

# M

# ODERN MINING

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## ELECTRA MINING EDITION

- Beowolf mining targets growth in Africa
- Ruling with an iron fist
- Electra Mining Africa 2024 preview
- SRG - where luxury and innovation meet
- Prieska on track for production by end 2025



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## ON THE COVER

Beowolf Mining has set its sights firmly on expanding its footprint into Africa. **Pg 8.**

# When the people speak

With some 50 countries headed for the polls in 2024 – there were bound to be some shake-ups and, true to form, some revolutionary transformations have unfolded, notwithstanding South Africa, which begins its era of a government of national unity.

There are shake ups for key global economies, including the UK, which sees Rishi Sunak replaced by Keir Starmer, France's President Emmanuel Macron's snap elections now find him faced with finding a new prime minister while the US's fighting unfits – Biden and Trump – are still eager to head up the world's largest economy.

On the home front, there has been much haggling between the ANC and the DA for new leadership positions, which the country hopes will invigorate some sectors. Unfortunately for the mining industry, which is in much need of stimulation and investor friendly policies, Gwede Mantashe remains with the minerals resources portfolio, which means that the excessive red-tape and snail's pace of change is here to stay. And so, it is an uphill battle for miners, especially emerging and junior miners looking for some much-needed funding.

For some good news, which is in line with our Women in Mining feature, the Minerals Council Board members recently elected their new Office Bearers for 2024/2025 at the 134<sup>th</sup> Annual General Meeting. Dr Nombasa Tsengwa, CEO of Exxaro Resources, has been elected as President of the Minerals Council. Mpumi Zikalala, CEO of Kumba Iron Ore and Richard Stewart, Chief Regional Officer of Sibanye-Stillwater, have been newly elected as Vice Presidents. Paul Dunne, CEO of Northam Platinum, and Themba Mkhwanazi, Anglo American Africa and Australia Regional Director, were re-elected as Vice Presidents.

Importantly, the much-anticipated Electra Mining Africa 2024 event is on our doorstep with businesses readying for one of the industry's top events. According to event organizer, Specialised Exhibitions, it has pulled out all the stops for the biggest event in mining and manufacturing. Electra Mining Africa 2024 is

set to deliver an unrivalled experience, we are told. Taking place at the Expo Centre in Nasrec, Johannesburg, from 2-6 September 2024, the event has already attracted a flurry of interest with a 30% increase in the number of exhibitors compared to Electra Mining Africa 2022. On show will be an array of cutting-edge products, machinery, equipment, software, services, and solutions to streamline operations and help business growth. Given that Electra Mining is all about connecting, the overall theme for the show is: Connect with Your Future in the areas of mining, electrical, automation, manufacturing, power and transport. Check out our Electra Mining 2024 Preview, which showcases client's offerings at EMA (pg 32).

## In this edition

Also of interest is our cover story. Beowolf Mining, a leading supplier of drilling consumables to the quarrying and mining sectors, has set its sights firmly on expanding its footprint into Africa (pg 8), our iron ore outlook titled: Ruling with an iron fist: the world's most mined metal finds new outlets for growth (pg 10) and the hydrogen outlook, which details hydrogen engine vehicle sales taking off in trucks, off-road and gensets (pg 14). On the topic of commodities, Silk Route Gold (SRG), one of the country's top precious metal's refiners is pushing the boundaries to create innovative and cutting-edge customised offerings (pg 20).

Orion Minerals, meanwhile, remains on track with the development of its Prieska project, which is targeting production by the end of 2025 (pg 16), while equipment supplier, Komatsu Mining Technologies, advises that it is set to launch its hard rock miner in South Africa by year-end. This is in line with its diversification strategy, which is targeting commodities in the industrial minerals, potash and limestone space (pg 60).

In keeping with celebrating women's month in August, our Women in Mining feature speaks to how the industry is evolving and aligning with gender equity initiatives. To find out whether or not industry is keeping pace with legislation, see pg 24. ■



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## Exploration success, capital investment to sustain Kibali's production profile

Kibali, Africa's largest gold mine, continues to deliver growth as its strong record of replenishing reserves and resources, and further investment in technology and capacity, position it to sustain its 750 000 ounces annual production past the current 10-year horizon to 15 years and beyond. Speaking to media, Barrick CE, Mark Bristow, said Kibali was not only Africa's largest gold mine but also its most automated and, thanks to its three hydropower stations, a leader in renewable energy. "When we started building Kibali 14 years ago, this was one of the DRC's most underdeveloped regions. The value we created and the infrastructure we built here have since transformed it into a new economic frontier and a flourishing commercial hub, with a community that has grown from 30 000 to over 500 000 people. We've promoted this growth through investment in community development and partnering with local businesses we have mentored. Our Azambi power station, for example, was built by an all-Congolese team. Since 2010, Kibali's payments to local contractors and suppliers have amounted to almost \$2.7 billion (CDF 7.6 trillion)." Based on its success, Barrick was ready to invest in new gold and copper opportunities in the DRC, provided the government continued to build alongside it. ■



Barrick CEO Mark Bristow said that Kibali was built on partnerships with the government and its host communities.

## NextSource Materials announces global anode expansion strategy update



Aerial view of the proposed BAF.

TSX listed NextSource Materials has updated industry on its global anode expansion strategy, including positive results of a technical and economic study for the construction of a proposed battery anode facility (BAF) located in the Kingdom of Saudi Arabia (KSA). The company

launched a strategic partner process to consider expressions of interest it has received for funding the battery anode facilities, both in the Middle East and globally. NextSource plans to construct, in stages, multiple BAFs globally in key jurisdictions that would be

capable of producing commercial scale graphite anode active material for lithium-ion batteries used in electric vehicle (EV) applications. The planned series of BAFs will leverage exclusive access to well-established proprietary anode processing technology currently supplying anode active material to major EV automotive companies (OEMs). Stantec, a partner firm with NextSource, has completed a conceptual design and an AACE Class 5 evaluation to develop Battery Anode Facilities in selected sites in the KSA. The KSA BAF will be capable of producing natural graphite anode active material for lithium-ion batteries used in EV applications. Stantec has worked in conjunction with NextSource's technology partners to develop a Middle East compliant plant design, using proven process technology to reduce future qualification times. ■



Nolitha Fakude, the first woman president of the Minerals Council, has stepped down.

## Minerals council South Africa office bearers for 2024/2025

The Minerals Council Board elected new Office Bearers for 2024/2025 at its 134th Annual General Meeting. Dr Nombasa Tsengwa, CEO of Exxaro Resources, has been elected as President of the Minerals Council. Nolitha Fakude, Chair of Anglo American South Africa and the first woman president of the Minerals Council, has stepped down after three years in the role. Mpumi Zikalala, CEO of Kumba Iron Ore and Richard Stewart, Chief Regional Officer of Sibanye-Stillwater, have been elected as Vice Presidents. Paul Dunne, CEO of Northam Platinum, and Themba Mkhwanazi, Anglo American Africa and Australia Regional Director, were re-elected as Vice Presidents. The Minerals Council Office Bearers perform a critical role in leading and representing the South African mining industry on behalf of the Board and its members. ■



Andrada Mining CEO, Anthony Viljoen.

## Andrada Mining proposed restructuring

AIM-listed Andrada Mining, the technology-metals producer with assets in Namibia, has taken a decision to restructure its Uis Tin Mining Company (UTMC), the Namibian entity that holds the company’s licences (ML133, ML134 and ML129), to ensure a more efficient corporate structure. The company seeks to increase its ownership interest in UTMC, from 85% to 100% through the acquisition of the 15% interest currently held by the Small Miners of Uis (SMU), a not-for-gain organisation established to support the economic development of Namibians in historical mining areas. Anthony Viljoen, Chief Executive Officer, commented:

“We believe that this transaction reflects the strong and collaborative relationship Andrada has built with the SMU over the years. It signifies our mutual growth and development as partners, and the progression of SMU as an organisation. Furthermore, it marks a significant step forward, with the aim to leverage our combined strengths to advance the economic revival of historical mining areas and upliftment of local communities.” ■

## Miners need to invest for growth and transformation amid financial pressure - PwC



The global mining industry faced a challenge in 2023 that was at once unprecedented and familiar. The financial performance of the world’s Top 40 mining companies was squeezed by falling commodity prices and rising costs, which resulted in revenues falling more than 7%—this despite increases in the production of key commodities. Twenty-twenty four promises a continuation of these trends, marking the first time since 2016 that industry revenues will fall for a second consecutive year. A mix of cyclical and structural issues now compels leading miners to invest for growth and transformation even as revenues and profit margins come under pressure. Andries Rossouw, PwC Africa Energy, Utilities and Resources Leader, says: “In PwC’s newly launched Mine 2024 report, the 21st global report of its kind, we focus on how the industry is planning for impact by retooling and reimagining itself to be a key contributor to growth. A core component of this means leaning into the vital role it plays in food production, food security, and essentially, how the world feeds itself. It means delving into the potential and challenges of the complementary industry of urban mining—that is recycling. It also means harnessing technology – including the revolutionary implications of AI – to advance productivity, sustainability and safety.” Amid a new and ever-changing landscape, mergers and acquisitions (M&A) remain a crucial strategy for miners that want to maintain their competitive advantage, even while the industry grows in new terrain in response to emerging demand. The percentage of completed mining deals involving the Top 40 that were focused on critical minerals rose to 40% in 2023 from 22% in 2019, underlining this seismic shift driving M&A activity. Copper and lithium dominated such deals, accounting for over 70% of them by volume, up marginally from 2022. ■

## Successful A\$85 m placement to advance Etango-8 Project



Bannerman Energy's Etango-8 Project.

ASX-listed Bannerman Energy has received firm commitments for a two-tranche placement of some 25.8 million new ordinary shares to new and existing institutional investors at an issue price of A\$3.30 per New Share to raise around A\$85 million. The funds raised will be for the development of the Etango-8 Project, including detailed design, early works (including construction infrastructure, earth works and selected long-lead items) and general working capital. Upon completion of the Placement, the company expects to have cash reserves of about A\$100 million (after costs). Bannerman's Executive Chairman, Brandon Munro, said: "Proceeds from this Placement will enable us to further progress

our Etango-8 Project, following positive outcomes from the recently announced Front End Engineering and Design (FEED) and Control Budget Estimates (CBE) processes, which confirmed the high quality of technical evaluation and design from the December 2022 Definitive Feasibility Study (DFS). We have commenced detailed design work and early works construction, and the Placement will enable us to advance further works including the procurement and manufacturing of select long-lead items, product marketing and project financing activities. These activities are all directed towards advancing Etango to a targeted positive Final Investment Decision (FID) during H2 2024." ■

## Tendele Mine back in operation



Tendele Mine back in operation.

After several years of legal challenges, Tendele Mining is set to commence full scale mining operations. By restarting operations, Tendele will provide much-needed anthracite for the South African ferrochrome industry and generate foreign revenue through global exports. Training and business opportunities will become available within 6 to 12 months, ensuring long-term benefits for the local economy. Tendele will commence with full scale mining operations at Emalahleni, producing 100 000 tonnes of run-of-mine per month, before commencing operations in Ophondweni thereafter, with production ramping up to 200 000 tonnes per month once both areas are in full operation. The two areas will secure operations for the next four to five years, with plans underway to develop a third area, Mahujini, which will provide a further six years life of mine for Tendele, while maintaining the 200 000 tonnes per month production level. ■

## More outstanding hits at Okiep Copper Project, Flat Mine East

Dual-listed Orion Minerals has reported further outstanding assay results from the confirmation diamond drilling programme in the Flat Mines area at its Okiep Copper Project (OCP) in the Northern Cape. The latest results add further momentum to Orion's development strategy for the OCP, building on the initial results reported on 22 April 2024 and confirming the geology and endowment of the Flat Mines Area. The OCP ground holdings of 641km<sup>2</sup> covers the majority of the area where a total of 105 mt is reported to have been mined in the district over the past 100 years. The Flat Mines area and the current drilling programme fall entirely within the executed Mining Right. Results received to date from the last three of the five planned and completed holes at Flat Mine East (FME) have confirmed historical information from drilling by Goldfields of South Africa in the 1990s, used in the Mineral Resource update where 9.4 mt at 1.3% Cu was reported for the Flat Mines including 4.4 mt at 1.3% Cu at FME. ■



More outstanding assay results from the Flat Mines area at Okiep Copper Project.

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# Beowolf Mining targets growth in Africa

Beowolf Mining, a leading supplier of drilling consumables to the quarrying and mining sectors, has set its sights firmly on expanding its footprint into Africa. Director of sales Riaan Theron highlights the company's African expansion strategy as well as key trends influencing the drilling market.



**H**aving traditionally served the South African mining market, Beowolf Mining has adopted an expansion strategy to grow its business in Africa. While the South African mining sector is grappling with its own challenges, Theron believes that the local market will remain an important mining destination for years to come.

However, says Theron, issues such as legislative uncertainty, the lack of exploration investment as well as energy constraints, are impacting new investment in mining. In the wake of these documented challenges, Beowolf Mining has taken a strategic decision to expand its geographical footprint and diversify its business into new commodity areas.

“Our African expansion drive started some five years ago, with initial focus on West Africa, particularly Burkina Faso and Guinea, where we have already secured business from two big mining houses. We have identified a big gap in terms of both quality product and good service in these markets,” says Theron.

“The expansion into West Africa complements our existing cross border business in key markets such as Botswana, Zimbabwe and Namibia.”

Despite the focus on Africa, Theron is still positive about prospects of growth in South Africa. “In spite of the existing

challenges, I am of the view that the government will prioritise a conducive environment for more mining investment,” he says.

## New suppliers and availability

Commenting on some new trends in the drilling consumables market, Theron has observed an influx of new suppliers in the market, but notes that many of them do not last long. The reason for their early demise is that many of the new suppliers are importing their drilling consumables from overseas traders and not necessarily from manufacturers, which makes it difficult for them to provide the necessary aftermarket support for their products. To run a sustainable drilling consumables business, there is need for consistent quality and ‘value for money’ for the client, he stresses.

One of the biggest emerging trends, notes Theron, is the need for stock availability, not only in the drilling consumables market, but across the mining supply chain. Maintaining adequate inventory has become critical for the product-intensive mining industry. “In mining, time is money, and therefore clients expect their suppliers to carry sufficient stock to meet their operational needs. This is despite the current challenges with our South African ports and general



catastrophe within the global supply chain,” he says.

As part of its new business strategy, Beowolf Mining has, in the past few years, increased monthly shipments from its overseas suppliers to build up adequate stock levels and ensure availability locally. Keeping enough stock, says Theron, increases chances of getting new business as customers look for suppliers with inventory.

### Customisation

In a world where a one-size-fits-all approach has lost relevance, Theron says mines and quarries now place value on custom-made solutions that address their specific needs on site. In response to that trend, Beowolf Mining invests heavily in research and development (R&D) to ensure provision of custom-made solutions to its customers.

“We believe in providing tailor-made products for different types of applications and ore bodies,” says Theron. “At one of the large open pit mines in South Africa, we spent about R2 million on R&D to ensure that the type of carbide and the design of the drill bits were 100% suited to the application. As a result, clients are getting maximum life out of their drill bits.”

In recent years, adds Theron, the drilling equipment market

has not only seen a hastening trend towards consolidation within the supplier community, but also an expansion of the range of products and services offered under one roof. This has created true ‘one-stop shops’ that are able to service a wide range of customer needs from a single stable.

Convenience, says Theron, is one of the many reasons why customers prefer to deal with a one-stop drilling solutions provider, such as Beowolf Mining. Instead of having to go to multiple suppliers, buyers for mines and quarries can simply go to one location for all their requirements. Apart from convenience, dealing with a single supplier for a whole range of drilling needs means faster turnaround times for increased uptime.

Over the years, Beowolf Mining has bolstered its product offering with a complete range of rock-drilling tools and drill rigs to meet its customers’ requirements. The extensive range includes down the hole (DTH) drilling equipment, hydraulic open pit drill rigs, DTH drill rigs, drill rig lubricants, top hammer drilling equipment, drifters and drifter spares. Additionally, the company offers refurbishment of hydraulic drifters. In recent times, self-drilling anchors have become a big part of its business.

In addition, Beowolf Mining has developed an app designed to monitor drilling consumables. Traditionally, available apps are original equipment manufacturer (OEM) solutions dedicated to monitoring parameters such as engine hours and fuel consumption. Beowolf Mining’s app, says Theron, is the first of its kind that is dedicated to consumables. The solution will be showcased for the first time at this year’s Electra Mining Africa in September.

Apart from drilling consumables, Beowolf Mining is in a joint venture with its sister company, JMH Equipment, for the sales of Soosan crawler drills, previously known as Junjin, from South Korea. The company has been marketing this range of crawler drills for the past 10 years, with some 55 units already operating in the South African mining industry alone. Several units have also been exported to Botswana, Angola and Namibia.

“The range will soon be expanded with larger rotary and DTH drills following JMH Equipment’s recent appointment as the exclusive distributor of Revathi Equipment Limited’s range in Africa. This will allow us to offer a complete range of drill rigs for all open pit applications from aggregates operations to large opencast mines. After 24 years in the game, now we can confidently say we offer a full drilling package,” concludes Theron. ■

# Ruling with an iron fist: the world's most mined metal finds new outlets for growth

Iron ore and its final product, steel, are perhaps the most socially and economically significant commodities of the last three millennia. Now, iron ore is finding new pathways to a green future.

**M**ark Twain, the American writer and humourist, famously proposed the notion that everything has a limit. "Iron ore cannot be educated into gold", he remarked. While some limitations can be stretched, there are points beyond which no amount of training, adjusting, modifying or educating can reasonably alter a boundary.

Whilst iron ore might not have the luxury reputation of a precious metal, its ability to conform to ever changing global requirements is noteworthy, and, in a sense, refutes Twain's jocular observation.

Iron ore is an essential input for the production of steel, which is the backbone of global infrastructure. According to the United States Geological Survey, 98 per cent iron ore is used in steelmaking, which then feeds the construction, engineering, automotive, and machinery industries. Iron ore dominates the metals mining landscape, comprising 93 per cent of total mined material. In 2022, 2.6 billion tonnes of iron ore were mined, containing approximately 1.6 billion tonnes of iron.

