always challenges, many of which are related to lead times and the ability to get the correct quantities on time for our clients. Thankfully, we tend to plan ahead and have a solid stock of most of our materials. High quality is one of our main priorities, and we achieve it by going to recognised European mills that offer certification and correct standards for all our materials."

"In terms of procurement, we always tend to buy directly from a mill."

Manufacturing process

While a storage tank may look like a very simple piece of equipment at first sight, its production actually involves a large number of processes. Ms. Healy explains them step by step.

"When we receive an enquiry, we examine it in detail and make sure to have all the specifications we need. This initial stage involves a lot of email and phone correspondence with the client, to ensure that we are on the same page. Once we have our data, we create a 3D CAD design of the tank including a BOM (Bill Of Materials) listing; this contains exact material specifications and detailed drawings with references to each fitting, length, width, etc. As soon as the drawings are approved by the client, we are ready to send the order to production. At this stage, our head of manufacturing creates a list of all materials needed for the specific project as per the drawing he has received from the engineering team. Our process on the manufacturing floor is very lean and we have trolleys for each project that are marked for different jobs. One of our engineers will go to our stock room controller with a trolley and they will then get all the fittings needed for the project from him. It is only at this stage that the actual production process starts, with cutting of coils into sheets. At the beginning of all our projects on the manufacturing floor we believe in consistency and always have a minimum of two men on one project, for the duration of the job. In order to minimise the labour process and increase the quality and design of the tank, we use several types of machinery. For example, we use an automated plasma seam welder to weld all the seams of our tanks, producing a finish that is second-to-none and speeding up the whole manufacturing process. Throughout the manufacturing stage, our engineering manager is consistently looking over all phases of fabrication to make sure that there are no issues. Once the project is nearly finished, we do a FAT (Factory Acceptance Test) at our facility. A member of the client company is invited to witness all testing, including pressure, hydro testing, X-raying, etc. This is carried out and signed off by both parties, and once they are happy with everything, we are in a position to send the order to the client."

Industry trends

Catering for a number of industries and markets, Spectac International is not dependent on the fortunes of one industry sector, providing the company with a certain level of business security. "While demand for stainless steel tanks and vessels is generally growing, industries are cyclical," observes Ms. Healy. "Fortunately, however, demand for our products comes from many different sectors, so when one sectors goes quiet, another one booms, balancing things out more or less. In this respect, we are protected from market volatility. Having said that, the beverage industry is always thriving for us, with the Irish whiskey and beer industries being particularly strong growth at the moment, whereas the petroleum industry continues to decline," concludes Ms. Healy.

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