

Drills Boosting Diamond Productivity

Advanced dry drilling rigs with dust suppressing technology are rapidly advancing mining operations at Petra Diamonds Cullinan Mine in Gauteng.

The rigs, supplied by Sandvik Mining, are enabling better productivity and cost per metre than previously used equipment, with the added benefit of improving underground safety as a result of their low-dust operation. In kimberlitic ore bodies dry drilling is the preferred rock drilling method as water degrades the composition of Kimberlite ore and can cause it to swell and potentially destabilise working conditions underground.

As a result, the combination of high performance dry drilling with effective dust suppression technology is therefore providing the mine with the best of both worlds. “The results speak for themselves and we have experienced exceptional productivity with the five machines that are already in operation,” says Saltiel Pule, Sandvik Mining business line manager for underground drills.

Performance driven

He explains that the new Sandvik DD210L is all about productivity and is designed to work in headroom as low as 1.7 metres with a boom that has been optimised to provide 360-degree rotation and full automatic parallelism for fast and efficient face drilling. The boom can also be used for cross-cutting and has a hose layout that has been specifically designed for protection in low headings.

In addition, the rig’s four-wheel-drive configuration allows faster and safer manoeuvring while its V-shaped configuration allows for improved all-round visibility. Inside the cab the environment is also focussed on productivity providing a comfortable and ergonomically efficient environment with added automatic functions to allow the operator to focus almost entirely on production rather than spending time manoeuvring and setting the machine.

The use of ILMEG dust suppression technology provides better visibility for workers underground and provides the operator with a clear view of the work area. The system is based on the company’s tried and trusted X-series dust collectors with the addition of a newly developed cuttings collector

(which is mounted in front of the drill feed). “As a result, the high performance Sandvik DD210L with ILMEG technology provides a unique and total solution for customers drilling Kimberlite rock and positions us as a market leader in terms of commercialising this combination of technologies,” says Pule.

Competitive advantage

Andre Cloete, mining manager projects - Cullinan Diamond Mine says the Sandvik “blue” development machines are fit-for-purpose and are therefore the preferred choice for the mine. In terms of overall availability, reliability and productivity the rigs have recorded excellent results and reached a staggering 80-100 metres in the first month of operation.

“The machines low profile provides our operators with easy access to the working area and enables the rapid advancement of our tunnels. The machines are also uncomplicated to operate and have good ergonomics which contributes to putting us ahead of our tunnel development schedule, even despite unplanned delays.”

He adds that as a result of the good working relationship with Sandvik Mining, the company will be further bolstering safety on our mine with the addition of a Sandvik DS210 low-profile roof bolter for mechanised installation of standard rock bolts. Until now the company has used conventional practices and the introduction of the new roof bolter will effectively mechanise the requirement and increase the net bolt installed per hour.

Pule concludes, “The success of the Cullinan dry drilling project is based on working together with the customer to understand their challenges and achieve results based on their output requirements, while maintaining the principles of environment, health and safety.”

Caption for DD01: The DD210L is equipped with a universal boom offering large optimum shaped coverage, 306-degree rotation and full automatic parallelism for fast and easy face drilling.

Caption for DD02: The drilling system allows high drilling performance with good drill steel economy and machine reliability.

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