Iron ore is subject to the same whims of market demand that influence the performance of every commodity. However, it's central role in the development of societies lends it a more predicated position; more prosperous societies consume more materials than less prosperous ones, and rapidly urbanising countries, in particular, fuel a high demand for construction materials like steel.

Iron ore use is therefore congruent to regional development trends, which is why China and India sit atop the iron ore consumption table. In 1980, the urbanisation rate in China ranged below 20 per cent. By the end of 2023, this rate was higher than 65 percent. Whilst, for China, the steel industry has always been the mainstay of heavy industry, the association between increasing urbanisation and steel consumption only augments this relationship. In 2019, around 725.5 million metric tonnes of finished steel products were consumed in China, and it is generally believed that the peak of steel demand in China hasn't arrived yet, since urbanisation is still ongoing.

Iron ore supply remains a cross-border matter, and demand can rarely be solely fulfilled domestically. Whilst China is the largest producer of iron ore, the iron ore mined in China has a lower iron content, at an average grade of 33 per cent. This means that the highly populous Asian nation is heavily reliant on an imported iron ore supply, mainly from Australia and Brazil.

Europe, too, is reliant on steel and, consequently, iron



Electric arc furnaces are used during the production of green steel.

ore, for its development, although its demands are now spurred by slightly different motives. The urbanisation rate in China in 2012 was equivalent to that in Britain in 1900. In line with this, the respective peaks of steel consumption in Britain, France, Belgium and Germany were reached in the 1970s.

The demands of the European market have perhaps moved beyond standard large-scale construction and development, with the green energy transition providing the backdrop to new innovations in iron ore and steel use. Industrialisation is the inevitable choice for the modernisation of developing countries, but developed countries that industrialised over a century ago are afforded the privilege of exploring technological advancements.

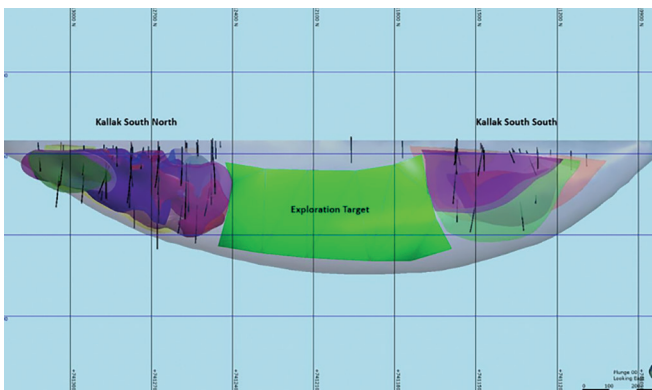
In 2021, the European Union made climate neutrality, the goal of zero net emissions by 2050, legally binding within the bloc. It also



Steel and iron are heavily used in the construction of renewable energy infrastructure, including wind turbines.



Drill core collected from Kallak (source: Beowulf Mining).



The Kallak project's exploration target areas (source: Beowulf Mining).



Jökmokk Iron Mines AB's Kallak project permit areas (source: Beowulf Mining).

set an interim target of 55 per cent emission reduction by 2030. To achieve this, various industries will have to fall in line with decarbonisation goals, not least, the steel industry.

**If steel were a nation, it would be the fifth largest producer of carbon emissions in the world**

Manufacturing steel is among the most carbon-intensive fabrication processes, producing approximately seven per cent of carbon dioxide emissions globally. On average, 1.83 tonnes of CO<sub>2</sub> are emitted for every tonne of steel produced. This is primarily due to high temperatures required to transform iron ore into steel, which is most often satisfied by burning coal.

The energy intensity of steel manufacturing has stimulated many companies and governments to look into a cleaner

method of production; namely, green steel.

Whilst the end product is no different from its heavily polluting counterpart, the green steel manufacturing process relies on non-fossil fuel sources, which, consequently, means that it produces near zero CO<sub>2</sub> emissions. By replacing coal with hydrogen that is produced from renewable energy and water, the carbon element of the process is removed. This, too, can be achieved with electricity produced from renewable energy sources.

However, there are also demands placed on the quality of the raw material. Green steel is reliant on high-grade iron ore, which is not always easy to come by. This places an emphasis on the need for strong supply chains that connect high-grade iron ore mines, renewable fuel sources and green steel manufacturers. Sweden is arguably the paradigm of success in this regard.



Steel is a significant component in the construction industry.

**To deliver the material that develops the world, you first must develop your industry**

H2 Green Steel, a start-up company, aims to “decarbonise the European steel industry” through its green steel plant in Boden, northern Sweden. The company states that its process will reduce CO<sub>2</sub> emissions by up to 95 per cent when compared to traditional steelmaking.

Sweden seems like the natural place to pursue a domestic decarbonised steel solution; it is home to the Kiruna mine – the largest underground iron ore mine in the world – and, as a nation, is responsible for 93 per cent of iron production in the EU. This continental reliance on Swedish iron ore has incentivised mining companies operating in Sweden to expedite efforts to meet this demand, and some have stepped up their pursuit of high-grade iron ore to provide a vital supply to green steel manufacturers like H2.

Beowulf Mining, through its subsidiary Jokkmokk Iron Mines AB, owns and operates the Kallak/Gällöck mine in Jokkmokk, Sweden. Whilst at a development phase, the project has already shown the potential to produce the high-grade and low-impurity iron ore concentrate required for green steel production.

At present, there are only a few known deposits of iron ore left in Sweden that can be classified as economically exploitable, placing extreme weight on the value of Kallak/Gällöck as a resource. The Swedish government reaffirmed this importance by recently declaring that “the deposit in Kallak is of national interest.”

Given the high quality and large-scale potential of the iron mineralisation at Kallak/Gällöck, the Beowulf team, supported by seasoned consultants, has focused on better understanding the



Power pylons and similar infrastructure are mostly constructed out of steel components.

metallurgy of the project. The company has conducted extensive metallurgical testing, which will inform a pre-feasibility study for the mine. Beowulf anticipates that this study will cement the validity of the previous positive drilling results, and will confirm that the Kallak/Gällöck ore is a premium product capable of feeding into green steel production.

Sweden’s status as a renewable energy powerhouse also affords Beowulf the possibility of adopting the same clean energy approaches as green steel manufacturers; the company has, indeed, noted the potential for Kallak to be powered by renewable electricity, with the goal of being a net zero mining operation.

With H2’s plant at Boden, only 170 kilometres away, Kallak represents a potential source of high-quality iron ore for fossil-free steel making in Sweden for decades to come, providing Europe with decarbonised steel for its continued advancement. If this can be scaled up internationally, a polluting industry could soon unlock a clean future, driving demand for high-grade iron ore at sites like Kallak/Gällöck.

All too often, growth is viewed as something that can only be actualised with an increase in volume and frequency. Indeed, iron ore and its final product, steel, have historically correlated strongly with economic growth and CO<sub>2</sub> emissions. This places the sector in a position whereby it will have a critical role in decarbonising the economy, and, as the world shifts towards favouring innovative and sustainable solutions to polluting processes, iron ore and steel have reoriented towards a new growth path; to deliver the material that develops the world, you first must develop your industry. ■



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# Hydrogen engine vehicle sales take off in trucks, off-road and gensets

After years of discussion and development, 2024 is set to be the year in which the hydrogen engine market really takes off. In 2024, India will move firmly into pole position due to its drive for energy independence.

By Jamie Fox: Principal Analyst at Interact Analysis




## Trucks

There were no new hydrogen internal combustion engine (H2 ICE) trucks registered in 2023 (excluding test vehicles). We forecast sales of 40 hydrogen engine trucks (new vehicles) in 2024. Most of these sales will be in India, led by Ashok Leyland and followed by Cummins through its partnership with Tata Motors. From there, we see a fast-growing market with hundreds of sales in 2025 and thousands in the following years, reaching a forecast 10,121 in 2030. However, with over 20 million trucks expected to be sold worldwide in 2030, H2 ICE will still only account for 0.05% of the total.

## Off-Road

The off-road market, which also stood at zero in 2023 (JCB has already built many H2 ICE vehicles but not sold them for commercial use), is forecast to grow to 23 vehicles in 2024, led by loaders from JCB. Sales of hydrogen ICE telehandlers are also anticipated in the coming years, with the total off-road market projected to reach 2 720 H2 ICE vehicles in 2030. However, once again this figure must be compared with the millions of (mostly diesel) off-road vehicles sold each year.

The order Deutz received from China for gensets, plus the



“  
On a positive note, the engineering challenges that H2 ICE engines and vehicles face are being solved.”

possibility of other orders in this area, will also add to the sales of hydrogen ICE off-road vehicles during the next few years.

### Market Drivers

Sales, mainly of H2 ICE trucks, off-road machinery/vehicles and gensets are driven by the need to avoid reliance on foreign energy (in India) and for environmental reasons – climate change and local pollution (in Europe, the US and elsewhere). In addition, hydrogen engines are somewhat similar to diesel engines, and can be produced by companies with the expertise and production facilities for diesel.

Given these reasons, there will always be national or local governments, or large companies willing to take a chance on a new technology, but early sales don't necessarily mean that a mass market will follow.

In our experience, conducting modelling and interviews with experts for the past seven years, increasing sales of a new technology from 1%-2% to 5%-10% will only happen when the new technology is less expensive or clearly better in some way than the prevalent technology, or when existing technology is being legislated against in some way. The path to mass market H2 ICE looks challenging given that the total cost of ownership of H2 ICE vehicles is more expensive than diesel and BEV vehicles, does not offer greater utility or more advantages vs diesel, and the existing diesel is not currently being phased out (especially in off-road). In addition, the infrastructure for hydrogen is not in place at present.

Diesel will be phased out earlier on-road than off-road, but in most on-road applications BEV will simply beat H2 ICE on cost, and perhaps infrastructure. Long-haul trucking is more of an open question as that is very difficult for BEV, which means H2 ICE may be able to compete.

### H2 ICE Won't Reach the Level of BEV or Diesel

The no 1 reason why we think H2 ICE will be a niche application is that it will (in total cost of ownership) be too expensive. The high cost of hydrogen as a fuel, even after 2030, is the key problem here. The second big reason is the lack of infrastructure (at least for now). It may make sense to use hydrogen vehicles near to existing sources of hydrogen – such as industrial facilities, ports and solar and wind farms that are creating hydrogen with spare electricity through electrolysis. In such cases, infrastructure costs and the costs of hydrogen transport may be reduced, allowing hydrogen vehicles to be competitive.

### Engineering Challenges

On a positive note, the engineering challenges that H2 ICE engines and vehicles face are being solved. Much progress has been made by companies such as JCB and Cummins on challenges relating to spark plugs, embrittlement and so on. Injector lifetime, given the lack of lubrication, is still very poor but many companies are confident that they will improve it.

So, if the issues around cost and infrastructure could be solved, hydrogen would have a bright future in commercial vehicles.

### New Research Report

These findings are from our new H2 ICE report, which has H2 ICE vehicle forecasts to 2040 by region, vehicle/equipment type, and power/size. Direct injection vs port fuel is also shown. The report compares our forecasts for H2 ICE with those of fuel cell, battery electric, hybrid and non-electrified vehicles (mainly diesel). In addition, the report forecasts the price of hydrogen and has a sample total cost of ownership for Hydrogen ICE and how this compares to other powertrains.

The report also showcases leading suppliers, pros and cons of each supplier, and technical, market and legislative arguments to provide a complete picture of the market. ■



# Orion Minerals on track for Prieska production by end 2025

By Nelendhre Moodley

**A Government of national unity (GNU) bodes well for the country, Errol Smart of dual-listed copper development company, Orion Minerals' CEO, told attendees during a South Africa-Australia webinar in June. The company is fast-tracking the development of its flagship Prieska Copper Zinc Mine and advancing its Okiep Copper project, both located in the Northern Cape.**



Orion Minerals CEO, Errol Smart.

**A**ccording to Smart, the recent elections, which culminated in a GNU is a "South African story that is going to get superheated over the next couple of weeks. Coupled with our copper story, which is underpinned by a macro environment where everything is positive and where interest rates are likely to fall and the local currency, the Rand, dramatically strengthen, means we have certainty in our medium-term outlook. For junior miners in South Africa, the sun is finally shining on us."

All of which bodes well for Orion Minerals,

which is on the cusp of taking its flagship Prieska Copper Zinc Mine (PCZM), up the value curve and into construction in the next six to eight months as it targets production in late 2025.

The Prieska Project was historically mined by Prieska Copper Mine (PCM), a subsidiary of Anglovaal Group, between the 1970s and 1990s. However, following a dip in demand for copper and zinc, the mine was closed in 1991. Since its acquisition of the Prieska mine in 2017, Orion Minerals has been updating the resource and completed an updated Bankable Feasibility Study



“We will be using the outcomes from the trial mining to enhance the optimised bankable feasibility study,” says Smart, adding that the company is also finalising the bankable feasibility study on its Okiep project.”



Prieska Copper Zinc Mine.



Drilling at the Flat Mines area of the Okiep Copper Project.

(BFS) in May 2020.

The project has access to significant local and regional infrastructure and is fully permitted and in the final leg of completing an optimised bankable feasibility study, scheduled for handover to independent experts by August.

Discussing the current status of the project, Smart says trial mining has been underway for some time, with 160 people on site drilling and blasting daily and about 30 000 t of ore already on surface.

“We will be using the outcomes from the trial mining to enhance the optimised bankable feasibility study,” says Smart, adding that the company is also finalising the bankable feasibility study on its Okiep project.

Orion Minerals is in discussion with several finance organisations, including debt and equity financiers and financiers involved in innovative off-take related financing, to secure funding of an estimated R3-billion to R4-billion.

“Off-take partners are increasingly playing a significant role in financing mining projects worldwide. In fact, we are in discussions with off-takers, both on off-take terms and as potential providers of project financing. Those that provide

financing will get preferential attention on the off-take as we go forward. We expect to be engaged in financial agreement negotiations for roughly the next six months,” says Smart.

### Prieska project

Orion Minerals BFS, completed in 2020, is based on the development of a modern 2.4 mtpa underground and open pit mining operation, with a 12-year ‘Foundation Phase’ targeting 22 000 tpa Cu and 70 000 tpa Zn.

The project contains a Volcanogenic Massive Sulphide resource totalling 31 mt at 1.2% Cu and 3.6% Zn, including an Indicated Mineral Resources of

19.13 mt @ 1.18% Cu and 3.59% Zn.

“There are very few opportunities in the world where mines that are fully permitted, can come into production in 12 to 18 months, and have a big growth profile ahead of them. The Prieska mine is a Brownfields project that was a large mine in its time, equipped with a 3 million tonne per annum processing plant. The project has significant infrastructure in place, which currently underscores project acceleration.”

The Prieska orebody was initially mined from 105 m below surface all the way down to 1100 metres. The existing shaft, which descends to 1 100 m, has multiple underground roadways that reach down to the deepest ore at 1 250 m.

The company’s development strategy, while dewatering is underway, focuses on a mining plan that targets mining shallow underground reserves, the open pit and remanent pillars. Trial mining has confirmed the ability to mine with a mechanised fleet in large scale excavation to provide economies of scale for extraction.

First production is scheduled for end 2025.

**Mitigating infrastructure challenges at Prieska**

As it stands, Orion Minerals, which needs to pump out nine million cubic metres of water before the company can begin underground mining from the deepest ore, has the requisite pumps in place draining out the excess water. “We are currently mining underground on 105 level, above the water level which is at 265m,” says Smart, adding that the dewatering programme is a three-year programme that will entail pumping at 500 cubic metres of water per hour.

“The pumps we installed were tested in mid-June to run at 600 cubic metres per hour. Once the Eskom grid power is connected, we will start pumping at 500 cubic metres per hour.”

The miner has also installed flood control measures to avoid unplanned mine flooding for events such as a “one in a hundred-year rainfall”.

A retention dam, currently under construction, is scheduled for completion in July, with the miner set to acquire an off-the-shelf, plug and play rental reverse osmosis plant, which Smart explains will be operational next year.

Aside from constructing a four-kilometre water pipeline, other infrastructure installation is underway, including power

supply from Eskom, which recently installed a 15 MVA grid power supply system to run the operations.

Although the junior miner “dreams of one day having its own smelter”, the exorbitant cost does not currently justify building a smelter, says Smart.

Looking ahead, he says that instead of a traditional high energy consuming smelter, the company is leaning towards other more environmentally friendly options, including metal vapour refining.

“We’ve done a lot of work on metal vapour refining and we’re doing a lot of work on hydrometallurgical leaching. It’s difficult to build an environmentally friendly smelter, but it is quite viable to build an environmentally friendly metal vapour refinery or leach plant, and that’s what we will probably look at in the future.”

On a positive note, the Prieska project is located close to key transport routes in the Northern Cape, including being 43 km away from a rail siding, and has good road infrastructure close to the mine, including toll roads.

**Strong currency bodes well for Prieska’s construction phase**

With the South African Rand projected to strengthen in the coming weeks, Orion Minerals remains upbeat, stating that this is good news for mining projects preparing for construction in South Africa.

A strong currency is favourable for miners looking to construct mining projects, as contractors will be able to leverage off the strong rand when acquiring machines, equipment, tyres and fuel and associated construction costs.

Smart explains that all these items are highly sensitive to currency fluctuations and having a strong rand “is the best thing we could ask for” as the company readies to acquire equipment and machines. “We will need to convert Rands to Euros, Dollars, and the Yuan to purchase capital goods and are upbeat when the Rand is strong. Moreover, from a financial point of view, the markets and the banks yearn for currency stability.”

**Advancing the green agenda**

Even though the Orion Minerals Prieska project is on the Eskom grid, the miner is in talks with several independent power



Underground at the Okiep Copper Project.



Underground at Prieska Copper Zinc Mine.

producers as it looks to ink renewable energy agreements for its projects.

“We are in advanced discussions with a few renewable energy power producers, with one in particular, presenting terms which are 20% lower than the cost of Eskom power. Inclusion of renewable energy will mean that we will be producing certified green copper. That’s a huge opportunity, especially when speaking to off-takers and debt financiers where green and ESG, credibility is very important.”

