

New rock drill set to disrupt the mining industry

Three concept designs for a new rock drill that is set to disrupt the mining industry were revealed at the Mandela Mining Precinct (MMP) on 25 October 2018. Following a nationwide initiative to gather concept designs for a new rock drill, the MMP is proud to announce three winning entries submitted by Fermel, HPE and Novatek. These finalists' concept designs will move onto phase II in developing a proof of concept that will deliver a lighter and energy efficient rock drill. "This initiative is fully aligned to the South African Mining Extraction, Research, Development and Innovation (SAMERDI) programmes looking at sustainability and longevity of current mines," says CSIR Manager: Mineral Resources, Navin Singh. He adds that this is the first initiative for developing South African solutions to a South African problem. Navin is also the co-director of the MMP. The isidingoDRILL Open Design Challenge is an initiative driven by the MMP. The Open Design Challenge called for designs and concepts for new underground mining drills. "This challenge was designed to gather ideas from different people," said MMP co-director Alastair MacFarlane during the awards ceremony. "We will be working with the Technology Innovation Agency to fund the finalists in taking their concept further," said Clen Cook, Director of the Research Institute for Innovation and Sustainability. Finalists now have 60 days within which they need to come up with a proof of concept. Current drilling technology is not energy efficient, as well as being heavy, noisy and prone to extreme vibration which results in fatigue, noisy induced hearing loss and white knuckle syndrome. In addition, the conventional configuration means that operators are exposed to the most dangerous conditions of the mine (e.g. falling ground, seismicity, and gas blows). In an attempt to improve the operational cost, as well as the health and safety of rock drill operators, interested parties were asked to submit a concept design based on four key, and six secondary, criteria. These were evaluated by a panel of subject-matter experts in the field based on the following criteria, the concept drill must have a weight reduction from 32 kilograms to approximately 16 kilograms; can be set up and taken down within 15 minutes; must use an alternate power source to compressed air; and must incorporate parallelism. Following the proof of concept phase, finalists will be required to develop a prototype drill.