



Press Release

HERRENKNECHT

Herrenknecht borer secures power supply in West Africa

January 18, 2018

Kpone, Ghana / Schwanau, Germany

In late July 2017, Coleman Microtunnelling, a subsidiary of Bothar Group Australia, successfully completed tunnelling for two power plant cooling water lines in Ghana with a Herrenknecht utility tunnelling machine. The new oil-gas power plant puts the supply of electricity for people and business for the country on the West African Atlantic coast on a more solid foundation.

_____ The 2,700 GWh per year capacity of the new "Kpone Independent Power Plant" (KIPP) is enough to reliably supply approximately 1 million households with electricity. In the operation of the oil-gas power plant located about 25 kilometers east of the Ghanaian capital Accra directly on the coast, it will be cooled with sea water from the Atlantic Ocean via two cooling water lines.

For the construction of these underground sea water intake and outfall tunnels (inner diameter 2 meters) Coleman Microtunnelling, a subsidiary of Bothar Group Australia, ordered a Herrenknecht AVND2000AB utility tunnelling machine. Herrenknecht specially designed the tunnel boring machine with a salvage module for this special application: In the sea-outfall method pipelines are constructed from the coastline into the open sea. There, the machine has to be recovered under water. The salvage module prevents the machine and the tunnel from flooding. In addition, for cutter tool changes under high groundwater pressure Herrenknecht equipped the machine (outside diameter 2.5 meters) with a hyperbaric chamber.

Two shafts on the coast served as starting point for the jobsite crew and the Herrenknecht AVND for a total of four pipe jacking drives between May and July 2017. In total, they covered a distance of 2,530 meters. First, the tunnelling specialists of Bothar Group Australia's subsidiary Coleman Microtunnelling produced two tunnels from the two shafts toward the power plant. These 545 and 520 meter long tunnels run under the mainland and connect the sea-outfalls and the power plant. Afterwards, construction of the challenging tunnelling sections under the sea floor started. Initially, the machine excavated a 1,085 meter long tunnel from the coast to the target spot on the seabed for the extraction of the cooling water ("sea-intake"). There, the TBM was



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recovered by the jobsite crew at a depth of 17 meters. Finally, the machine created a parallel 380 meter long tunnel toward the sea which will later take the cooling water back into the Atlantic ("sea-outlet").

Brent Jones, Project Manager for Coleman Microtunnelling, was impressed with the Herrenknecht support in Schwanau and the Herrenknecht service team responsible for the region: *"We could not have done it without this extraordinary support. All through Christmas the supply of spare and wear parts went smoothly."* Swen Weiner, Area Sales Executive Middle East for the Herrenknecht Business Unit Utility Tunnelling, is certain: *"The good project performance for the long sea-outfall drive in Kpone will be a benchmark for the future in the region."* The supply of another Herrenknecht machine to the Bothar Group for a next sea-outfall drive in Ghana followed almost seamlessly.

Project Data

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MACHINE DATA M-2041M

Machine type: AVND2000AB

- › Excavation diameter: 2,500 mm
- › Max. torque: 780 kNm

PROJECT DATA KPONE INDEPENDENT POWER PROJECT

- › **Tunnel length:** 2,530 m (545 m + 520 m onshore, 380 m + 1,085 m offshore)
- › **Lining method:** pipe jacking
- › **Application:** cooling water intake and outfall
- › **Geology:** weathered gneiss
- › **Customer:** Coleman Microtunnelling, a subsidiary of Bothar Group Australia
- › **Client:** Cenpower

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Photos

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Photo 1

An AVND2000AB Herrenknecht tunnel borer dug its way more than 2.5 kilometers through the underground at the coast of Ghana for the construction of two power plant cooling water lines (inner diameter 2 meters).



Photo 2

Coleman Microtunnelling, a subsidiary of Bothar Group Australia, ordered a Herrenknecht AVND2000AB. The machine was equipped with a special salvage module as well as a hyperbaric chamber for cutting tool changes under high groundwater pressure.

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Herrenknecht AG

Herrenknecht AG is the only company worldwide to deliver tunnel boring machines for all geologies and in all diameters – ranging from 0.10 to 19 meters. The product range comprises tailor-made machines for traffic, supply and disposal tunnels, technologies for routing of pipe lines, as well as additional equipment and service packages. Herrenknecht also manufactures drilling equipment for vertical and inclined shafts as well as deep drilling rigs.

The Herrenknecht Group achieved total revenues of 1,208 million euros in 2016. The independent family business employs over 5,000 people worldwide, from which are 180 trainees. With 76 domestic and overseas subsidiaries and associated companies working in related fields, Herrenknecht provides comprehensive fast and targeted services close to each project and customer.

› <http://www.herrenknecht.com/de/referenzen>

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