Further to this, the pumped water from the mine offers the company an option to process some of the water for mine use and extract the brine, which it will store for future use in fertiliser production.

“We concluded a study on the viability of producing fertilizer from brine which indicated that such an initiative is not only technically and commercially viable but would add roughly \$100 million to our coffers.”

The ASX-listed entity is also in discussions with the local farmers’ cooperative as it looks to ink an agreement for its pumped water.

### Okiep project

Meanwhile, in tandem with developing the Prieska project, the company is advancing the Okiep Copper Project (OCP) located in the Northern Cape, roughly 450km west of the company’s flagship Prieska project.

The Okiep project, which produced nearly 2 million tons of copper historically and was previously owned by Newmont and Goldfields, offers Orion Minerals a significant opportunity to develop a second base metal production hub alongside its Prieska project.

As it stands, the Okiep project is almost fully permitted, with the water-use licence and sign-off on the engineering design of the tailing’s facility, being the two outstanding components.

“We started the application for the water-use licence process about three years ago and have been told that final

sign off is imminent.”

Since acquiring the Okiep project in February 2021, Orion Minerals has undertaken a Scoping Study which has confirmed the economic merits of developing a foundation-phase mining operation based on an initial six deposits.

“Orion acquired about three quarters of the district which produced copper at an average grade of 1.9% cu. For many decades, it produced more than 20 000 t/y of copper from its plant facilities.”

Importantly, Orion Minerals recently drilled one of the highest grades intersections on the Okiep project where it received 50 m at 5% copper. “There’s high-grade ore here that hasn’t been mined, and we’ll be proving it as we go.”

The company is in the process of completing a bankable feasibility study on the Okiep project and, according to Smart, the project area is extremely attractive, consisting of 42 known mines within the district.

“More than three quarters of those mines are on our properties. Exploration is ongoing, the BFS is almost complete.”

### Copper outlook

A new copper cycle is emerging, underpinned by constrained copper supply owing to a lack of new mine development and countries investing heavily in clean energy.

According to Smart, Sprott, which is a leader in precious metals and critical materials investments, is also “busy buying into physical copper”.

“We are seeing that Sprott, one of the big investors funding mining equities and providers of debt financing, is now buying into physical metal-based stocks. Furthermore, with the world actively working towards ‘cleaning up its act’, companies are investing heavily into clean energy and green energy, with all of which rely heavily on the use of copper. I foresee demand for copper continuing to remain robust and more mines coming online to meet the projected demand,” concludes Smart. ■

# SRG - Where luxury and innovation meet

Rising global geopolitical tensions and persistent financial market concerns see strong demand for gold as a safe haven commodity. This is good news for Silk Route Gold (SRG), one of the country's top precious metal's refiners, which is pushing the boundary to create innovative and cutting-edge customised offerings, SRG Director Tania McKay and Manager, Tanur McKay, tell *Modern Mining*.



10 gram 99.99 AU gold bar (front and back).



“Gold continues to offer one of the best investment cases, appreciating between seven to thirteen percent per annum,” Tanur says. To remain ahead in the highly competitive market, SRG is creating a line-up of products to tantalise the appetite for new luxury goods, which include— a rhodium coin and a multi-metal coin – both set to be launched later this year.

Demand for SRG's one-of-its-kind luxury pieces is on the rise, says Tanur, a creative manager with a plethora of novel ideas, who is passionate about interspersing the company's existing collection with novel items for its well-heeled clients.

The East Rand-based company offers bespoke handcrafted

precious metals jewellery, investment coins and bars. “Essentially, SRG is a full-service business for all your precious metal needs,” says Tania.

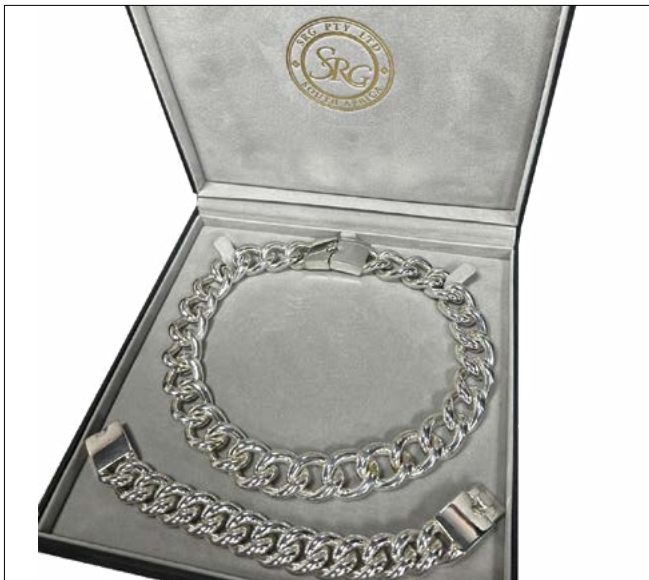
Established in 2013, SRG is a competitive jewellery manufacturer, refiner and minter, catering to its competitors by refining their ‘sweeps’ and to public and private clients.

## Designing fresh innovative products

The company specialises in processing responsibly sourced precious metals, including gold, silver and the basket of platinum group metals (PGMs) consisting of platinum, palladium, rhodium, ruthenium and iridium. Rhodium, the rarest and most valuable of



SRG customised client coin for SABS –Carling Black Label competition.



SRG custom jewellery.

the precious metals, is four times more valuable than gold.

Having worked with gold, silver and platinum for over a decade, SRG’s strategy is to expand its focus to other metals in the PGM basket, namely palladium and rhodium.

South Africa possesses 80% of the world’s platinum group metals reserves and is the world’s largest producer of PGMs, accounting for close to 60% of global production, which is all the more reason for local refiners to be pushing the creative boundary to develop exotic luxury goods for the international market, says Tanur.

“There exists a massive gap in the market for the local industry to produce novel items crafted from the basket of PGMs for the export market. As precious metals refiners, our focus is to use what is locally produced to design and manufacture high-end luxury goods for the world market.”

Although rhodium coins are produced internationally, SRG, which is targeting affluent customers and investors, is one of few minters producing rhodium coins locally. Rhodium is currently



Multi-metal 99.99% AU & 99.99% AG (front & back).

trading at R2 590 per gram, making it a prized gift or investment option.

In tandem with producing a rhodium coin, SRG has engineered a technique for creating a stunning multi-metal coin – an offering which infuses different precious metals, such as rose-gold, gold or white gold with silver and PGMs.

“Each multi-metal coin is unique because it is melded with varying quantities of different precious metals with each infusion producing a one-of-a-kind pattern. No two coins are alike – and in a world of mass production, owning a piece of jewellery that is unique is highly valued.”

Interestingly, a benefit associated with producing a multi-metal coin, is the speed at which the coin can be processed, going directly from refining to minting.

“One of the biggest challenges associated with manufacturing luxury pieces,” Tanur explains, “is the legal implications of meeting the exact weight for each coin or bar and, as refiners, we overcompensate, which over time means a significant loss in revenue. However, the casting of multi-metal

## Gold annual rate of return

According to Statistics South Africa, between January 1971 and March 2024, gold had average annual returns of 7.98 percent, which was only slightly behind the return of commodities, with an annual average of eight percent. The annual average return of gold in 2023 was 13.1 percent.



David Case customised hand drawn artwork with customised designed coins in silver (ag).



630 t minting press machine.

coins circumvents the restrictive process and allows the refiner to achieve economies of scale.”

Given the novelty of the rhodium and multi-metal coins, these collector’s items will retail at a premium price.

“We will offer a limited series and anticipate that investors and collectors alike will clamour for one of these exotic items of luxury. I foresee robust interest from both local and international investors for our trendy luxury goods,” says Tanur.

Both the rhodium and multi-metal coins are expected to make a spectacular splash at a launch later this year.

And for those requiring more bling, SRG embeds precious stones, such as rubies, emeralds and sapphires, to further enhance luxury items.

### Bespoke luxury goods

Apart from mass produced jewellery, SRG manufactures customised jewellery for a market that is growing in leaps and bounds, Tanur explains

“We offer bold design ideas and manufacture customised luxury goods as required by our clientele, including items as unusual as an actual gold credit card, which was requested by a regular client. He was extremely pleased with the one-ounce prototype and subsequently ordered three more gold credit cards. In addition to customised products, we tailor make precious metal items in 2D and 3D with engravings and logos, amongst others, and export to international clients, including to jewellers in Antwerp, Belgium.”

More recently, SRG supplied major brewer, South African Breweries (SAB), with 50 gold coins each weighing 54.65 grams for winners of a competition.

“We instituted a buy-back policy for the 50 designer gold coins for SAB winners. Forty-nine winners sold the coins immediately back to us, barring one who traded his coin a few months later, scoring 30% more on the item.”

SRG has also established a strong relationship with American artist David Case, who requires a replication of his hand designed imprints to be transferred to coins.

“About five years ago, Case approached SRG to mint replicas

of intricate hand drawn images he wanted imprinted onto silver coins, which were to be sold as a set with his artwork. To date, we have produced over 350 silver imprinted coins for Case’s collection.”

The artist, who ranks among the world’s top artists, has requested to have his next set of designs crafted onto multi metal coins.

### Certificate of authentication

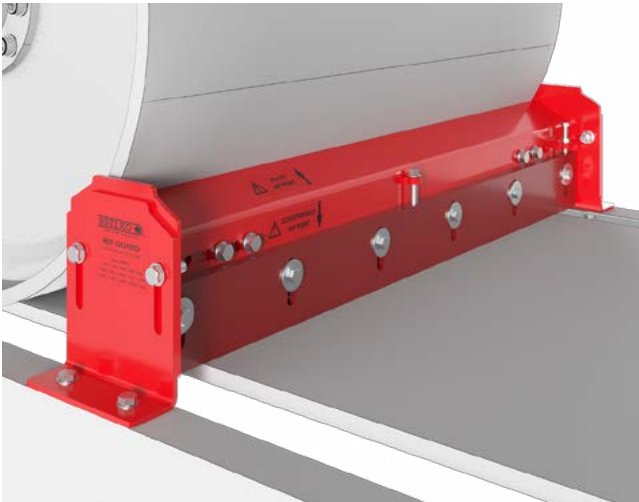
SRG strives to provide its clients with certainty of quality and all precious metal items have a certificate of authentication.

“Our raw materials are responsibly sourced and processed, in line with the highest social and environmental standards,” says Tanur. “We go so far as to visit each mining operation to ensure that the route from raw material to finished product is ethically sourced and produced. Each luxury item sold is accompanied by a certificate of authentication, which allows the buyer to trace the product from source to end-product.” ■

## Silk Route Gold (SRG)

- SRG specialises in processing responsibly sourced precious metals such as gold, silver, platinum and palladium.
- To complement refining, SRG has a minting division and produces coins, medals and other customised products.
- Bespoke jewellery is handcrafted on site by talented and experienced goldsmiths and jewellers.
- The company has been running as a fully operational and functional refinery since 2015, when it was awarded its Refinery Permit.

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# The mining sector's gender equity drive

The mining sector in South Africa is actively pursuing gender equity targets, driven by policy mandates, legislation and industry initiatives. The mining sector, still dominated by men, aims for significant increases in female representation by 2025. This push for gender diversity is bolstered by legislative changes and strategic efforts from major mining companies, yet challenges in retention and pay equity persist.



Ntsiki Adonisi: head of natural resources and environment practice at ENS.

**N**tsiki Adonisi, who heads the natural resources and environment practice at ENS, discusses the gains being made in the mining sector's gender equity drive. She notes that the mining industry has made some diversity, equity and inclusion progress.

In accordance with S&P Global Commodity Insights, women fill about 12.1% of the C-suite positions across a universe of more than 2 000 global publicly traded mining companies. Women comprise 14% of all executive positions. Currently, in South Africa, we have approximately 72 000 women in the mining workforce, despite a higher proportion in tertiary education fields like mining engineering and geology. The industry faces the dual challenge of attracting more women and retaining them once employed.

Key strategies to attract and retain female talent include having policies that promote gender equality, creating and sustaining an inclusive and diverse work environment, fighting against GBV, addressing safety concerns specific to women, and promoting automation and digitalisation at the mines. These efforts aim to make mining roles more accessible and appealing to women, who traditionally encountered physical barriers in heavy equipment operations.

Despite these advancements, pay disparity remains critical. Women often receive unequal remuneration for comparable work due to non-transparent pay structures and outdated gender norms. Efforts to bridge this gap include advocating for



Women fill about 12.1% of the C-suite positions across more than 2 000 global publicly traded mining companies.

transparency in remuneration policies and ensuring equitable pay scales for all employees.

The rise of women in leadership roles within the sector highlights progress in career advancement and leadership opportunities. Figures like Nolitha Fakude, Dr Nombasa Tsengwa and Mpumi Zikalala, exemplify this trend, holding key positions within the Minerals Council and major mining companies.

The Minerals Council of South Africa also plays a pivotal role in advancing gender diversity through its initiatives. These initiatives promote inclusive workplace policies, address gender-

based violence, and create supportive environments that cater to the needs of female employees.

Looking forward, the mining sector acknowledges that achieving gender equity requires a cultural shift alongside policy changes. Industry-wide collaboration among stakeholders – including governmental bodies, mining companies, and educational institutions – is essential to sustain and accelerate progress toward gender parity goals.

In conclusion, while the mining sector in South Africa has made strides in integrating women into its workforce, achieving true gender equity remains a complex challenge. Continued efforts to enhance workplace inclusivity, ensure equitable pay, and support career advancement for women are crucial to realising the sector's full potential and fostering a diverse and resilient industry landscape. ■



The rise of women in leadership roles within the sector highlights progress in career advancement and leadership opportunities.

# Fluor's commitment to Women in Mining

Erin McLintock has been appointed as the new Organisational Unit Manager for Mining & Metals Process Engineering at Fluor in South Africa.

Fluor is an international engineering and construction company that employs nearly 34 000 people from various continents of the world and is committed to enhancing diversity and increasing the representation of women in leadership roles, while fostering an inclusive culture that drives both individual and collective performance.

In her new position, McLintock will oversee resource management, succession and compensation planning, change management, talent acquisition and development for the Mining & Metals Process Engineering Department.

"I am honoured to take on this role," says McLintock. "Fluor's commitment to an inclusive and diverse workforce, supported by ongoing training through Fluor University and direct mentorship, is inspiring. Ultimately, your personal experience in any company is shaped by your direct line manager, and I have been very fortunate in having exceptional managers throughout my career."

Growing up in Swakopmund, Namibia, McLintock was exposed to mining early on, with many of her friends' parents working at Rossing Uranium. Initially considering dentistry and geology, her proficiency in math and science led her guidance teacher to suggest metallurgy, a field she embraced after conducting her own research.

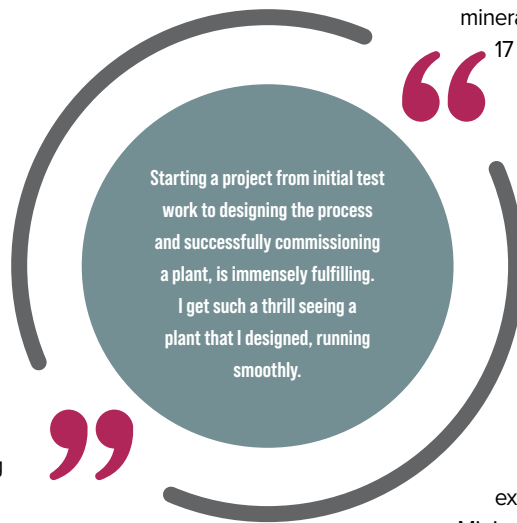
Today, McLintock is a professionally registered minerals processing engineer with more than 17 years of experience. Her career spans production and design across various commodities, including diamonds, PGMs, chrome, base metals, lithium and graphite.

Reflecting on her career, McLintock says, "Starting a project from initial test work to designing the process and successfully commissioning a plant, is immensely fulfilling. I get such a thrill seeing a plant that I designed, running smoothly."

Recently, she has expanded her expertise to support Fluor's Underground Mining division at the Woodmead Office. "It's a fantastic new challenge for me," she says. "While many of the processes are the same as above ground, there are additional complexities that need to be considered when designing processes that will be more than 1 km underground. "Even though I've been underground a few times, I still feel a bit nervous when that cage door closes."

As a competent process engineer, her production experience includes both owner-managed and outsourced production management, while her project and design experience cover conceptual and feasibility studies, detailed engineering and design, and implementation projects, with extensive recent commissioning experience.

She concludes by expressing her satisfaction with working at Fluor. "Being part of a team of talented and capable women at Fluor is incredibly rewarding. Fluor's dedication to innovative design and sustainable, fit-for-purpose, solutions for our clients is commendable. Our foundational value of safety underpins all our designs." ■



Erin McLintock is the new Organisational Unit Manager for Mining & Metals Process Engineering at Fluor in South Africa.

# Breaking new ground in gender equality through training

By recognising the importance of gender equality in mining occupations, Murray & Roberts Cementation continues to create opportunities for women – even targeting unemployed youth in extensive training initiatives.



Talita Hurter, Education, Training and Development (ETD) Officer for SHEQ Learnerships at Murray & Roberts Cementation Training Academy (MRTA).



Portia Mgabasha, who started her learnership in 2015, is today responsible for facilitating and assessing learners.

The company's contribution to the skills pipeline is based on its dedication to fostering diversity, equity and inclusion – both for its own needs and those of the broader mining sector, according to Talita Hurter, who is the Education, Training and Development (ETD) Officer for SHEQ Learnerships at Murray & Roberts Cementation Training Academy (MRTA).

“Our Murray & Roberts Cementation diversity and inclusion policy explicitly recognises the importance of gender diversity in the workplace,” says Hurter. “This helps to create a work environment where all employees – regardless of gender – feel valued, respected and empowered to succeed. We also implement a rigorous employment equity plan for managing and tracking equity in recruitment, promotions and terminations.”

These efforts are paying off, with the intake of women in MRTA training interventions increasing drastically over the years, she says. In its learnership programme, for instance, women are given preference when recruiting learners. Over 50% of the unemployed community members recruited into this programme are now women.

“At the MRTA, we have empowered hundreds of unemployed female community residents with basic technical

and safety skills, paving the way for them to enter the job market in mining and other sectors,” she explains.

