

PRESS RELEASE

Upgrading of Tippler project for Saldanha Iron Ore with total drive solution from Bauer

Bauer Geared Motors, a business division of Hudaco Trading (Pty) Ltd. Company, is delivering a total drive solution that includes five large sized 750kW industrial gearboxes and two 185kW units for the Tippler upgrade project at the Saldanha Iron Ore Export Plant.

Weighing up to 15 tonnes each, the 750kW gearboxes are the largest machines ever supplied by Bauer to date. Bauer has been a market leader in electric drives since 1984, initially specialising in geared motors. The Hudaco power transmission division later diversified, expanding its portfolio to include industrial gearboxes and transmission solutions. Bauer joined the Hudaco group in 2002 and, in the same year, became a supplier to Saldanha providing slew and bucket wheel drives. Bauer upgraded these drives after ten years of operation and in 2020 supplied a third slew drive with planetary gearboxes, and an overland conveyor.

When Derek Gilmore joined Bauer as Managing Director - Drives and Motors, in June 2019, the Tippler upgrade project for Saldanha Iron Ore port fell under his auspices. Derek explained that the company responsible for overseeing the project favoured a total solutions supply chain through a single sourced provider. "The fact that Hudaco is a listed supplier to the Saldanha Port operation paved the way for Bauer, as part of the Hudaco group, to put in a bid on the drive requirements for this project."

Bauer proved compliance on design and all critical criteria as specified by the main consulting house. The full scope of supply from Bauer includes industrial gearboxes, medium voltage electric motors, drive base plates, high and low speed couplings, brakes, actuators, parts and spares as well as condition monitoring. "We will also be responsible for torque arm and complete drive assembly," adds Derek.

"Our industrial gearboxes are manufactured by India-based OEM, Elecon Engineering Company Ltd., one of the largest manufacturers of industrial gear units in Asia," continues Derek. These rugged and reliable gearboxes boast a service factor >2 and 100 000 hours design life.

The 750kW gearboxes, two parallel drive systems and three parallel and tandem drives, will be installed on a sacrificial conveyor and a 283m long overland conveyor respectively. The 185kW units will drive an adjustable shuttle conveyor. Compliant with necessary and important thermal criteria, the 750Kw gearboxes are equipped with a cooling and forced lubrication system with dual oil pumps, one serving as a backup unit. Derek explains that in addition to machine longevity, this system is also a safety feature, keeping the drive temperature to below a safe-touch of 70°C.

Bauer will also be responsible for providing the condition monitoring sensors to facilitate remote monitoring of the gearboxes including motor speed and motor windings temperatures, brake wear and temperatures, oil levels and flow pressures, as well as bearing wear and vibrations. "Early detection allows for a planned shutdown to do the necessary maintenance, thereby avoiding critical failure and costly downtime," notes Derek. He adds that Bauer is also supplying large 710mm diameter hydraulic disk brakes for the sacrificial and shuttle conveyors in collaboration with supply partner, Magnet Service Binder.

While the main contractor for the project will be responsible for installation and commissioning of the drives in conjunction with Saldanha Port authorities, Bauer will supply consumable spares such as filters, oil, etc. required during the commissioning process. "During commissioning, we will call on supplier partners like Magnet Service Binder to assist with training on brakes," notes Derek. "We will offer support during and beyond warranty, including the supply of critical and five-year running spares and will assist with operator training."

Alongside local assembly, service and repair capabilities on all its products, Bauer also has the capabilities to service and repair competitor gearboxes to OEM standards. "Our industry-leading 24-month warranty bears testament to our suppliers' commitment and provides ultimate customer peace of mind, assured of superior quality, reliable and efficient products."

Bauer received the order for the complete drive solution for the Tippler upgrade project in early May 2020 when the first wave of the Covid-19 pandemic was sweeping over the Northern Hemisphere. "This set us some tough challenges, forcing us to come up with innovative solutions," states Derek. "It was most fortunate that Elecon was able to continue operating although output was understandably affected, with subsequent delays."

The next challenge was how to conduct witness testing at the Elecon factory in India given that the pandemic prevented travel. "We realised that we had to tackle this from a completely different angle. Making full use of digital technology, we held technical discussions, viewed instruments and meter readings as well as actual tests on video clips and images, even finalising factory acceptance tests, all via e-meetings." Derek points out that by having a permanent digital record, they can conveniently reference this electronic library from anywhere at any time. "In addition to saving money in terms of travel costs, we also saved loads of time and subsequently realised a much quicker turnaround." Knowing that they can efficiently do this type of work remotely and taking into account all the benefits, Derek encourages this approach going forward.

When the gearboxes were ready for shipment from Mumbai to Durban harbour, Derek and his team faced yet another challenge, finding space on a vessel for their 20 ft and 40 ft containers as the pandemic forced shipping lines to reduce their fleets. The shipment finally left Mumbai on 28 October 2020, reaching Durban harbour 14 days later. "High winds delayed docking for a further five days, putting us under immense pressure to get the drives up to Johannesburg for assembly and presentation to the customer for inspection, within our promised end-November 2020 deadline," says Derek. "But the Bauer and logistics support teams managed to pull a rabbit out of the hat and got all the prep work done so that once the units arrived, they were off loaded immediately." Ready for delivery to site at the end of March 2021, the gearboxes are currently being stored at Tomco Rewinders. Derek explains that they selected Tomco as a business partner as their facilities, conveniently located around the corner from Bauer, are well equipped to handle and conduct no-load testing on large sized gearboxes.

According to Derek, they see a great deal of potential in large sized gearboxes in the mining industry across the SADEC region. "Our success in supplying large gearboxes to the Tippler upgrade project at Saldanha Iron Ore showcases our capabilities and competencies to realise our ambition of entering this space." Derek reveals that Bauer recently signed a sole distributor agreement with the Elecon Group, adding sole supply of the Radicon industrial worm gearbox range. "We already have an installed base of smaller sized industrial gear units at Rustenburg gold and platinum mines, where we have a strong foothold, as well as in the SADC region and beyond into Egypt, Eritrea and the DRC. In line with this new agreement, the welcome addition of the Elecon range of power transmissions up to massive 9MW drives further opens up the large gearbox market for us. Moreover, we are also perfectly positioned to supply our customers in these regions with new bevel helical Elecon drives or drop in retrofit solutions for older gear units. We add further value by offering local content, assembly, testing and commissioning."

Wrapping up Derek says that they are extremely proud of this out-of-the box drive solution at the Saldanha Iron Ore Tippler upgrade project. “Despite facing numerous challenges, we found creative ways to get the job done while adhering to all Covid-19 protocols.”

Derek extends a sincere thank you to the dedicated Bauer management, Elecon, the main contractor and their supportive team including supplier partners, as well as the end customer for their commitment and contribution to ensuring a positive outcome and achievement with all associated challenges.



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