Massive 316 column for SA's petrochemical industry

Sassda member Kelvion Services recently manufactured a large stainless steel column for a local petrochemical company from ultra resilient, top-of-the-range 316 stainless steel. This challenging project stems from its decades-long, specialist supply of locally designed and manufactured heat exchangers, pressure vessels and cooling towers to the local industry.

Sassda member, Kelvion Services, recently completed a 4.0 m long stainless steel column with a diameter of 3.0 m and a total mass of 100 t.

In terms of the manufacture of the large stainless steel column, the fitment of internal tray rings and trays was completed in Kelvion's 14 863 m² Germiston-based workshop and represented 30% of the overall mass of the column.

The project took approximately eight months, and the team was under pressure to produce the complex piece of equipment to its normal world-class standards in a tight timeframe.

Explaining the complexities of the fabrication of the high-pressure piece of equipment, Kelvion MD Alex Dreyer says; "The 54 m long column had a diameter of 3.0 m, a sizeable length-to diameter-ratio, and a hefty total mass of 100 t, all of which were combined with the challenge of thin walls. This presented several handling issues in our works, and during transport."

The true scale of the project became clear when the completed column was transported, over 185 km and a total drive time of 14 hours, to site on steerable, self-levelling multi-axle trailers.

Depth of experience

Fortunately, the depth of Kelvion's experience and knowledge allowed it to complete the project successfully.

Kelvion Services started operations in South Africa in the 1970s as GEA Aircooled Systems, which was part of the German-based GEA Group.

Since the 1980s Kelvion has also supplied air-cooled heat exchangers, shell and tube heat exchangers, pressure vessels, plate heat exchangers, cooling towers, bulk air coolers, etc., to southern African industry.

"Initially Eskom was our main client and we supplied cooling towers, feedwater heaters and air-cooled condensers to a number of Eskom power stations, e.g., Matimba, Majuba, Tutuka, Arnot, Kendal, etc," explains Dreyer. More recently, the company supplied the air-cooled condenser for Eskom's Medupi power station.

In 2014/15 the GEA Group sold its GEA Heat Exchangers Group to a private equity investor and the South African GEA heat exchanger companies were renamed Kelvion Thermal Solutions (GEA Aircooled Systems) and Kelvion Services (formerly GEA Nilenca).

The two local entities, which were combined into a single operation, Kelvion Services, in 2018, also had access to the full range of products from the global Kelvion Group including heat recovery, heat exchangers, plate heat exchangers, and transformer oil coolers.

In-house technical experts

The company's key differentiators in the market are the unique services, technology, skills and products it offers and the fact that it has always employed in-house thermal design engineers, pressure vessel design engineers and welding engineers.

"This allows us to handle unusual customer requirements for unusual applications. Furthermore, we have access to the technical know-how of our sister companies all over the world," says Dreyer.

Looking to the future, in addition to the existing markets it serves, Kelvion is focused on developing several innovative products that will allow it to tap into new markets. These include:

- Datacentre cooling systems.
- Carbon capture applications.
- Hydrogen (production and distribution).
- Heat recovery systems.

Kelvion is a global leader in heat exchangers and related technologies, serving customers in more than 100 countries across a variety of industries. With a history dating back more than a century, the company is known for its innovative solutions and high-quality products that help customers optimise their processes and reduce energy consumption.

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