The quality of this training is well demonstrated by the safety outcomes, she says, with no reports from operations of any safety incidents involving any of these learners.

“This tells us that our training has been on the mark and that our learners have taken on board both the skills and our culture of safety,” says Hurter. “The training received from the MRTA has also inspired many women to further their studies within mining, engineering, safety and construction.”

In regard to both the training quality and its inclusion of women, she pays tribute to the late Tony Pretorius, the company's Education, Training and Development Executive. Pretorius was instrumental in the continuous enhancement of the MRTA, as well as in the advancement of women within the organisation, she says.

As an example of how women have built careers in mining through the company, Hurter relates the story of Maria Nkoana, who started as a mining intern in November 2016.

Nkoana obtained her blasting ticket in 2018, and the following year was absorbed as a mining graduate for three years under the MRTA.

The training received from the MRTA has also inspired many women to further their studies within mining, engineering, safety and construction.



The intake of women in MRTA training interventions has been increasing significantly over the years.



The MRTA has empowered hundreds of unemployed female community residents with basic technical and safety skills.

“During this time, she continued with an Honours degree as well as various safety-related courses,” she explains. “In 2021, she was given the opportunity to obtain site exposure at one of our underground mining projects in the drill and blast quality department, assisting with the drill and blast cycle. After three years of underground shifts, she will apply for her Mine Overseers Certificate of Competency next year.”

Another inspiring story is that of Portia Mgabashe, who started with her learnership in 2015 at the MRTA. She then accepted a general worker position at Murray & Roberts Cementation’s mining services project at a Gauteng gold mine for two years, moving to an assistant’s post at the company’s grout plant near Northam.

“Mgabashe was promoted to team leader and full-time safety representative for the next six years,” says Hurter. “She continued to upskill herself in courses for Safety Officers, as well as earning qualifications in education, training and development.”

With the high influx of unemployed learners at MRTA, she was appointed in 2022 to facilitate and assess learners – in exactly the training programmes that started her mining career. She is currently busy with a moderators’ course. ■

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# Attracting women by creating an inclusive culture in mining

With over 40% of executive posts filled by women in the South African arm of Sandvik Rock Processing, women's empowerment is well entrenched within the business.

According to Lylian Kgatla, Human Resources Manager South Africa at Sandvik Rock Processing, this reflects years of commitment to becoming the employer of choice in the field of comminution – including crushing, screening and feeding solutions. Its gender ratio considerably exceeds the Sandvik group objectives, which aim to achieve a 25% representation of women in management across the company worldwide.

“Key among our values is to foster a culture that is inclusive, so that we attract and develop the best quality people from a range of demographics and backgrounds,” says Kgatla. “Our use of the term ‘empowerment’ does not imply that there are vulnerable people in our ranks who need to be empowered. Rather, our female employees are already capable in their roles – and our focus is on further advancing their career growth and contribution to the business.”

Sandvik Rock Processing invests heavily in post graduate studies for its managers to further build their expertise for leadership roles. Some of their female managers are busy with post-graduate degrees, including PhD level.

Building on this success, the company is looking to increase the number of women it attracts at more junior levels in the company, ranging from internships and apprenticeships to learnerships and graduate programmes. This is proving to be a challenging task, as there are many stubborn preconceptions about the mining sector that discourage potential new female entrants.

“On the whole, mining is still male-dominated, even though there has been considerable change in recent decades,” she explains. “It is certainly an industry with demanding working conditions, but there is also the ongoing challenge of gender-based violence in South Africa – which contributes to many women choosing to pursue a career in other industries.”

Sandvik Rock Processing targets women in its internships where students' studies could be sponsored, followed by gaining practical work experience within the company. Here, they work in the engineering, sales and aftermarket aspects of the business. Learnerships are also supported, where the company partners with service providers to provide theoretical training to learners with Sandvik Rock Processing providing the practical training.

“We still see more opportunity for women to build their careers with us from apprenticeship level, and we continue working to interest more youth in this option,” says Kgatla.

Reiterating the importance of an inclusive culture within the business and in mining generally, she points out that the sector often struggles to retain its female employees. This can be the result of women feeling that the environment is not supportive enough of their aspirations.



Lylian Kgatla, Human Resources Manager South Africa at Sandvik Rock Processing.



Tshudufhadzo Tshaduli (Internship Programme) and Mbali Zwane (Learnership Programme) at Sandvik Rock Processing.

“We are pleased to be directly addressing this challenge by creating women leaders who act as role models and even mentors to other women in the company,” she says. “It is not just about the numbers of women employed, or the number of female executives; our focus is on ensuring that our numbers support a conducive culture for transformation.” ■

# Forge your future fearlessly with WiMSA

In the heart of South Africa's mining industry, a transformative movement is underway, championed by Women in Mining South Africa (WiMSA). Established in 2010, WiMSA has been a beacon of empowerment, support, and inspiration for women in the mining sector. As we forge ahead, we invite you to be part of our journey—a journey of empowerment, growth, and collective success.

## Why Support WiMSA?

### The WiMSA Symposium: A Catalyst for Change

Scheduled for 20-21 August 2024 at the Randpark Golf Club in Randburg, the inaugural WiMSA Symposium is a transformative gathering set to uplift and empower women across South Africa's mining sector. The Symposium is more than a conference—it's a commitment to change, providing attendees with the tools, knowledge, and connections to overcome challenges and unlock new opportunities.

### Career Booklet: Shaping the Future

WiMSA has developed a comprehensive career booklet that serves as a vital resource for young

learners, offering insights into the diverse and exciting opportunities within the mining industry. This informative guide is designed to spark interest and passion for mining careers among students, encouraging them to consider this dynamic sector for their future.

### Electra Mining Africa 2024

WiMSA is continuing its unwavering support for Electra Mining Africa by hosting another memorable Women in Mining Workshop at the event on September 3, 2024, from 9am to 1pm. The workshop will focus on empowering women in mining as a catalyst for inclusive growth, innovation and decent work, in line with Goal 8 of the sustainability goals. More information to follow soon. ■





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# Mining industry attracts top-tier female talent

The removal of discriminatory laws has significantly contributed to the global mining sector's progress towards gender inclusivity. For instance, women were previously excluded from underground work. However, since the International Labour Convention's prohibition of underground work was repealed, mining companies have begun to acknowledge women's immense contribution to the industry.

In line with international norms as well as South Africa's non-sexist constitutional imperatives, Menar and its subsidiaries, including Canyon Coal, Kangra, Zululand Anthracite Colliery (ZAC) and Sitatunga Resources, are committed to ensuring that women flourish across various mining professions. Women are breaking down archaic barriers as the workplace becomes more inclusive.

The mining industry is setting a good example when appointing women in senior roles. During its 134<sup>th</sup> Annual General Meeting, the Minerals Council Board elected its new Office Bearers for 2024/2025. Exxaro Resources CEO Dr Nombasa Tsengwa was elected President of the Minerals Council. She takes over from Nolitha Fakude, Chair of Anglo-American South Africa and the first female president of the Minerals Council.

Minenhle Mahlangu (19) is an auto electrician learner at Canyon Coal's Khanye Colliery in Bronkhorstspuit. She is thrilled at the opportunity to build a career in the mining industry. "I envision my career expanding beyond just being an electrician. This industry is so diverse that in addition to being an electrician, I could also become a mechanic or even an engineer," Minenhle says.

Lebogang Mothoa, also from Khanye Colliery is an acting supervisor and was appointed in terms of the Mine Health and Safety Act. She is also in the process of obtaining her Government Certificate of Competency (GCC) and has a promising career ahead of her. Despite being surrounded by mostly male colleagues who report to her, Mothoa emphasises that she has never faced discrimination because of her gender. She believes that being competent and knowledgeable in her role reduces the likelihood of being doubted or belittled. "Knowing the job helps a lot. It helps you to be confident in what you are doing and the instructions you are giving out."

Mahlatshe Monareng, Kangra's environmental superintendent, has been attracted to the mining industry from a young age. She explains, "I was intentional about the path I wanted to follow, and it has always been the mining and energy industry." She was intrigued by the industry's unique and complex environmental challenges, which require a sustainable approach.

According to the Minerals Council, women only represent 15% of South Africa's mining industry. The Council has set a bold target to double the percentage of women representation in the industry by 2025. Mmakeng Vincentia Tabane, ZAC's newly appointed production manager believes that enhancing transformation and making mining more attractive to women requires promoting STEM education and awareness among young girls, providing mentorship and addressing gender bias to create inclusive work environments amongst other things.



Lebogang Mothoa is an acting supervisor at Khanye Colliery.



Mahlatshe Monareng is Kangra's environmental superintendent.



Minenhle Mahlangu is an auto electrician learner at Canyon Coal's Khanye Colliery.

She also highlights that family support and celebrating women's achievements is crucial. "By working together, we can create a more diverse and inclusive mining sector that benefits everyone," Tabane concludes. ■

# NSDV grows by 12% as the surge for expertise grows

In the heart of South Africa's mining industry, a transformative movement is underway, championed by Women in Mining South Africa (WiMSA). Established in 2010, WiMSA has been a beacon of empowerment, support, and inspiration for women in the mining sector. As we forge ahead, we invite you to be part of our journey—a journey of empowerment, growth, and collective success.



Mandy Hattingh joins the firm as a Senior Associate in NSDV's Energy Law Department.



Tamia Martin joins NSDV as an Associate in the Mining team.



Nokuphila Zobolo is an Associate in NSDV's Environmental Law Department.

Last year African law firm, NSDV, announced a 70% women-led legal team. This year the firm appointed another three women and announced that it had kept its 70% women-led position in a male-dominated industry.

"We attract a lot of women because of how different the firm is. 'People over Paper' - our unofficial mantra - captures our preferred relationships with all stakeholders within the industries in which we work. From unions to communities to the DMRE, we simply enjoy being relational vs transactional. I think women want to be part of a brand of law that is known for this contemporary approach," says Lili Nupen, Co-founder and Director of the Mining and Environmental Law Departments at NSDV.

The three new appointments are in keeping with President Ramaphosa's sentiments that mining has untapped potential for the continent (including female talent). According to his address at Investing in Mining Indaba 2024, "Africa has the potential to be the fulcrum of the global energy transition with Mining at its core."

"We're seeing a massive boom in renewable energy, construction, and environmental needs at mines. It's so exciting to see the growth in the sector and to be a part of it. As the industry expands, so do we and employing the right team is critical for us to maintain our culture of approachability paired with expert advice and experience," says Nupen.

## New blood

Mandy Hattingh joins the firm as a Senior Associate in NSDV's Energy Law Department. Her primary passion is energy regulation, as well as environmental and natural resources

law. Hattingh's experience in a wide range of matters across numerous sectors including energy, mining, oil and gas makes her one of the most knowledgeable minds in the industry. She joins NSDV from Herbert Smith Freehills.

Tamia Martin joins NSDV as an Associate in the Mining team. She completed her BA Law and LLB degrees at the University of Cape Town and completed her articles at Malebye Motaung Mtembu Attorneys Inc., where she gained experience in various fields of law and had the opportunity to conduct site inspections at mining sites, sparking her interest in Mining Law.

Nokuphila Zobolo is an Associate in NSDV's Environmental Law Department, with a particular interest in developments in the changes to the environmental legislation as well as regulation of renewable energy and green hydrogen projects. Her experience includes advising on environmental and other regulatory licensing and approval requirements and processes in respect of various mining operations, conducting environmental due diligences for mining and non-mining clients, drafting environmental legal opinions and lodging and defending appeals against environmental authorisations, licenses and permits.

"Mandy, Tamia, and Noks have slotted right into our firm and our unique approach to practising law. We count ourselves extremely lucky to attract this calibre of professional to the firm," concludes Nupen.

NSDV is the first fully integrated law firm specialising in mining, construction, energy and environmental law, and most recently boasts close to 70% women-led legal team. ■



# Electra Mining Africa 2024 preview

Electra Mining Africa 2024 is set to deliver an unrivalled experience, says event organiser Specialised Exhibitions, a division of Montgomery Group, which has pulled out all the stops for the biggest event in mining and manufacturing.



Taking place at the Expo Centre in Nasrec, Johannesburg, from 2-6 September 2024, the event has already attracted a flurry of interest with a 30% increase in exhibitors compared to Electra Mining Africa 2022, Specialised Exhibitions,

Charlene Hefer, tells Modern Mining.

“This year’s Electra Mining Africa is going to be one of our biggest and best shows in our 52-year history. There is a significant 30% increase in the number of exhibitors from the last show, exhibitors who will be promoting an array of cutting-edge products, machinery, equipment, software, services, and solutions to streamline operations and help business growth.”

Ninety three percent of the exhibitors who have committed to participating at Electra Mining Africa 2024 are South African companies, “which means that this is very much a South African show for the South African market”.

The international contingent, with participation from the UK, USA, Canada, Australia, Italy, Germany, Switzerland, Poland, Turkey, Taiwan, India and China, makes up

the remaining seven percent of the exhibitors.

In a bid to court more African and international companies, Electra Mining Africa 2024’s Inward Buying Mission, organised in partnership with the South African Capital Equipment Export Council (SACEEC), is assisting delegates from neighbouring African countries, Europe and South America to attend the show by subsidising some of their travel costs. Buyers keen to visit Electra Mining Africa and potentially procure South African products and services, have already been screened.

“Even though there are fewer international participants, those that have confirmed their presence are focused on the South African market and keen to find traction for possible partnerships for product supply with agencies or local office set-ups,” Hefer explains.

She adds that visitors will have the opportunity to connect with over 850 exhibitors across six halls and extensive outside exhibition areas, which have access to big brands, and the latest innovations, technologies and products.

This year’s Electra Mining Africa is going to be one of our biggest and best shows in our 52-year history.



The event offers live demonstrations at the vast exhibit areas.

“Given that Electra Mining is all about connecting, the overall theme for the show is: Connect with Your Future in the areas of mining, electrical, automation, manufacturing, power and transport.”

### Why attend Electra Mining Africa?

“From drones to the Cloud to AI, the world is progressing at the speed of light. It’s not always easy to stay on top of the latest innovations in your field. But at Electra Mining Africa 2024, you’ll find all the latest cutting-edge technology on display, hear talks from trailblazers in the industry and meet hundreds of exhibitors across the areas of mining, electrical, automation, manufacturing,

power and transport all in one place,” says Hefer.

According to Hefer, Electra Mining Africa has a reputation as a platform for trade; its focus as a B2B event means that the organisers understand the importance of markets and connecting buyers and sellers.

“Every two years,” she says, “industry comes together for five days to trade and do business at one venue. Buyers and sellers connect. Deals are made and partnerships formed. This stimulates trade in the industrial, manufacturing and mining sectors of the South African economy. In support of this, there could be no better endorsement of the show than the almost 50% of exhibitors who, before the gates had closed on the 2022 show, had already booked their stands for the 2024 show. Moreover, the quality of the audience is a priority for exhibitors, which means we work closely with our exhibitors to attract the correct audience. Exhibitors get to connect with existing customers and potential new customers to radically increase their brand awareness, generate sales enquiries with sales made post show and, more often than not, sales made from the exhibition floor.”

Electra Mining Africa offers a 5-in-1 trade expo experience embracing all interconnected industries related to the areas of mining, electrical, automation, manufacturing, power and transport.

Hefer notes that the mining industry, which plays an important role in the South African economy, remains a strong focus for Electra Mining Africa.

Other key sectors represented at the show are manufacturing and beneficiation, electronics, electrical and electro-mechanical,



Five days with thousands of products on display and thousands of face-to-face interactions.

automation, power generation, power transmission and renewable energy, transport and ancillary services, as well as software and other technologies that facilitate a streamlined AI-leaning type manufacturing environment.

“With that in mind, Electra Mining Africa presents a platform for bringing

together a plethora of industrial sectors under one roof, which is attractive to both exhibitors and visitors. The allure of Electra Mining 2024 is certainly the introduction of the latest innovations, products and technologies that will be on display across the full exhibition, along with loads of live product and software demonstrations.”

For Electra Mining Africa 2022, the organisers have received an excellent response to the New Products and Innovation Awards competition, which was organised in partnership with SACEEC. It was introduced in 2018 on a small scale and, on the back of many additional entries, grew significantly in 2022. With exhibitors now more familiar with the competition, the organisers are expecting an even higher number of entries this year. The awards recognise the outstanding levels of innovation presented at the show across local and international exhibitors.

“Organised in partnership with the SACEEC, we’re going bigger and better with the New Products and Innovation Awards competition this year. (The winners will be announced on the evening of 4 September at an exhibitor’s event with the winners displaying their awards at the show on Thursday to coincide with Innovation Day.) The Forklift Driver competition, organised in conjunction with Lifting Africa and LEEASA, is back this year on a much bigger scale. This is where exceptional forklift driver skills will

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Competitor in action at the Forklift Driver Challenge.

be put to the test with forklift operators competing for the coveted title of Forklift Driver Champion.”

Hefer adds that Electra Mining 2024 will again offer conferences: The Southern African Institute of Mining and Metallurgy (SAIMM) will hold a conference; Women in Mining South Africa (WiMSA) will hold a half-day workshop with a lifting conference hosted by the Lifting Equipment Engineering Association of SA (LEEASA) also on the cards.

A full programme of theme day related free-to-attend seminars hosted by the SA Institution of Mechanical Engineering (SAIMechE) will take place

with industry speakers sharing their knowledge and expertise.

The theme days are: Day 1: Sustainability Day; Day 2: Women’s Day/ Skills Development Day; Day 3: Safety & Lifting Day; Day 4: Innovation Day; and Day 5: South Africa Day. (The WiMSA half-day workshop will take place on Day 2 to coincide with Women’s Day/Skills Development Day).

**New on the agenda**

Participating at the show for the first time is WiMBIZ, which represents 500 female owned companies in the mining industry. WiMBIZ will be creating a networking space where visitors and exhibitors

“  
 Electra Mining Africa presents a platform for bringing together a plethora of industrial sectors under one roof, which is attractive to both exhibitors and visitors.  
 ”

can engage around beneficial business partnering opportunities. There will also be a hosted networking function to facilitate conversations.

