

Smartflow digital mine management platform launched

Becker Mining South Africa has launched Smartflow[®], an agnostic integrated software platform that connects hardware systems, communication networks and operational processes into a single mine management solution.

Becker Mining SA's new Smartflow[®] platform is an advanced system that consolidates IoT-enabled monitoring, safety devices and production data, providing operators with real-time oversight of underground and surface operations through a 3D web-based interface.

According to Becker Mining specialists, Smartflow tracks personnel, vehicles, energy use, ventilation and haulage. This system applies predictive analytics to support timely decision-making. By merging data into a unified digital environment, the platform improves efficiency, reduces downtime and enhances occupational safety.

Becker Mining's Smartflow platform brings digital transformation to the mine, improving safety, sustainability and worker well-being. By unifying data from equipment, energy and personnel monitoring, this system provides operators with a comprehensive view of operations and the tools to make informed, proactive decisions.

The modular Smartflow structure is designed for interoperability, allowing seamless integration with Becker Mining systems and certain other mining equipment. Modules range from location and tracking, collision awareness, and dispatch management to energy monitoring, ventilation, leaky-feeder systems, telemetry and haulage control. Each module can operate independently or as part of the connected Smartflow platform, providing flexibility for specific mining conditions. The advanced engineering module enables this system to be efficiently used for specific mine design and future planning.

In keeping with the global commitment to improved environmental trends, sustainability and Environmental, Social and Governance (ESG) compliance are integrated into the platform. The energy monitoring module records consumption at substation level, generates billing and efficiency reports and supports operational strategies that minimise waste.

Ventilation control and haulage optimisation reduce unnecessary power consumption and extend equipment service life. Preventive and predictive maintenance help limit costly downtime and reduce premature equipment replacement, thereby improving resource efficiency in mining operations.

Workforce well-being is a central feature of Smartflow. The telemetry module collects information on equipment operation and operator behaviour, identifies misuse and fatigue, and en-

ures training needs are met. In addition, vital signs monitoring can be integrated to assess heart rate, oxygen levels and fatigue indicators, creating safer working conditions and enabling rapid response to health incidents.

To enhance safety on site, the collision awareness system adds another layer of protection, using Wi-Fi and Bluetooth to detect personnel and vehicles and provide early warnings of potential accidents.

The Dispatch Centre provides full traceability of Personal Protection Equipment (PPE), tools and equipment through Radio-frequency identification (RFID) allocation, improving compliance with safety regulations and reducing the risk of lost or damaged assets. Together with evacuation management, bi-directional alarm notifications and access control, these features improve both operational reliability and safety in mining operations.

Connectivity is supported by the Smart Edge network monitoring system, which maintains high-bandwidth fibre links with redundancy features. This ensures Smartflow functions reliably even in harsh underground environments, while supporting integration with CCTV, Wi-Fi access points and other smart devices.

Smartflow is currently being deployed across underground and surface sites in mines worldwide, with future development focusing on additional modules and expanded ESG applications. Becker Mining's advanced platform supports the mining industry's transition towards more sustainable, energy-efficient and worker-centred mining.

Becker Mining offers customised solutions for energy, automation, communication, transporta-



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tion and infrastructure technology, to meet the specific requirements of every mine.

The team, committed to the highest quality and safety standards, offers technical advisory, repair, testing, and backup services throughout Africa. A specialised consulting, training, and support facility ensures optimal efficiency across a wide range of equipment and total worker safety.

Included in the company's product range are intrinsically safe (IS) and flameproof underground electrical reticulation products, as well as fluid transfer, rigging, rope attachment, steel arch tunnel support and chairlift solutions. An important feature of all Becker Mining systems is that they are designed to facilitate future upgrades.

<https://www.becker-mining.com/en>



Becker Mining's Smartflow[®] platform consolidates IoT-enabled monitoring, safety devices and production data for real-time oversight of underground and surface operations.