University of Stellenbosch collaborates with AHI Carrier SA to improve efficiency

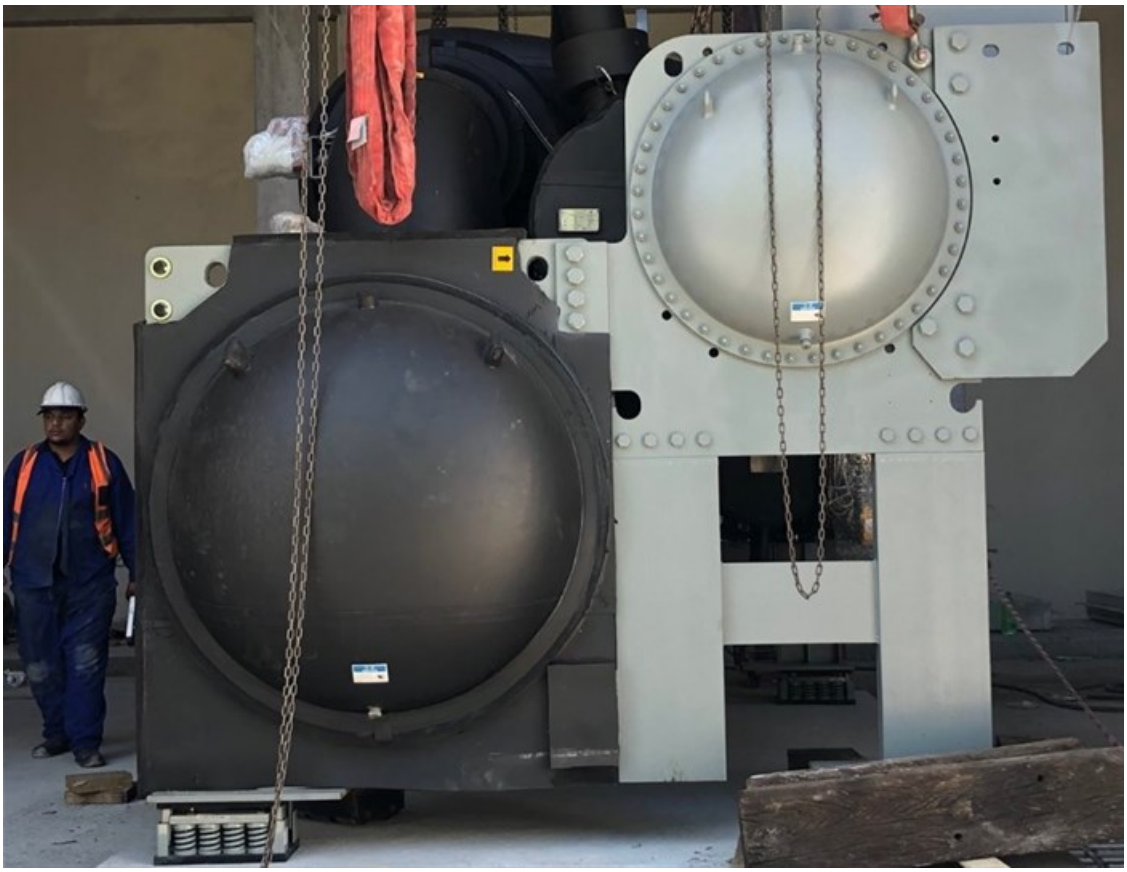
Issued by Oxigen Communications

4 May 2023

The University of Stellenbosch Engineering Faculty has a long-standing tradition of addressing challenges, while Carrier has been a leading solutions provider since its inception in 1902 with the invention of refrigeration by its founder, Willis Carrier.

Recognising the energy crisis projected several years ago, the University of Stellenbosch collaborated with Lombard Consulting Engineers to develop a master plan that prioritised efficiency, reliability, and longevity for the faculty. The optimal outcome was a centralised 'district cooling plant' that supplied several buildings in the area, resulting in balanced and optimised cooling load distribution.

Carrier has consistently strived to innovate and introduce new technologies to the market. Carrier has taken the already successful 19PV range of variable-speed centrifugal chillers a step further by using new HFO refrigerants, ceramic bearings, two-stage direct-drive compressors, and harmonically balanced inverters, resulting in a high-capacity chiller that operates smoothly at low, normal, and peak loads.



A comparative analysis of various competitive brands and load conditions revealed that the new Carrier 19DV water-cooled, variable-speed centrifugal chiller is the most suitable for the application. Here are some numbers for those interested:

- Maximum Cooling Capacity: 2504kW, equivalent to about 835 standard wall-mounted room air conditioners!
- Total operating mass of unit: 17,800kg
- Refrigerant R1233zd: 510kg

The first Carrier 19DV installed in Africa is now operational and supplies the Civils and Mechanical and Mechatronics buildings. Additional buildings will be added to the system as future phases of the project are completed. The entire engineering precinct will be fed from the system when all phase are complete.

To complement the installation and serve as a backup in the event of possible future water restrictions, two existing Carrier Air Cooled Scroll Chillers from the M&M Building were repositioned. The final plant will consist of 2x 19DV and 3x air cooled chillers providing a total of 6,000kW cooling capacity.

AHI-Carrier SA (Pty) LTD expresses gratitude to the University of Stellenbosch, Lombard Consulting Engineers, GVK Construction, Two Oceans Airconditioning, and SSD Controls for their efforts to achieve practical completion within the limited time available. We are committed to monitoring and optimizing energy usage in the next few years, ensuring the future engineers remain comfortable and can focus on solving tomorrow's problems.