Making its return this year is the Local Southern African Manufacturing Expo, which will be incorporated within the Electra Mining Africa event for the first time.

According to Hefer, the organisers will also be launching a new Platinum Guest visitor campaign.

For a reasonable cost, visitors to the show can elevate their visitor experience by opting for the paid-for Platinum Guest option and benefit from exclusive convenient parking, exclusive registration area and a welcoming air-conditioned lounge with complementary refreshments and workstation facilities and wi-fi availability, amongst other benefits. We are limiting Platinum Guests to 100 per day. The purchase of Platinum Guest access will be on a firstcome first served basis and will be available shortly.”

**New exhibitors to Electra Mining Africa**

New exhibitors at this year’s EMA are: MAS POWER GROUP, the official dealers in South Africa for Zega Drills Rigs, Think Generators, Emiliana Diesel Tanks, Think Light Towers and Think Air Compressors; Scania (which provides transport solutions for use in a wide range of applications); Sky Jacks (leading supplier in hiring and selling of powered access equipment); Bovu Pumps (comprehensive pump range ); Komatsu (a global leader in the supply of Japanese-engineered mining, construction, earthmoving and utility equipment in South and Southern Africa); BAOFN Compressor South Africa (industry leading provider of compressed air systems in South



The large outside exhibition areas give room for many different product displays.



Electra Mining Africa offers a unique opportunity to compare products and brands all under one roof.

Africa); Phillips Global (manufacture, repair, rebuild and remanufacturing of underground mining equipment); AQS Liquid Transfer (importer and distributor of pumps in Southern Africa); BKT Tyres (leading manufacturer in the off-highway tyre market); VEGA Controls SA (innovative measurement technology) and Rockwell Automation (industrial automation and advanced enabling technologies for harnessing information).

“We are also thrilled that Bell Equipment will again exhibit this year,” says Hefer.

**Mitigating challenges**

Given that putting on a show of this magnitude is no mean feat, Modern Mining spoke to Specialised Exhibitions about some of the challenges such an event would encounter and how these challenges are managed and/or mitigated.

One of the key challenges the country currently faces is the massive backlog at the ports, with Hefer anticipating that clients might possibly encounter some delays in getting new products into the country on time.

“This is an issue we will have to navigate with our



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exhibitors,” she explains. “At a recent exhibition, there were some delays at the ports and some of the machinery came in late. This did make show build-up a bit tricky as the show had a high number of large and heavy machines being exhibited, but everybody involved was incredibly professional and all was ready when the doors of the show opened.”

Further to this, owing to global economic challenges, there is less international exhibitor participation compared to previous shows. However, this has opened space for more local companies to present their products and innovations at the show.

“We work hard to ensure Electra Mining Africa remains current and relevant and survey exhibitors and visitors after the show for feedback on their experiences – including positive aspects about the show – and for recommendations for change and improvements for the next event. We also work closely with the relevant industry associations around what can be added to the show to ensure attendees and exhibitors have an exceptional experience,” concludes Hefer. ■

## Electra Mining Africa

- Electra Mining Africa 2024 takes place at the Expo Centre in Nasrec, Johannesburg, from 2-6 September.
- The inaugural Electra Mining Africa event took place in 1972 – 52 years ago.
- This year’s event will be one of the biggest Electra Mining Africa exhibitions to date.
- The show will extend across 35,000+ m<sup>2</sup> of exhibition space and accommodate over 850 exhibitors.
- Its focus is largely on local industry suppliers and manufacturers, together with an international contingent from countries including the UK, USA, Canada, Australia, Italy, Germany, Switzerland, Poland, Turkey, Taiwan, India and China.
- As the largest trade show of its kind in Southern Africa and with its over five decades of experience, Electra Mining Africa offers an outstanding opportunity for both exhibitors and visitors and buyers and sellers to connect face-to-face and develop long-lasting business relationships.
- Hundreds of live demonstrations will bring machinery and equipment to life, with thousands of new products and innovations displayed throughout the six exhibition halls and extensive outside exhibit areas.



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# Bell to showcase BHI and new JCB Backhoe Loaders at Electra Mining

Equipment manufacturer, Bell Equipment, is set to make a significant impact at Electra Mining, showcasing how its Bell Heavy Industries (BHI) business unit can benefit other companies and the country through its contract manufacturing expertise.

“Electra Mining is the largest mining, electrical, automation, manufacturing, power, and transport trade show in Southern Africa and we are thrilled to connect with potential customers in a forum of this size and nature,” says Stephen McNeill, Bell Equipment’s Head of Group Marketing.

“We believe BHI is well positioned to stimulate the South African manufacturing sector and look forward to discussing opportunities for collaboration. Our factory in Richards Bay has significant capabilities and operates to world-class standards. BHI follows lean manufacturing principles for efficiency and cost-effectiveness. The latest technologies and innovations drive continuous improvement throughout the processes and assure the quality of end products. In addition, it is 55% black-owned and 24% black women-owned, enhancing B-BBEE scores and creating localisation opportunities.”

The group’s Bell South Africa dealer network, which is the appointed distributor for JCB equipment in the country, will also have on display the updated JCB 3CX Plus Backhoe Loader, which replaces the existing JCB 3DX Plus and 3CX Global machines.

“The new JCB 3CX range is packed with features designed to provide improved comfort, versatility, and productivity, with a focus on reducing operating costs and increasing efficiency. Perhaps the greatest change is the new, more spacious cab, which ticks all the boxes in terms of operator safety, comfort, and ease of operation,” says Stephen.

The new cabs are ROPS (Roll Over Protective Structure) and FOPS (Falling Over Protective Structure) certified for enhanced safety and have greater visibility of the working area at the back of the machine. Regarding ease of operation, the loader lever has been simplified to operate like a wheel loader. The single lever loader



The new range of JCB 3CX Backhoe Loaders promises to build on the brand’s popularity.



The spacious interior of the new JCB 3CX Pro places a huge focus on operator safety, comfort, and ease of operation.

incorporates an F-N-R directional switch so an operator can control the loader and transmission with one hand. In addition, a proportional switch on the side of the lever is used to operate the 6-in-1 bucket, further reducing the effort needed to operate the machine. He continues: “The entire range benefits from an Easyshift transmission with improved efficiency in the hydraulics, while the Plus and Pro models have a Smooth Ride System for improved roading as

standard. They can also be provided with a 6-in-1 shovel with the option of flip over forks for added versatility.”

Lastly, lighting has been improved with six LED work lights, two on the front and four on the rear. During night-time operations, a ‘guide me home’ light system keeps the work lights on for 30 seconds after the ignition has been turned off to allow the operator to safely exit the machine and worksite. ■



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# Keeping mining cool, compliant and cost-effective

With its quality reputation for robust HVAC solutions for rail and defence, Booyco Engineering has built a strong reference base in mining, which is set to grow further as the company streamlines its range of standardised designs for short lead times and enhanced cost effectiveness.

In addition to its cab heating, ventilation and air conditioning systems for mobile mining equipment, there will also be a selection of related solutions on display – adding considerable value to mining operations, highlights Brenton Spies, Managing Director at Booyco Engineering. These include auxiliary power units (APU) to reduce diesel consumption while large mobile machinery, such as trucks, drill rigs, dozers and similar equipment, is idling, and specialised dust filtration systems for cabs and engines.

“Based on our decades of experience in this field, we made a name for

ourselves in mainly bespoke solutions in the most demanding applications,” says Spies. “We recently leveraged these designs to create a range of standard solutions for mining – an exciting selection of which will be showcased on our stand.”

He notes that these cost competitive units can quickly be supplied to customers, allowing mines to source solutions in good time while not compromising on quality.

“The priority for mines today is equipment availability, as they work towards more uptime and better

productivity,” he says. “Every time an HVAC system in a cab needs to be replaced or repaired, the machine stands idle – at great cost in lost production to the operation. Our heavy-duty designs and local manufacture ensure long life and reliability.”

Alongside the production imperative, mines are also insisting on the highest levels of safety and best practice, says Grant Miller, Executive Director at Booyco Engineering. Among the benchmarks being embraced in the local industry is the ISO 23875 standard on air quality and driver health. Booyco Engineering designs its solutions to comply with this standard.

“Mines therefore have peace of mind, knowing that the units installed comply with the highest global standards into the future,” says Miller.

A related innovation to be formally launched at Electra Mining Africa is the company’s APU, which drives the in-cab air conditioner without the need for the mining truck’s main engine to provide power to the system. He points out that, in most situations, a driver or operator has to run the main engine to keep the cab cool while waiting to be loaded.

“Fitting the APU means the main engine can be powered down while waiting, and the cab will remain cool for optimal operator comfort,” he says. “With mining trucks consuming anything from 30 to 50 litres of diesel an hour while idling, this APU means a significant saving in diesel costs. It also helps to reduce the mine’s carbon footprint, which is a growing strategic concern.”

As part of Booyco Engineering’s contribution to safe and streamlined mining, it will also demonstrate the globally successful Sy-Klone technology for cab filtration as well as for air precleaning systems to boost engine performance, reliability and life span. ■



Booyco Engineering’s production line in Meadowdale with units in various stages of completion.



Construction of Booyco HVAC systems underway.

# MINING

Comprehensive solutions  
for the entire mining industry



WEG is able to offer a range of standard off-the-shelf products as well as end-to-end energy solutions by leveraging innovative best practice engineering and manufacturing capabilities.

All products are engineered to facilitate a safe and reliable mine and plant with operational stability and the highest possible production levels as an objective. Reduced maintenance, energy efficiency and ease of serviceability assist in lowering the total cost of ownership for the mine.

**Driving efficiency and sustainability.**



# Service, sustainability underpin FLS quality portfolio

**In the face of inflationary cost increases and volatile commodity markets, supporting customers in achieving optimal plant performance is more vital today than ever.**

These concerns are behind FLS's service focus at Electra Mining Africa this year, where the company is driving sustainable productivity through its solid and growing support and maintenance infrastructure. According to Alistair McKay, Vice President Mining: Europe, Arabia and Africa at FLS, this includes engaging visitors at the event on the value of the company's innovative digital solutions.

"In addition to our market leading solutions for mining plants, we will be sharing our extensive foundation of expertise, technical services, spares and consumables to support customers," says McKay. "The show gives us the opportunity to demonstrate how these resources can lower operating costs and drive profitability."

Key to FLS's success in doing this is its understanding of exactly how its solutions are performing in customers' processing facilities. As the original equipment manufacturer, he argues, the company is best placed to partner with mines to optimise performance and to maintain equipment health at the highest level.

"There is a global shortage of skills to conduct this important work, making it essential that we continue to replenish and enhance the necessary levels of expertise for our ever-advancing equipment," he explains. "This is why we invest so heavily in our training facilities and trainers – to upskill not only our own people but those of our customers."

He highlights that there is "nothing worse" than for customers to invest in high quality, high production equipment, which then underperforms due to insufficient knowledge. The company is also leveraging digital solutions in this endeavour.

"While there is a plethora of digital solutions in the market, we have focused our energies on creating solutions that



Booyco Engineering's production line in Meadowdale with units in various stages of completion.

meets strategic priorities," says McKay. "This means being able to monitor and analyse the health of the asset, while leveraging this data to optimise the performance of that asset."

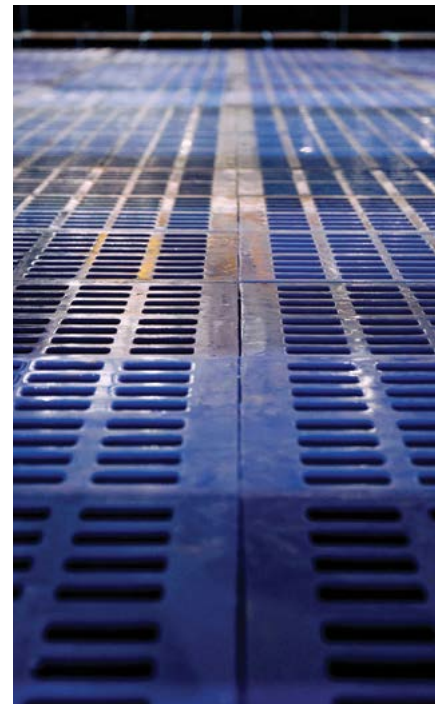
Visitors at the exhibition can also see how FLS's digital solutions integrate with its control centre, from which it can provide customers with 24/7 support.

In terms of new offerings at the FLS stand, visitors will be witness to the launch of the new NexGen Polyurethane formula for the company's wear products and can discuss application opportunities with the company's experts. The NexGen Polyurethane is relevant to screening media and mill tromeels – particularly at the front-end of the concentrator where impact and abrasion are high.

"We will also be talking to visitors about our local production facilities that allow products like these to be readily available to our mining customers," he says.

FLS's leading slurry pumps will also be showcased for their performance and energy efficiency. McKay concludes that this year's Electra Mining Africa will be the first since the company's acquisition of Thyssenkrupp's mining business.

"We can therefore show visitors our



Screen media production at the FLS Delmas facility in South Africa.

fully integrated FLS portfolio, which has leveraged the best-in-class offerings of both companies," he says. "This range of products and technologies continues to support optimised and sustainable operations at lower costs." ■

# MINING WITH CONFIDENCE

## KOBELCO SK850LC EXCAVATOR

- Engine: 370 kW
- Breakout Force: 432 kN
- Heavy Duty Bucket: 5,1 m<sup>3</sup>
- Operating Weight: 81 000 kg
- Undercarriage Width: 4 440 mm

Pairing the Kobelco SK850LC Mining Excavator with a Bell B45E 6x6 ADT provides the ideal combination of operating cost efficiency with maximum productivity.

The optimum loading cycle of 5 passes minimises idle time and reduces turnaround time.

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# IPR showcases rental as answer to dewatering, slurry and sludge

Cost effective and agile rental solutions for dewatering will take centre stage at IPR's exhibition stand at Electra Mining Africa this year, as well as its quality range of slurry and sludge pumping equipment.



IPR's in-house designed SlurrySucker dredging unit.



Featuring strongly at IPR's stand will be the range of Atlas Copco diesel self-priming pumps.

“Showcasing our growing range of rental pump dewatering options, we will also be celebrating our partnerships with world leading pump OEMs Atlas Copco and Toyo,” says Lee Vine, Managing Director at IPR. “The past year has seen us grow our formal collaboration with Atlas Copco and the great results are there for all to see.”

Featuring strongly at IPR's stand will be the range of Atlas Copco diesel self-priming pumps and submersible units, says Vine, which the local market has embraced for its quality and performance. Also on show will be the range of Toyo heavy duty slurry pumps, and IPR's in-house designed SlurrySucker dredging unit.

“There has never been a better time for mines, industry and other sectors to rent their pumping solutions from IPR,” he explains. “Pump rental allows companies to conserve their capital, and avoid high interest rates when borrowing for equipment purchases. Other key advantages are that customers incur no overhead costs with rental, and can rely on us to keep everything running smoothly.”

Vine emphasises that IPR has continued to grow its fleet in partnership with its OEM partners – whose own experts will be joining IPR's technical and sales team at the Electra Mining Africa exhibition stand.

Steve du Toit, Sales Manager at IPR, points out that the event remains an important forum to engage with the market face to face – and to share insights and experience to improve customers' business efficiency.

“Having a selection of our exciting products on the stand, combined with our depth of expertise, helps to facilitate valuable discussions and problem-solving with visitors,” says du Toit. “The presence of our OEM partners reinforces the strength of our partnerships – which benefit the customer through quality, performance and rapid support.”

He also highlights IPR's in-house design and engineering capability, which underpins its customised solutions for specific challenges that mines face. This capacity is well proven through its pioneering SlurrySucker dredging unit; equipped with a Toyo heavy duty submersible pump, IPR recently upgraded its SlurrySucker to an Mk III model.

“We expect high levels of interest in water management challenges among Electra Mining Africa visitors, as we have seen how regulations are becoming more stringent,” he continues. “As retention ponds silt up over time, for example, mines face a growing risk of spillage which can cause environmental damage. There are similar problems facing wastewater treatment plants and other industrial sectors.”

Vine says that visitors to the exhibition will be impressed by IPR's range of pumping solutions – with diesel units mainly for remote and opencast sites with no power supply and submersible electrically-powered units for underground and plant applications.

“We welcome visitors bringing their on-site challenges to us,” he says. “With our world class products and OEM partnerships, we have the hardware and experience to know what will work best for them.” ■



# Renting from IPR eliminates maintenance and servicing of your dewatering pumps.



While buying dewatering pumps and equipment outright may be suitable under certain circumstances, renting offers many advantages that should always be considered. IPR is equipped to provide both rental and sales options to customers, ensuring they receive the best solution for their needs.

View our dewatering solutions:



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# Integrated range of eco-efficient solutions for crushing & screening

According to Tarynn Yatras, Vice President for Sales Area Africa at Sandvik Rock Processing Solutions, the lineup will include a working demonstration screen with digital connectivity. Yatras highlights how the company's pioneering technology is driven by its aim to advance the world through engineering.

**“W**e lead the way in eco-efficient rock processing, and will be talking to our visitors at Electra Mining Africa about how we help to drive their productivity, profitability and sustainability,” she explains. “Our wide range of quality products is combined with lifecycle services to give customers fully integrated solutions across the crushing and screening process.”

The focus on eco-efficiency ensures customers can process rock using the least possible resources. In addition to the multi-function test screen on the company's exhibition stand, visitors

can inspect and discuss the Sandvik screening media and cone crusher that will be on display.

“Another exciting element of our Electra Mining Africa presence will be the digital technology that enhances our equipment's performance and longevity,” she says. “Our automation and connectivity system (ACS) will be on display, as applied to our cone crushers (ACS-c) and our screens (ASC-s).”

These connectivity systems link back to Sandvik's digital SAM platform, which uses data to drive insights, support and performance. Visitors can view the products and see the technology in

action, she says, learning more about remote condition monitoring of machines and related service offerings.

She highlights the value of customers being able to monitor both their crushers and their screens on the same digital platform – given how closely these phases of the comminution process must operate. This opens valuable opportunities for plant optimisation, especially with the depth of expertise imbedded in the Sandvik Rock Processing Solutions teams around Africa. The SAM platform also allows a user-defined data selection, to suit the particular role in the plant – from management to operator.

