

The most modern and technically advanced mine winder system in the world hoists men and materials from a depth of 2.3km at AngloGold's Moab Khotsong mine near Orkney in South Africa. Converteam of South Africa was responsible for completing the \$5.8m contract, which included installing motors and cycloconverters supplied by Converteam.



## Key Facts

Project	Moab Khotsong
Location	Orkney, South Africa
Customer	AngloGold
Award Date	1997 (June)

Configured as two completely independent 6.0m diameter single drum winders to be used as an electrically coupled drum winding system, the winder is capable of hoisting a 13,500 kg payload at a speed of 19m/s.

The shaft is deepened to 3150m - from the current depth of 2340m - making it the deepest single lift installation in the world.

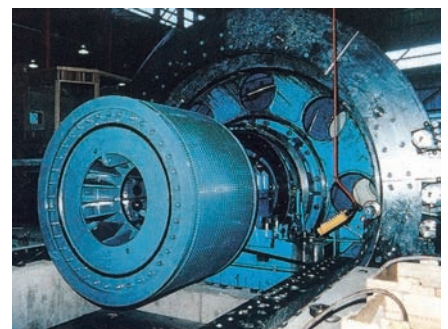
The electrically coupled arrangement is a unique hoisting system perfected by Converteam and several patents have been registered for the five hoisting systems of this type supplied by the group worldwide since 1965. Converteam is the only electrical system supplier that has been successful in providing this technology to the mining industry.

The original winder systems were supplied with DC Ward Leonard converters and subsequent installations were equipped with DC thyristor converters which also included a patented VARMIN booster converter to minimise the reactive power demand from the electrical supply system.

Moab Khotsong's new winder installation incorporates Converteam's MK20 medium voltage cycloconverters and acclaimed squirrel cage induction motors.

Each of the two induction motors is rated at 7.4MW RMS at 62 rpm and 16.8MW peak. The machine is characterised by an extremely robust squirrel cage rotor which is free of any insulated conductors and sliprings, making it virtually maintenance free.

Moab Khotsong chose the electrically coupled configuration for a number of reasons. When one drum is unavailable for whatever reason, production can still run, albeit at 50% capacity.



Overhang Rotor fitted to Winder Shaft

In addition, the problems caused by rope stretch, which are liable to occur at great depths, are eliminated by independent decking and simple electrical clutching.

Converteam's modern digital control systems on the winder incorporate electronic speed/distance protection and closed loop brake control, as well as functions specifically designed for the winder to reduce dynamic rope forces during drive and emergency braking conditions.

A supervisory computer system provides a centralised workstation for use by maintenance, supervisory and production personnel with data logging and diagnostic facilities. The winder will be used for fully automatic hoisting of men and materials to achieve the highest levels of efficiency and safety.

Converteam is proud of the technical excellence of this winder installation and the achievements of our multinational team of engineers in the execution of this contract.

This latest installation forms part of a long and successful relationship with AngloGold. Since 1992 ALSTOM South Africa and Converteam supplied the complete electrical package for the 7.0MW double drum production winder as well as the dual purpose winder and the three underground winders at AngloGold's Moab Khotsong Mine.



View of both 7.4 MW Induction Motors and Drum Winders electrically coupled together

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