Press Release from Atlas Copco Mining and Rock Excavation Technique

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Sustainable safe and profitable underground mining with Atlas Copco automation technology

The implementation of automation technology in Atlas Copco's underground operations promotes mine productivity and reduces operating expenses by enhancing machine performance, capabilities and reliability as well as creating safer working conditions.

Committed to assisting mines in ensuring a sustainable future through profitability, Atlas Copco products and systems are designed and engineered with the objective of improving production, productivity and safety. Here the development of cutting edge technology such as automation plays a pivotal role. Easy to install and use, automation technology facilitates machine operation and reliability and improves hole accuracy on Drill Rigs. Functions such as tele remote enables remote line-of-sight control and operation of equipment from the safety of a control room, removing workers from hard, hazardous and arduous work and reducing the risk of injuries and fatalities. Automation technology can be applied safely and cost effectively to enhance a wide range of underground operations that such as haulages, long hole production drilling, materials handling, communication networks and data capturing on production.

"With benefits such as these it comes as no surprise that automation technology is considered by investors, management and engineers alike as the only way for mining operations to ensure a sustainable future," says Thomas Mthimunye, Regional Business Development Manager URE. "We strongly encourage the mining industry to embrace automation as this technology enables customers to take control of their operations in a completely new way."

Atlas Copco's Powered by Automation is a holistic concept that straddles the company's full range of mining equipment, systems, operations and services. "It encompasses both fully autonomous products as well as different steps of automation based on the task at hand and on the current level of automation in a mining or tunneling operation," explains Mthimunye.

There are four levels to Powered by Automation - monitoring, function, calculated optimisation and autonomy. All hardware and software is designed, maintained and supported by Atlas Copco.

Mthimunye confirms that a number of gold, manganese, platinum and diamond mines across South Africa have implemented Atlas Copco's automation technology and are living the success. "Three diamond mines have automated their machines with one of the mines planning full autonomy in 2020.

" Some of the mines that have adopted all four levels of automation; three Simba M6C Long Hole Drill Rigs, one Boomer M2C Face Drill Rig and one Boltec MC Roof Bolter are operating on gold mines and four Simba M4C and two Simba ME7C Long Hole Drill Rigs are in operation on a diamond mine. Examples of automation that can be applied on a Scooptram RRC includes an Operator Unit (OU) that gives the operator full control over the scooptram loader, a Machine Unit (MU) which receives the control signals from the operator and activates correct machine function, a harness belt giving the operator an ergonomic working position throughout the shift and a blue tooth communication link to ensure safe, reliable remote link. Mine truck automation comprises wall avoidance available for both manual and tele remote operation and auto tram and auto dump for autonomous production cycle. One to six Simba rigs can be controlled from a fixed control room; remote control of machinery from 100m line-of-site is possible from a mobile control room.

"We have a comprehensive range of automation technologies for underground equipment," continues Mthimunye. "Rig Remote Access (RRA) enables stakeholders to monitor the machine and gather data in real time without having to go underground or wait for the shift and our Rig Control System (RCS) which is an auto-rod handling function that simplifies operation and reduces wear on the rig as well as on consumables." Of the more than 3 000 RCS rigs introduced to the global market since 1998, approximately 1 400 are operating underground. RCS self-diagnostic features assist in faster trouble shooting and increased availability of the machines. "We also offer a load weighing system that provides accurate recorded information on tonnages excavated," adds Mthimunye.

Atlas Copco monitored underground Mining activities over a 24 hour period to determine the potential and capacity of automation to assist mines in becoming more productive, safe and profitable. Results showed a remarkable improvement potential of between 40 to 80% on autonomous machines working through shift changes and blasting.

Despite the proven success of automation technology, Mthimunye says that there is still resistance to move away from manual operation which he puts down to not being fully versed in all the benefits of this technology.

"Unfortunately automation is usually linked to a decreased workforce while in fact the very opposite is true. It creates opportunities. While the technology is easy to use, it still requires highly skilled operators and technicians to operate the machines. This means upskilling of personnel and subsequent higher remuneration. Furthermore, ease of automation operation attracts women and young upcoming engineers to the mining industry. The older generation's fear of technology is another challenge. Here education is key; we need to show not the simplicity of automation but also the tremendous value add of this technology."

With customers always first in mind, Atlas Copco Automation team partners with customers to evaluate their individual automation possibilities and find the most profitable solutions for sustainable production, operation longevity and profit. In addition to after-sales support, customers with products that are powered by automation receive technical and operator training both at the Atlas Copco Academy in Jet Park, Johannesburg, as well as in Sweden**.** Local and overseas Atlas Copco Product Managers, the aftermarket team and training department work together, continuously engaging, interacting with and supporting the customer to maximise the benefits of automation.

"That automation contributes to the sustainable future of any mining operation is fact. There is thus absolutely no doubt that every operation that implements automation will realise all the unparalleled benefits offered by this technology - reduced operational and maintenance expenses, increased uptime and production, improved productivity, upskilled operators, maximised safety and ultimately, lowest overall cost of equipment ownership, rapid return on capital investments and ultimately profitability," concludes Mthimunye.

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Atlas Copco *is a world-leading provider of sustainable productivity solutions. The Group serves customers with innovative compressors, vacuum solutions and air treatment systems, construction and mining equipment, power tools and assembly systems. Atlas Copco develops products and services focused on productivity, energy efficiency, safety and ergonomics. The company was founded in 1873, is based in Stockholm, Sweden, and has a global reach spanning more than 180 countries. In 2016, Atlas Copco had revenues of BSEK 101 (BEUR 11) and about 45 000 employees. Learn more at www.atlascopcogroup.com*

Atlas Copco Surface Drilling Equipment *is a division within Atlas Copco's Mining and Rock Excavation Technique business area. It develops, manufactures, and markets rock drilling equipment for various applications in civil engineering, quarries and open pit mines worldwide. The division focuses strongly on innovative product design and aftermarket support systems, which give added customer value. The divisional headquarters and main production center is in Örebro, Sweden.*

Atlas Copco Underground Rock Excavation *is a division within Atlas Copco's Mining and Rock Excavation Technique business area. It develops, manufactures, and markets a wide range of tunneling and mining equipment for various underground applications worldwide. The division focuses strongly on innovative product design and aftermarket support systems, which give added customer value. The divisional headquarters and main production center is in Örebro, Sweden.*