“Among our continuous improvements in condition monitoring has been an upgrade from wired sensors to self-powering sensors on our screens,” she says. Local digital experts and those from Sweden will be available on the Electra Mining Africa stand to discuss the systems in detail – including the range of benefits that customers can derive.

“Customers are also looking at ways to achieve their climate change goals while reducing costs, and we will be showcasing how we promote decarbonisation by reducing energy use through equipment optimisation,” says Yatras. “Our vision – as a leading player in the mining sector – is to aim for a more circular economy while driving productivity to extract maximum value from resources.”

This is achieved through the integrated offering of crushers, screens, screening media, lifecycle services and digital technologies. Added to this is Sandvik Rock Processing Solutions' extensive support footprint across the continent – close to the customer with world class local facilities and expertise. ■



Sandvik Rock Processing's range covers a wide spectrum of vibrating equipment, including screens and feeders for all types of applications.



Digital solutions such as telematics and monitoring software provide valuable insights into efficiency and performance of crushing operations.

# Connecting with stakeholders key for Trafo Power Solutions at Electra Mining Africa

Trafo Power Solutions is set to make a significant impact at this year's Electra Mining Africa and will use the platform to connect with stakeholders and reinforce its position as a leader in electrical power solutions.



Trafo Power Solutions delivers tailored power solutions that address the unique challenges of the mining industry.

David Claassen, Managing Director of Trafo Power Solutions, says Electra Mining Africa, as a cornerstone of the southern African electrical, engineering and mining landscape, offers a solid platform for the company to present its service offerings and engage with a broader audience.

## Strategic Presence in a Dynamic Industry

"Participation at Electra Mining Africa is crucial for Trafo Power Solutions, especially as a young company," Claassen says "This event allows for direct interaction with mining operators and industry stakeholders from across the continent and the week-long engagement provides an opportunity to highlight projects undertaken since the last Electra Mining Africa and to unveil new advancements."

Trafo Power Solutions positions itself as a comprehensive solutions provider, with dry-type transformers being a core component of its offerings. However, the company also distinguishes itself by delivering tailored power solutions that address the unique challenges of the

mining industry. This approach is backed by a team with extensive experience in South Africa and Africa, ensuring a deep understanding of client operations and sustainability needs.

Claassen says that the mining industry in Africa demands high levels of innovation to overcome challenges related to power, infrastructure and logistics. "Trafo Power Solutions embraces these challenges as opportunities to develop and engineer robust solutions, and our company's resilience and innovative mindset are key to our ongoing success in this dynamic sector."

Trafo Power Solutions aims to be a premium Tier 1 supplier of power solutions, emphasising efficiency, operational and maintenance cost reduction and importantly alignment with its customers' ESG (Environmental, Social and Governance) targets. A solid commitment to research and development (R&D) by the company and its partners ensures that its solutions are at the forefront of market

needs and technological advancements.

Claassen says that the growing focus on ESG in the mining sector has driven increased interest in dry-type transformer technology as these transformers offer significant advantages in applications traditionally dominated by oil cooled transformers. "Dry-type transformers are an obvious choice for underground mining operations, but we are also seeing enormous traction in surface mining and quarrying applications," he says. Trafo Power Solutions has responded to this trend by expanding its dry-type transformer offerings to higher power ratings and is now capable of supplying units up to 110KV and 30MVA.

To meet the industry's demands for timely solutions, Trafo Power Solutions has streamlined its production and logistics processes. Investments in equipment and enhanced project management practices have reduced manufacturing costs and improved delivery times. This efficiency ensures that the company can meet the stringent time and cost pressures faced by mining operations.

Visitors to Trafo Power Solutions' stand at Electra Mining Africa can expect to engage with the team, discussing potential solutions and exploring opportunities. The stand will feature a model of a dry-type transformer with a cross-section through the medium voltage winding, offering a close-up look at the quality and craftsmanship of Trafo Power Solutions' products.

"Trafo Power Solutions remains dedicated to pushing the envelope in power solutions and staying ahead of market trends and best practices in technology. By focusing on application-specific solutions underpinned by continuous R&D, we believe we will continue to contribute innovatively to the mining sector's evolving needs," Claassen concludes. ■



# Tru-Trac showcases groundbreaking conveyor innovations

As global leaders in solutions for conveyor belt misalignment, Tru-Trac will excite visitors to Electra Mining Africa this year with a whole new range of belt trackers among its innovative offerings. The latest range is the outcome of two years of design, development and testing, according to Tru-Trac Chief Operating Officer, Shaun Blumberg.

The stand also features Tru-Trac's robust range of belt scales, engineered for precision and dependability, and a pioneering step into the future with a cutting-edge belt rip detection system.

"With our belt trackers setting the gold standard for effective belt alignment, the new range builds on the success of its predecessors, elevating them to an entirely new level of performance," says Blumberg. "We've introduced exciting enhancements to our belt trackers, bringing notable improvements in performance and reliability."

Tru-Trac has built a formidable name for itself over the past three decades, extending its footprint and sales not only across Africa but worldwide.

Blumberg highlights that Electra Mining Africa is another valuable opportunity to meet face to face with visitors from many African countries where Tru-Trac still has further potential to contribute to efficient and productive mining operations through improved conveyor system performance.

"We are excited to present our extensive range of conveyor components at our stand, offering a complete view of our innovative solutions," he says. "Visitors will have the opportunity to explore the design and functionality that contribute to our products' success globally."

A real drawcard for visitors will be Tru-Trac's investment in Internet of Things (IOT) technology, specifically the integration of digital solutions

to facilitate predictive maintenance through real-time monitoring of equipment.

"The mining sector is increasingly turning to IoT to refine data collection and analytics, enhancing overall efficiency. Our IoT-enabled conveyor solutions offer predictive and preventative maintenance, reducing downtime and enhancing productivity," he says.

Demonstrating this commitment will be at least two product offerings on show at Electra Mining Africa: the company's proven range of belt scales and a revolutionary new belt rip detection system that promises to be a real disruptor in the sector.

"Our belt scales have seen considerable success since their launch two years ago," he says. "These are critical components in any bulk materials handling operation, providing both accurate and repeatable data on throughput and production."

Working with specialist design engineers, Tru-Trac has achieved a best-in-class product range which now also boasts a digital reporting platform that allows remote monitoring and reporting. Response from customers in the field has been enthusiastic, says Blumberg, and considerable interest is expected at Electra Mining Africa.

"Tru-Trac Rip Prevent+, our next-generation belt rip detection system, is set to impress and generate strong interest," he continues. "This is a disruptive solution which we are launching in Africa with our partners, SHG of Germany. Using artificial intelligence to monitor power consumption for anomalies, this technology gives early warnings of potential belt rips, enabling operators to react swiftly and prevent damage." ■



The Tru-Trac belt tracker offers a long term solution that corrects belt misalignment.

# Sustainable Mining: Optimising water management for environmental responsibility

Stricter water management regulations in South Africa, particularly since the National Water Act of 1998, have placed increased pressure on industries like mining to address water contamination. To promote environmentally responsible mining practices and resource efficiency, effective dewatering methods are crucial. With water scarcity a pressing issue, compliant water management strategies are essential for both regulatory adherence and sustainable operations.

Dewatering wells play a key role in mitigating the environmental impact of open-cast mining. By lowering the water table around excavation sites, stable pit walls can be maintained, reducing the risk of collapses and pollution of nearby water sources with sediment. Treating collected mine water helps minimise contamination of groundwater by minerals and pollutants. However, managing dewatering wells effectively presents challenges, such as maintaining stable excavation walls and preventing flooding. Constant management of groundwater levels and pump operation is necessary, often leading to blockages from sediment build-up and potential equipment failure.

A solution lies in achieving efficiency and precision in pump operation. Continuous water flow is ensured by pumps through accurate level measurement in wells, some reaching depths of 750 metres. Real-time data from these measurements enables precise pump operation, minimizing energy consumption while preventing blockages.

Technological solutions such as the VEGAWELL 52 hydrostatic pressure transmitter by VEGA provide substantial support for sustainable dewatering. It is a highly advanced and eco-friendly solution that enables efficient pump operation and reduces energy usage. Its robust design features an abrasion-resistant CERTEC® ceramic measuring cell that ensures reliable performance in harsh mining environments. This innovative technology is optimised to minimise environmental impact in dewatering operations. It helps

to eliminate water contamination and provides direct value to mines through cost savings and improved infrastructure protection.

The VEGAWELL 52 is a standout feature due to its maintenance-free operation that eliminates downtime and maintenance costs. It is designed to foster a more sustainable approach to dewatering, benefiting both the environment and the mining industry in South Africa. With its advanced technology, the VEGAWELL 52 empowers mines to achieve greener operations while maintaining efficiency. It is a technological solution that paves the way for a more sustainable future for the mining industry in South Africa. With its ability to accurately measure water levels and withstand harsh mining

environments, it provides reliable performance, particularly in wells with abrasive materials.

Its precise measurements contribute to optimised pump

operation, reducing energy usage and environmental impact while ensuring continuous operation.

By embracing green mining practices like efficient water management, mines not only comply with regulations but also protect infrastructure and minimize their environmental footprint. These practices not only benefit external stakeholders by enhancing water control but also provide immediate value to mining operations, ensuring both environmental responsibility and operational efficiency.

## VEGA at Electra Mining Africa

VEGA will be participating in the Electra Mining exhibition, scheduled from the 2<sup>nd</sup> to the 6<sup>th</sup> of September, 2024, at the Expo Centre in Nasrec, Johannesburg.

Visit VEGA's exhibit at Stand B15, Hall 7, and explore our premium range of measuring solutions for various industrial applications. We have carefully designed these solutions to cater to the diverse needs of our customers and provide them with accurate and reliable measurements. Do not miss this opportunity to engage with our experts and learn more about our products and services. ■

The VEGAWELL 52 is a standout feature due to its maintenance-free operation that eliminates downtime and maintenance costs.



VEGAWELL 52 hydrostatic pressure transmitter provides substantial support for sustainable dewatering.

# From smart mining to portable crushing from Weir at Electra Mining Africa

At this year's Electra Mining Africa exhibition, visitors will be attracted to the Weir stand by innovations such as the Weir Modular Wheeled Plant (WMWP), a fully mobile crushing and screening plant, as well as the latest in the company's cutting-edge digital solutions for smart mining.

Supporting customers to mine for a more sustainable future, Weir will not only showcase its leading range of equipment and solutions, but also the digital technology to further optimise its performance and reliability.

"Our exciting Motion Metrics mine operation monitoring systems will be some of the main features at the show," says Mufaro Muzvondiwa, Process and Products Director at Weir. "These systems provide mines with real-time particle size analysis of material carried on shovels, loaders, conveyor belts and haul trucks – helping to avoid blockages at the crushing stage and optimising the mine-to-mill value chain."

Using stereoscopic vision combined with artificial intelligence (AI), Motion Metrics™ cameras leverage machine learning to enhance their predictive capabilities and provide actionable insights to customers, says Muzvondiwa.

Another highlight will be Weir's intelligent solution which features condition monitoring technology. This is portrayed through 3D conceptualisation, showing all associated benefits including safety, savings and maintenance optimisation.

"Visitors to our stand can witness the value of real-time monitoring in enhancing plant performance and optimising uptime," he explains. "This is where Weir is supporting our customers' ambitions to be more cost effective by driving down their total cost of ownership of equipment while driving productivity and sustainability."

In addition to the display of its latest pumps, screens, cyclones, valves, liners and ground-engaging tools, Weir will also have its recently launched mobile crushing and screening plant at its outdoor stand. With Weir's WMWP fully mobile plant mounted on an on-road trailer, the plant can be moved to site

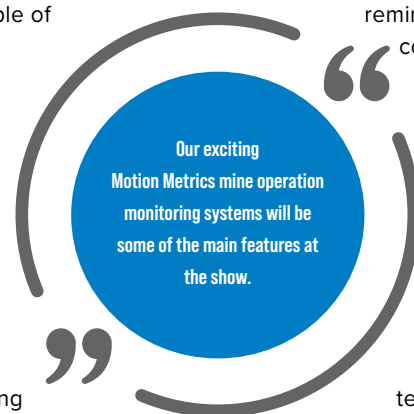


Motion Metrics' smart rugged cameras alert operators of lost GET and oversized boulders being loaded, which could lead to unplanned crusher downtime.

and set up within a couple of hours – as a 'plug-and-play' solution.

"This innovation has already generated great excitement in the aggregates and small-scale mining sector," he says. "The design provides a fully mobile plant, making it ideal for road projects requiring aggregate crushing at various points along the route."

Muzvondiwa highlights that Electra Mining Africa provides a useful forum to



Our exciting Motion Metrics mine operation monitoring systems will be some of the main features at the show.

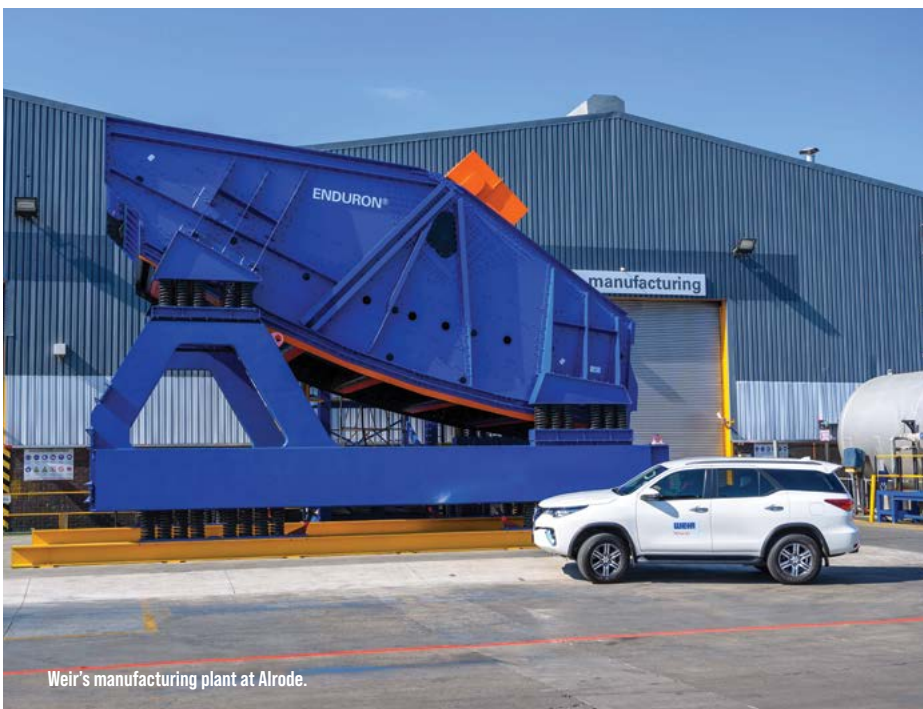
remind visitors of Weir's concerted focus on partnerships for sustainable mining. This includes the extensive footprint of OEM service centres and partners across Africa, ensuring technical support is always available in close proximity to mines.

"In addition to our South African presence, we are present in countries

Weir's fully mobile plant can be moved to any site and set up within a few hours.



Mufaro Muzvondiwa, Process and Products Director at Weir Minerals Africa.



Weir's manufacturing plant at Alrode.

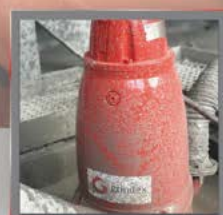
including Cote d'Ivoire, Ghana, Botswana, Namibia, Senegal, Tanzania and Zambia," he says. "Our three manufacturing centres in South Africa also ensure high levels of local manufacture, to promote African economies and to streamline the supply chain to our customers."

The combination of quality products and dedicated service means that Weir can be confident in the warranties and predictions it provides to customers regarding the productivity of its solutions. "This is demonstrated by our ability to enter into cost per ton agreements with customers," he says.

He adds that local skills development is also a priority for the company in building its service infrastructure, including its Mill Circuit University. ■

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# A rebranded WEG set to make powerful debut at Electra Mining Africa

WEG has maintained a formidable presence on the African continent for over four decades, consistently demonstrating its industry-leading capabilities at Electra Mining Africa under the Zest WEG brand. This year, a rebranded WEG is poised to make a powerful debut with a renewed focus on innovation and sustainability.

Eduardo Werninghaus, CEO at WEG Africa, says a strong belief that a more efficient and sustainable tomorrow starts today will underpin the company's participation at this year's Electra Mining Africa. The company will showcase its latest advancements in hybrid power solutions encompassing renewable energy and energy storage, along with premium efficiency electric motors and drive technology.

"With our continued commitment to supporting our customers' decarbonisation projects, WEG aims to update the industry on cutting-edge technologies designed to reduce energy consumption and carbon footprints, while driving continuous growth and sustainability," Werninghaus says.

Visitors to the WEG stand at Electra Mining Africa can expect to explore hybrid power generation solutions including solar, wind, gas, and diesel-powered options as well as battery energy storage systems (BESS). With an established reference base in Brazil and other countries across the globe, all these WEG technologies ensure a continuous, stable and reliable energy supply.

Werninghaus emphasises that the WEG team will be on hand to discuss specifics about all the options, and to provide further insight into the company's extensive experience and expertise when it comes to providing sustainable energy solutions.

Also on display will be the WEG W23+ Ultra IE6 and WEG W22 IE4 electric motors, which push the boundaries in efficiency. These motors offer mines reduced operating costs, lower noise levels and increased reliability.

Another highlight will be the WEG MTW05 medium voltage switchgear,



A rebranded WEG is poised to make a powerful debut with a renewed focus on innovation and sustainability.

which is locally assembled and tested in South Africa for voltages ranging from 2.3 kV to 36 kV. This switchgear has been developed to meet stringent standards, including IEC 62271-200, without losing its convenience, assembly and maintenance features. It also has the flexibility to be adapted to the different requirements of the market.

"We will use Electra Mining Africa to engage visitors on our WEGSEE+ platform for calculating potential energy savings achievable by replacing motors, gearboxes, and inverters," Werninghaus explains. "With accurate analyses and strategic indicators, our tool generates valuable data for making smart decisions to optimise resources, again speaking to sustainability. It will also measure return on investment periods and evaluate the potential to avoid or reduce GHG emissions."

