ZEST DRIVES THE SWEET TASTE OF SUCCESS AT NAKAMBALA

The Zest Group has supplied all the WEG electric motors, variable speed drives and power transformers to Illovo Sugar's Nakambala Sugar Estate in Zambia. This sugar estate has just undergone a significant expansion of its agricultural and milling operations.

The two year project almost doubled the milling capacity of the sugar factory to 450 000 ton of sugar per annum. The expansion project also increased land under irrigated cane by 10 500 hectares to around 10 500 hectares, and this includes 7000 hectares developed by Zambia Sugars outgrowers.

The expansion consolidates Zambia Sugar's position as the country's foremost supplier of sugar to the local market, and increases the country's sugar exports to regional and international markets, thereby reducing Zambia's dependence on copper for export earnings.

The second and final phase the project was completed in April 2009, and the factory is demonstrating its increased production capability while the expanded cane area has resulted in a stable and consistent supply of sugar to the mill.

Contracted to the EPCM contractor, SiVEST, Zest supplied motors and drives with capacities up to 980 kW which, together with the drives, are being used to power the large irrigation pumps which will distribute water from the large existing water reserves to provide irrigation for the plantations. WEG motors are also being used for the complete milling process within the plant.

Using WEG motors and WEG drives, Zest is able to provide a technically integrated solution for optimum reliability and compatibility.

WEG variable speed drives (VSD) were selected for the milling process because of the precision process required in the sugar mill. "The WEG VSDs allow finite control and the matched drive/motor combinations ensure optimum performance of the drive train," Trevor Naude, group business development manager, Zest Group says.

A boiler of 110 kPa capacity will be installed, bringing the number of boilers at the factory to six. In addition, a larger alternator/generator will be installed to supplement the current 10 to 12 MW supply. This is expected to elevate supply levels to about 30 MW.

Innovation in design

The WEG motor and drive packages have tangible cost advantages and are fully factory tested under full load, partial load and differing speeds. "The motors are designed with the optimal motor flux electromagnetic model built

into their vector control software to reduce motor temperature rise to values lower than ever achieved, which results in an extended motor life," Naude says.

"This innovation represents upfront cost savings as well as energy efficiencies which translate into lower operating costs," Naude adds.

Transforming Nakambala

Zest supplied a 25 MVA 33/11 kV power transformer as the main mill transformer, along with four 5 MVA 33/0.55 kV power transformers for the four irrigation pump stations," Naude says.

"Zest has successfully installed and commissioned numerous transformers in South Africa, but doing the same in Zambia is a completely different ball game, especially in terms of logistics," Naude says.

Zest only entered the transformer market in 2004 and has since sold over 300 units, with the largest being 160 MVA 220/110 kV. This success can be attributed to a number of factors, including Zest's customer focused approach, its understanding of the market and the flexibility it is able to offer through its partnership with WEG in meeting customer specific requirements.

Several general design features have been incorporated into the WEG range of transformers, which has established this marque as the technology

benchmark in the local sector. "An example is the design of the lockable offload tap changer which enhances safety and durability. The tap changer's ergonomic design also means it is conveniently positioned, well within the operator's reach," Naude says.

"A pressure-relief device channels the oil away from the transformer into the pit without it coming into contact with personnel, and it also prevents contamination," he adds.

A corrosion resistant paint specification developed in-house means the WEG range of transformers can cope with the most aggressive environmental requirements. This has resulted in a product life expectancy of 25 years, emphasising the durability and reliability of the transformers.

"Zest has an established track record for its after-market support, especially in African countries and this was also one of the reasons SiVEST selected us to supply the drives/motors package as well as the transformers ," Naude concludes.

More about Zest

Zest is the leading distributor and marketer of a wide range of low, medium and high voltage, direct current and special electric motors, variable speed drives, soft starters, switchgear and transformers in sub-Saharan Africa, and is the sole importer of SABS approved WEG products in the region.

The company has a countrywide network of branches and distributors, enabling it to provide first-rate backup to its customers in terms of pre- and post-sales support, as well as parts supply.

Zest has been serving the mining, manufacturing, engineering, petrochemical and pulp and paper industries since 1980, and is committed to business development in South Africa. The company is 26% owned by BEE enterprise Medu Capital.