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Marland Clutch Backstops Set New Standard



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Marland Clutch senior product engineer Dave Divero does full torque load testing on a Marland backstop BC-375MA.

Increasing demand for resources from China and India as well as rising prices of coal and various ores have driven the need for increased infrastructure and equipment capacity at mining operations around the world.

Conveyors must be steeper, longer, faster and more powerful to carry increased quantities with larger drive motors required.

Stronger and reliable backstop systems are, therefore, a necessity to prevent massive loads from unsafely racing backwards in the event of a power outage or mechanical failure.

Marland Clutch, a division of Altra Industrial Motion, has provided the backstops for a major new overland conveyor being built at the Boddington Gold Mine in Western Australia and its services are being increasingly sought for similar projects throughout Australia and Asia.

Conveyor Engineering Inc (CEI), a designer and supplier of bulk material handling systems for mining facilities worldwide, is building the conveyor system for Boddington, which is 128km southeast of Perth, Australia.

The original Boddington oxide gold mine ceased operations in late 2001 and an expansion project was approved in early 2006 to mine and process the hard gold and copper ore beneath the depleted oxide pits.

The mine will produce an average of 1 million ounces of gold and 30,000 tons of copper per year at a processing rate of about 35 million tons per year and a mining rate of 80 million tons per year.

To meet the required capacity, CEI designed a 1800mm x 2.2km belt conveyor system driven by two 2800 kW motors to handle 8000 tons/hour of ore. The conveyor runs at a belt speed of 4.5 meters per second up a 15-degree incline.

The specification for this system required a guaranteed backstopping holding torque of 975,600 Nm. The backstop will have to operate in an environment of airborne grit, in temperatures that can reach 46°C and run 24 hours a day for 20 years.

CEI specified Marland Clutch BC Model Backstops for the project. Working through its sister company, Warner Electric (Australia), Marland Clutch provided 21 backstop units for the project. The largest units were Marland BC-720MA backstops with a shipping weight of 4500 kg each and a bore range of up to 533 mm. The shaft diameter where the holdbacks are mounted is 430 mm.

In testing the new BC-720MA Backstops, Marland used a 50-ton hydraulic jack to apply a torque load of more than 975,600 Nm and the units performed beautifully.

All 21 backstops were shipped via ocean freight and delivered to the work-site ahead of schedule. Production at the Boddington Gold Mine is expected to begin in late 2008 or early 2009.

Australia is not the only place in the Asia Pacific where Marland Clutches have been used for new installations or to replace lesser-quality backstops.

Altra operates six additional sales and support offices in Asia, including Shanghai, Beijing and Singapore.



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