"With these innovative offerings, WEG continues to set the benchmark in



Eduardo Werninghaus, CEO at WEG Africa.

the industry, reinforcing our commitment to sustainability and efficiency," he concludes.

With a legacy of excellence and a forward-looking approach, WEG is set to make a significant impact at Electra Mining Africa, highlighting technologies that are not only innovative but also pivotal for a sustainable future. ■



# We strive to offer you the lowest cost of ownership

Weir Minerals is a leading designer and manufacturer of mine dewatering solutions, slurry pumps, hydrocyclones, valves, screens, centrifuges, crushers, feeders, washers, conveyers, rubber lining, hoses and wear-resistant linings for the global mining and minerals processing, sand and aggregate, and power and general industrial sectors.

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**WEIR**

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# SEW-EURODRIVE doubles down on drive innovation at Electra

With so much innovation to see, SEW-EURODRIVE has expanded its presence at Electra Mining Africa this year with added exhibition space in Hall 7 that showcases its innovations in automation and electronics.

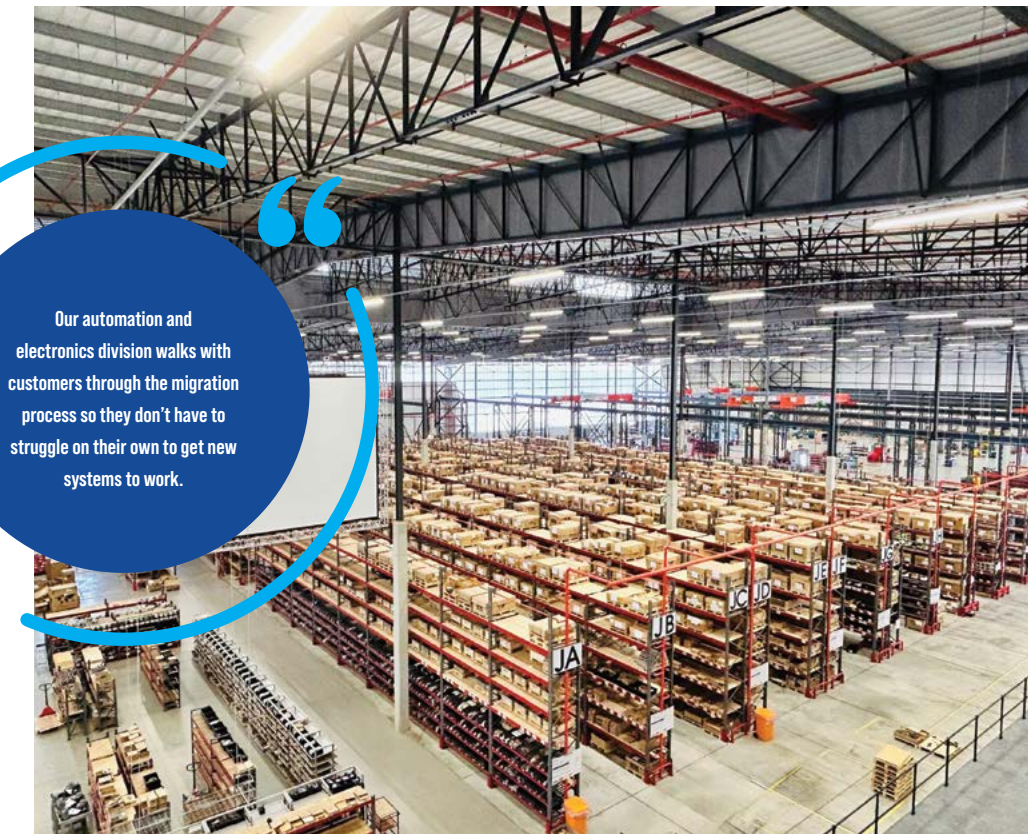
This exciting addition complements the company's large landmark stand in Hall 6, which has always been a favourite for the event's visitors, according to Jonathan McKey, National Sales and Marketing Manager at SEW-EURODRIVE. The message that the company is 'closing the loop' with its growing portfolio of product developments is loud and clear, says McKey.

"This means diversifying into a range of other opportunities within the mining and industrial sector value chains, with new products being introduced to support this strategy," he explains. "We are already achieving this in agriculture, for instance, where in addition to our conveyor and pump solutions and variable speed drives in pack houses, we will further expand into pivot and wheel drives for applications on the lands."

Visitors will also see how sustainability is built into the business's growth into the continent, including the intensive upskilling underway at its local facilities in various African countries.

"As leaders in this industry, we play a key role in empowering artisans – both in-house and for customers – through our Drive Academy, which pushes the boundaries in augmented reality (AR) as a learning tool," he says. "This all helps to consolidate our foundation of expertise upon which the market relies."

At the SEW-EURODRIVE stand in Hall 6, visitors can witness new solutions like the purpose-built SEW X.e agitator, fresh from its launch in Europe last year. Also being launched is a range of planetary solutions that will close the loop in new market segments, as well as the new ECO2 design drive



SEW-EURODRIVE'S state-of-the-art 26 000 m<sup>2</sup> headquarters in Aeroton, Johannesburg.

that features environmentally friendly manufacture.

"We also look forward to discussing our DriveRadar technology with visitors, as the mining sector embraces predictive maintenance to achieve better uptime levels and enhance equipment lifespans," he says. "Another sustainability focus as a good neighbour is our careful use of natural resources, including our own lubrication solution."

Among the insights to be gained at SEW-EURODRIVE's Hall 7 stand is the potential of the latest generation SEW MOVI-C® modular automation technology. This delivers advanced features in a format that is simpler to commission and use, says McKey.

"We've refined this offering to ensure we can give customers those elements relevant to their business

– so you get just what you need and have the advantage of being able to supplement later with more features," he says. "It is easy to be overwhelmed by the complexity of automation in drive technology, so we remove this daunting experience and work closely with customers to migrate smoothly."

Electra Mining Africa also allows visitors to physically meet the SEW-EURODRIVE experts that would accompany them through their automation journey. The company prides itself on supporting customers from the purchasing decision right through to commissioning and operation.

"Our automation and electronics division walks with customers through the migration process so they don't have to struggle on their own to get new systems to work," he concludes. ■



# CLOSING THE LOOP

## HOW IS SEW-EURODRIVE CLOSING THE LOOP?

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# Integrated Pump Technology to unveil expanded pump solutions at Electra Mining Africa

Integrated Pump Technology, a leading provider of pump solutions to the mining industry, will use Electra Mining Africa to highlight its recent appointment as an official Godwin distributor as well as its position as a pump supplier of choice in Africa.



Grindex submersible pumps are renowned for their reliability and efficiency, particularly in challenging mining environments.

Already recognised as the sub-Saharan distributor for the world class Grindex submersible pumps, the company has now expanded its portfolio to include the highly sought-after Godwin diesel-driven dewatering pump range.

Jordan Marsh, Managing Director of Integrated Pump Technology, emphasises the company's goal of becoming a leading single-source provider of pump solutions. "The addition of a solid range of diesel-driven pump solutions allows us to cater to a much wider spectrum of applications," says Marsh. "Godwin recognised our team's extensive experience with both electrical and diesel-driven pumps, making us the ideal partner to expand

its footprint in Africa."

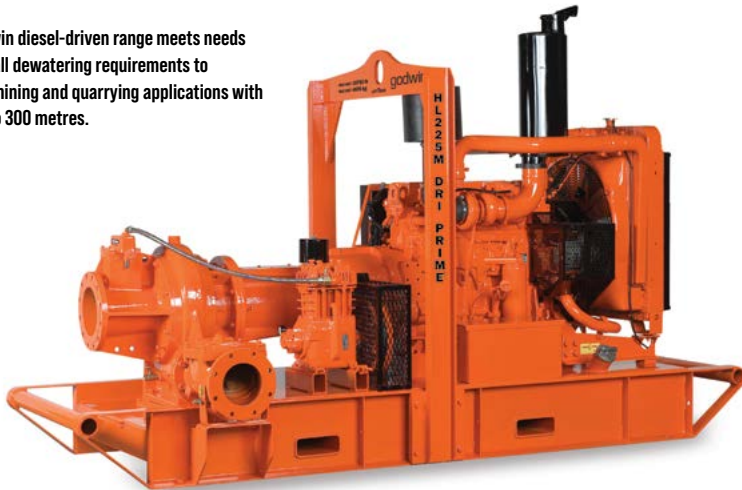
Integrated Pump Technology's strategic distributor network ensures extensive reach and high levels of support in major mining areas across South Africa, as well as Namibia, Botswana, Mozambique, Zambia and the DRC. The company's strong presence on the Copperbelt underscores its capability to support both large and small mining operations with its expanded range of pump solutions.

Marsh underscores the importance of the distributor network, stating, "Our operating model allows for rapid response times to customer requests. Our commitment to localisation in the regions where we operate is based on the understanding that local people know

their own country, culture and mining operations best. By upskilling local teams, we are giving back to the countries where we operate and ensuring that we provide appropriate pump equipment and solutions with the correct level of parts stockholding and support."

The African mining sector demands robust and high-performance products, and both Grindex and Godwin have established reputations for quality and reliability. The Grindex electrical submersible range covers applications from dewatering to slurry, while the extensive Godwin diesel-driven range meets needs from small dewatering requirements to surface mining and quarrying applications with lifts up to 300 metres.

The Godwin diesel-driven range meets needs from small dewatering requirements to surface mining and quarrying applications with lifts up to 300 metres.



Grindex submersible pumps are renowned for their reliability and efficiency, particularly in challenging mining environments. The range includes dewatering, sludge and slurry pumps, designed to handle various applications. The dewatering pumps are ideal for draining water from surface and underground mine sites and flooded areas. They are capable of

handling high volumes of water and are built to withstand harsh conditions.

The Grindex sludge pumps are designed for thicker, more viscous fluids, and can manage liquids containing abrasive particles and solids. This makes them perfect for handling water mixed with mud, clay or other suspended materials. Engineered to transport abrasive slurries, the

Grindex slurry pumps are ideal for heavy-duty applications in mining and other industries requiring robust slurry handling.

The Godwin diesel driven pump range is easily deployed in situations where electrical power is unavailable or unreliable. Perfect for emergency situations, the portable range is easily transportable, can be deployed and can operate under tough conditions. Pumps within the range are designed for applications requiring high-pressure water transfer and this would include mining operations where a high pumping head is required.

Visitors to Electra Mining Africa will have the opportunity to see a range of both Godwin diesel-driven units and Grindex electrical submersibles at the Integrated Pump Technology stand. Notably, the large Grindex Bravo 900 electrical submersible slurry pump will be on display, allowing end-users to engage with the team and learn more about the comprehensive pumping solutions offered by Integrated Pump Technology. ■

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# 50<sup>th</sup> celebrations at Electra Mining 2024

**BMG – which marks 50 years of business this year – has much to celebrate at the 2024 Electra Mining show, to be held at Nasrec in Johannesburg, between 2 and 6 September.**

**B**MG is a complete process solutions provider to all sectors of industry, which means customers can access all essential quality branded engineering components, technical services and support from one well-established, reliable supplier. This integrated approach guarantees lower production costs and higher efficiencies.

BMG's stand (J10, J12 & K17) at Electra Mining will showcase the company's comprehensive engineering solutions and technical services, which have been developed over 50 years, to optimise productivity and enhance process plant operating reliability.

"BMG has become an integral part of mining industry processes, providing design and selection of equipment and solutions to projects houses, supply to original equipment manufacturers and supply and technical support to the end user," says Mark Barbour, BMG's General Manager, Engineering Divisions. "BMG has secured distribution and service agreements with some of the world's most respected manufacturers, and we are pleased that many of our suppliers will be with us at this year's Electra Mining event.

"On display will be the latest products from our specialist divisions - Bearings, Seals and Gaskets, Power Transmission, Drives and Motors, Materials Handling, Tools & Fasteners, Hydraulics, Filtration, Lubrication and Field Services.

"The BMG team focuses on every customer's specific process needs and the formulation of integrated product solutions to ensure high efficiency. By providing the correct components, we can improve machine performance, enhance reliability and extend maintenance intervals and service life for most mining and industrial systems. Our commitment to ensuring each plant maintains full production, encompasses a 24-hour customer process support for production efficiency and reliability centred maintenance."

Mobile technicians conduct



BMG – which marks 50 years of business this year – has much to celebrate at Electra Mining show.

breakdown and routine maintenance services on site. The teams also troubleshoot and then advise on possible productivity improvements.

BMG's user-friendly online shopping platform, which is benchmarked on international best practice, has become highly popular in industry as a convenient way to procure engineering products. This digital platform adds value to BMG's service offering and enhances convenience for customers, who still have the assurance of technical support and personal care from BMG specialists.

Over 75 000 BMG products are

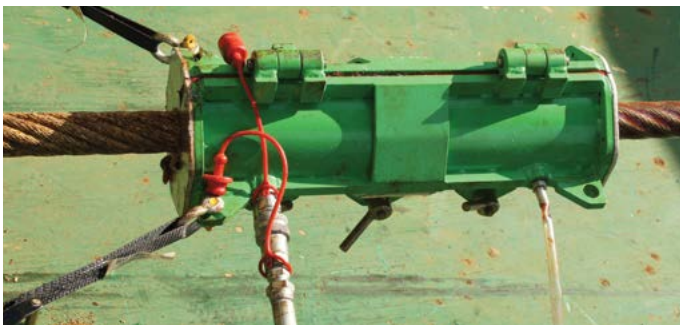
available on this platform, including bearings, seals, fasteners and power transmission components, as well hand and power tools, abrasives, brush ware, spanners, wrenches and sockets.

BMG works closely with customers in all sectors, including mining and quarrying, agriculture, food and beverage plants, water and wastewater treatment facilities, oil, gas and petrochemical plants, as well as construction, engineering and general industry. ■

On display will be the latest products from our specialist divisions - Bearings, Seals and Gaskets, Power Transmission, Drives and Motors, Materials Handling, Tools & Fasteners, Hydraulics, Filtration, Lubrication and Field Services.

# Lubrication innovation on display at Electra Mining 2024

Lubrication Engineers (LE) South Africa, will bring the latest in lubrication innovation and technology to Electra Mining at NASREC from 2 to 6 September, including Bluetooth-enabled single-point lubricator systems and improved product formulations for various mining and industrial applications.



LE provides high performance, heavy-duty, quality lubricants for virtually every industry and application, as well as expert technical back-up and support.

Colin Ford, MD at LE South Africa, says the company will have representatives from LE in the USA (where the company is headquartered) and Australia (where its Viper Wire Rope Lubricator products are manufactured) on hand to answer questions, as well as showcase various product demonstrations, both live and through video content.

“We’re excited to show people the advances in our product range – particularly for the mining and cement industries,” he says. “We’ve got a good mix of new products and improvements to existing products or more in-depth technical detail that’s now available for some of them.”

One of the new products on offer is Easy Bar®, a lubrication solution in a solid bar format for the inside tyre bore of rotary kilns and dryers. “It’s ideal for smelters,” says Ford. “It’s like a bar of soap that you throw into a section of the kiln or onto the sinter plates and it melts and lubricates them.”

Ford expects that the Bluetooth single-point lubricators will also attract interest as they have the potential to improve occupational health and safety on mining and other sites. “Essentially, the operators do not have to shut down the equipment and manually apply the lubricant. They can stand outside the cage and manage the application from their phone,” he says. “This is much safer and means less downtime and better productivity.”

LE will also have its Asset Reliability Solutions (ARS) on display, encompassing the full lubrication storage and management cycle.

A large portion of the stand will be dedicated to wire rope lubrication, where visitors can find out more about the Viper range, as well as LE’s Wirelife product.

The LE stand will be at Hall 8 Stand B13, and Ford encourages visitors to come along, meet the LE team and experience the company’s leading lubrication solutions for themselves. ■

## Rock Processing Solutions

Africa’s crushing and screening solutions partner



# Komatsu Mining Technologies to launch hard rock miner in South Africa

In line with its diversification strategy, equipment manufacturer Komatsu will soon be introducing the Komatsu hard rock miner to local shores, which will springboard it into commodities beyond just coal to industrial minerals, potash and limestone.



Hard Rock Continuous Miner MC51.

**K**omatsu Mining Technologies (KMT) currently supplies Joy equipment primarily to the coal mining industry – an industry, which albeit robust, continues to face logistical headwinds stymieing export potential.

The new hard rock miner, which recently underwent trials at mining operations in Canada and Australia, will be launched officially at MINExpo INTERNATIONAL, the industry's largest global mining event, which takes place at Las Vegas, in the US, from 24th to 26th September, KMT's director for marketing sales and service, Ryan Gaylard, tells Modern Mining.

"This exciting venture signals an entry

point into the hard rock mining segment and will open up a plethora of new opportunities for Komatsu, including the chance to apply learnings from the coal mining industry to the hard rock mining space and aid customers in improving efficiencies and reducing their cost per tonne."

Over the past decade OEMs have been advancing rock cutting technology to ensure limited damage to underground mining areas being blasted.

"During the drilling and blasting process the surrounding rock and support structures are the most impacted. To mitigate this, miners employ equipment such as the continuous miner or a hard

rock miner, to mine much more selectively. Komatsu's latest hard rock miner, an ideal product for underground applications, is equipped with the latest technology making it extremely cost effective and highly efficient in selective mining."

KMT will launch its new hard rock miner in South Africa before the end of the year, says Gaylard.

Coal conundrum on Komatsu business

While global requirements for coal remain strong, underpinned by demand from populous countries – including China, India and Europe – for cheap power solutions; the Paris Agreement's call for reduced emissions and a lower carbon footprint and the local industry's



Joy 12HM37 Continuous Miner.



Sewerage pollution at the Blaauwbank River over Milbank Bridge.

logistical challenges related to rail allocations on the Transnet line, remain a concern for miners.

“Although coal is abundant and a cheap source of fuel for power stations, the environmental impact of burning coal has become a key factor influencing the reduced appetite for fossil fuels by many countries. Furthermore, we have noted that several customers, both locally and internationally, have come under pressure from environmental groups. The good news, though, is that customers are increasingly investing in clean coal technology – a trend we expect to see grow in the medium to long-term.”

Given that some miners have been unable to secure rail freight allocation on the Transnet line, product earmarked for the export market is being stockpiled, with the knock-on effect being that equipment suppliers to the coal industry have been unable to grow their businesses, a key driver underpinning Komatsu’s diversification strategy.

Gaylard explains that the slow-down in production from South African coal mines translates to low demand for its machines, a reduced demand for equipment rebuilds and constrained demand for service and parts – all of which have stymied business growth for the equipment manufacturer.

“On the bright side, we are seeing an improvement in terms of increased rail allocation by the freight rail operator, Transnet. However, from a business point of view, we understand that it is more important than ever for us to improve our levels of efficiency and ensure that there is as little wastage as possible in our processes, both in terms of manufacturing as related to equipment rebuilds and our parts supply processes. As customers

are extremely cost-conscious, we do not want to pass on unwarranted cost increases to them and are working together to implement processes, such as our smart service programme, to increase operational efficiencies and improve their production capabilities.”



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**Smart solutions**

Moreover, with the mining sector, in particular coal mining, finding less favour with youngsters, the industry is facing a severe skills attrition, including in countries such as Australia, North America and India. The skills gap is further impacted by staff retirements.

It is against this backdrop that the equipment supplier's smart solutions offering is fast gaining traction. According to Leon Papenfus: Manager – Smart Service, appetite for Komatsu's smart service solutions has been phenomenal.

“We customise our smart solutions capabilities to meet customer requirements. For instance, in a training scenario, we engage with our customers about their training needs and limitations and follow

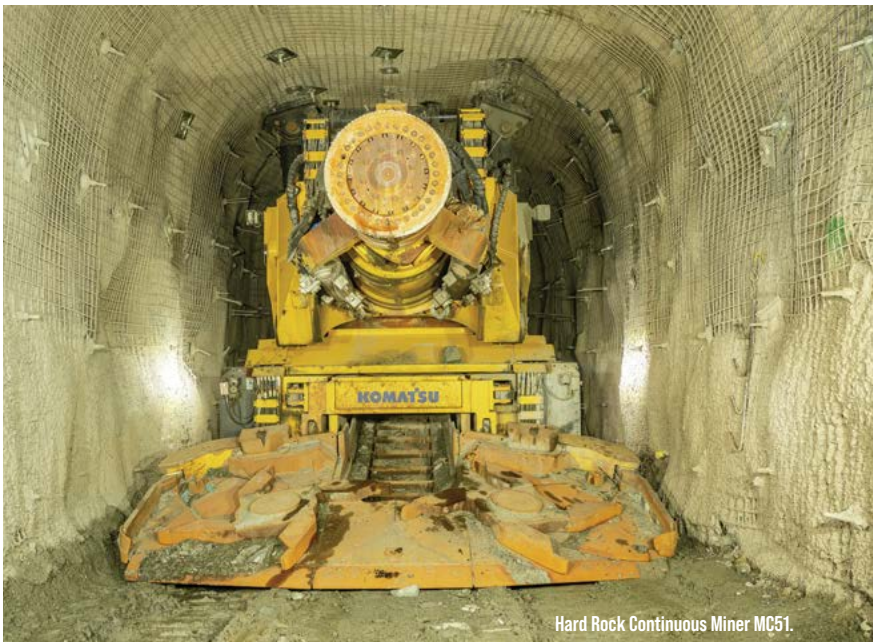
up with an assessment of their skills set in the underground environment. We then customise a training programme for that specific company. Once we have upskilled the staff on aspects such as operating their equipment, we task our field service teams to address further shortcomings. Given that each mining operation has different requirements, operational challenges, needs and strategies, we offer each client a bespoke service.”

Further to this, Komatsu's smart solutions offering integrates with its equipment to unlock opportunities related to the Internet of Things and big data to improve production efficiencies and ensure equipment operates at its peak.

“We use big data analytics to extract data from our underground machines



Joy Field Service at 12HM37 Continuous Miner underground



Hard Rock Continuous Miner MC51.

(collated on the global analytical platform) for insight into real time activities and functioning of the equipment, including technical reliability of the machines and service considerations, amongst others. Our field service support and asset management teams use the information gleaned to advise customers on how to maximise aspects related to efficiencies and equipment health,” explains Papenfus.

Aligned with Komatsu's smart solutions offering is its Good to Excellent offering, initiated last year, which sees KMT partnering with clients to increase their production targets and unlock efficiencies in their process to achieve a lower cost per tonne.

“We work closely with our customers to understand their mining operations, their limitations and the production targets they wish to achieve. An intensive due diligence is undertaken on their operation in line with the stated objectives of production and efficiency targets. In fact, last year we had four customers who took up our offering – the million-milestone production programme – which helped miners achieve a target of a million tonnes per annum from a particular section of their operation.”

Following these phenomenal achievements, existing customers and several new customers have signalled their eagerness to improve their current production capabilities and have partnered with Komatsu to identify sections of their operations they wish to ramp up.

“It is important to note that not all



Joy Smart Services Monitoring Centre.



operations have orebodies that are able to deliver an output of a million tonnes per annum. Despite our best interventions, some mines will just not be able to achieve a million tonnes per annum; however, with improved efficiencies, we may be able to achieve an end goal of half a million tonnes per annum. Customers are also partnering with us to achieve a target of half a million tonnes per section,” adds Papenfus.

Further to this, Komatsu has been testing the Continuous Miner assistant programme which is similar to “cruise control” on a vehicle, to help the operator with cutting cycles. Essentially, the

programme reduces the number of inputs required from the operator and, in turn, reduces the strain on the operator and frees him or her up to focus on safety, better controlling and observing the overall mining process.

“Simultaneously controlling the cutting cycles and keeping an eye on the path ahead can be difficult as it requires constant concentration, which often results in fatigue. Moreover, irregular surfaces, caused by varying roof and floor control, and over and under sumping cause uneven shuttle car loading, spillage, and fines. Unplanned time delays and irregular path patterns are also factors that

hinder efficiency and escalate to added costs and additional maintenance of other support vehicles,” explains Papenfus.

The Continuous Miner assistant programme promotes safety, ensures predictable cutting cycles, even surfaces and efficient shuttle-car loading. During normal operation, the operator navigates and controls the machine’s cutting cycles using the remote control.

“Komatsu’s innovations and technologies help our customers unlock value from their equipment to reach their stated production targets while ensuring that the equipment itself operates at peak performance,” concludes Gaylard. ■




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Pilot Crushtec's 12,000 m<sup>2</sup> manufacturing facility is located in Jet Park near Johannesburg.



## Decades of investment set Pilot Crushtec apart in customer support

**The true value in mining suppliers' solutions lies increasingly in the aftersales support that ensures uptime, productivity and cost effectiveness, according to Francois Marais, Sales and Marketing Director at Pilot Crushtec.**



Francois Marais, Sales and Marketing Director at Pilot Crushtec.

**T**he company is the authorised distributor for Metso crushing and screening equipment across southern Africa and also manufactures its own range of crushing, screening and materials handling solutions under the Pilot Crushtec brand. In addition, the company recently added the Jonsson line of premium mobile crushers and screens to its portfolio.

“Our commitment to quality goes beyond our equipment, to our support services and infrastructure” says Marais. “For almost 35 years, we have invested continuously in the skills, systems and facilities that allow us to deliver what our mining customers need, when they need it.”

He highlights that this infrastructure has grown not only in scale, but also in complexity – responding to both technology developments and changing customer expectations. In terms of physical resources, Pilot Crushtec boasts a 12 000 m<sup>2</sup> manufacturing facility in Jet Park near Johannesburg. Among other functions, this facility houses an inventory of spares valued at around R180 million and comprising some 34 000 different line items.

“Ready inventory is a foundation for any highly responsive service function, and our dedicated people and sophisticated systems ensure our parts

and components can reach customers timeously,” he says. “With mines looking increasingly to raise efficiency and uptime, we work to ensure their machines are always producing.”

He notes that the company's dedicated focus on mobile and semi-mobile crushing and screening solutions has helped to underpin its depth of specialised expertise. It has stayed at the cutting edge of this technology by constantly investing in people and skills.

Jorge Abelho, Director Technical Support at Pilot Crushtec, explains that the market is still short of the skills that the company needs to achieve its service benchmarks. For this reason, it provides its own technical training for staff on an ongoing basis – building a skills pipeline while also feeding the local economy with expertise.

“After employing a qualified artisan or technician, it will take us at least another year to prepare that person to work competently on our range of equipment,” says Abelho. “During that time, they usually undergo about six intensive training courses and up to 200 short courses online.”

Pilot Crushtec's in-house training programme also embraces university graduates, bringing them into the workshop for six months' experience,



Jorge Abelho, Director Technical Support at Pilot Crushtec.

and a similar time in the engineering office. Some go on to spend another year gathering experience in field service. At least 60 young people have been upskilled in this way over the past 15 years.

“Raising skill levels becomes more important as crushing and screening technology advances,” he says. “Our machines are becoming ever more sophisticated and complex, which is why they can deliver such high performance so reliably – but this demands the appropriate technical support.”

The reasons behind equipment complexity include safety features, he adds, which must align with stricter safety regulations. Recognising that mining is often a continuous, 24 hour per day operation, Pilot Crushtec gives its customers access to 24-hour telephonic assistance, as well as email and field support. Loss of production is costly, says Abelho, so rapid response time is essential.

“Given the capital invested in these modern crushing and screening units, there has, in the last 15 years, been growing emphasis on preventive maintenance and condition monitoring,” he says. “Our training investment therefore includes preparing our technicians to conduct annual ‘check ups’ for customers’ equipment.”

There is considerable value in these interventions, which can prevent major failures and unplanned downtime. Marais emphasises that Pilot Crushtec’s approach has always been to act as a stakeholder in a customer’s business – adding value to the sustainability of their whole operation.

“A capital purchase by a customer is only the beginning of long-term collaboration with us,” he says. “We treat our customer relationships as a mutual agreement in which we apply our best practice to help their businesses to succeed.”

The rapid evolution of technology on mobile crushing and screening plants has also raised the investment necessary in the company’s service infrastructure. Abelho points out that there has been a considerable shift towards the use of more electronic and digital equipment in technical support – to diagnose, configure or repair today’s high-tech machinery.

Pilot Crushtec’s commitment to partnership means that it extends its



Pilot Crushtec stocks spare and wear parts to the value of over R180 million.



Pilot Crushtec’s spare and wear parts stockholding comprises over 34,000 different line items.



Pilot Crushtec’s SupportLink team is ever-growing and consists of qualified and experienced field service technicians.

skills development to the customers’ own people. Given its considerable experience and technical resources, Marais says the company views itself as a Centre of Excellence in its field – with much to offer in boosting industry-wide expertise.

“We plan to reach out even more to customers and industry in general, to share our knowledge with other stakeholders,” says Marais.

The company has generated many short courses that its own people undergo, but which could valuably be made available more broadly. Many of its training resources on crushers and screens are focused beyond a specific equipment model, and apply also to process, applications, field service and maintenance.

“We focus on the results that customers achieve with our machines and solutions, so we are committed to building skills that support these results,” he says. “As the OEM, we fully understand our equipment and can advise on the best strategies to operate, service and maintain it.”

Abelho points out that, in addition to the mechanical aspects of machine support, the application side is even more demanding. This refers to the technician’s role in setting up machines, where they must check the loading, balance the circuits and ensure that screens are working as efficiently as possible.

As the equipment models are continuously upgraded, improved materials and component designs make an important contribution to better performance and reliability, notes Marais. This also means that the use of pirate parts creates greater operational risk for end-users.

“The philosophy of Pilot Crushtec and Metso is always to enhance our product range – from existing models to new lines – by allowing retrofitting of upgraded components,” he explains. “Pirate parts are a temptation to customers, but increasingly these parts simply undermine efforts to enhance uptime. The marginal saving on a spare part invariably leads to much larger losses in lost production and equipment availability.” ■

# The Power Tradeoff: Calculating the Cost of Transfer Point Efficiency

By Andrew Timmerman, Global Engineering Manager – R&D, Martin Engineering

Spillage in the loading zone of a belt conveyor can raise the cost of operation significantly – both from an efficiency and safety standpoint. The fugitive material piles below the system and clutters walkways requiring additional workers to clean it up thereby raising the cost of labour and causing a possible workplace hazard.

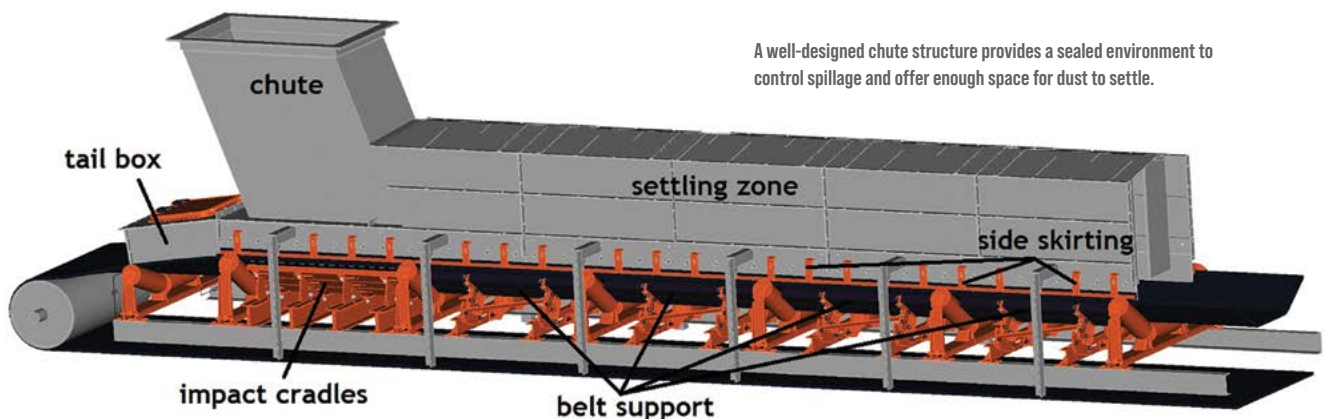


Cradles offer low friction surfaces at specified trough angles for superior belt sealing.

If not regularly addressed, the piles can encapsulate the belt and tail pulley, fouling the unprotected return side of the belt. A belt with material adhered to the underside leads to abrasion damage, mistracking and slippage, which increases the power requirements.

To avoid these consequences and mitigate belt sag, conveyor designers recommend constructing a sealed environment in the transfer chute. This can be achieved by reducing the distance between idlers or adding cradles. Cradles are slick urethane pads on a rigid steel frame that produce an even belt path which allows the rubber skirting to form a tight seal along the entire length of the chute. Not only does the cradle/skirting combination eliminate gaps, it allows for greater airflow control through the loading, settling and stilling zone for superior dust and spillage suppression.

However, a tight seal can induce additional friction. Although field tests have shown minimal erosion of the belting or splice, the seal calls for slightly more power, the ongoing cost of which is no small concern to operators. This article provides the calculations required to determine the distance between idlers to reduce belt sag. It will also discuss



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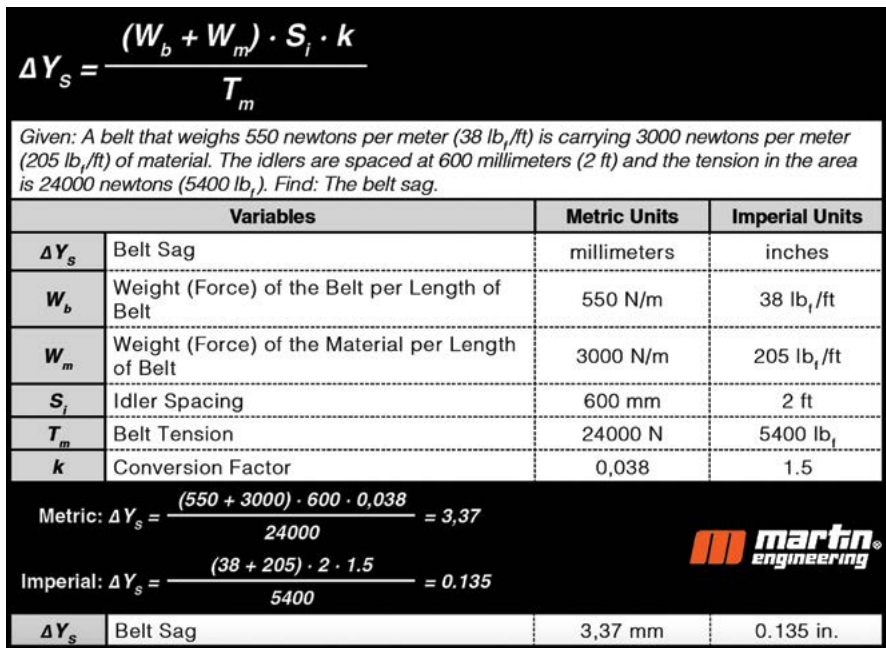


Figure 1 - Belt Sag Calculation.

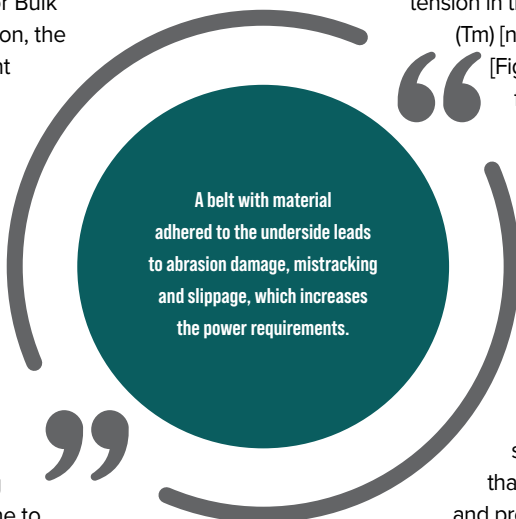
how engineers can calculate the power requirements of a cradle system.

### Determining Sag and Idler Distance

In *Belt Conveyors for Bulk Materials*, Sixth Edition, the Conveyor Equipment Manufacturer's Association (CEMA) recommends that conveyor belt sag between idlers be limited to 2 percent for 35-degree idlers and 3 percent for 20-degree idlers. The CEMA method refers to limiting sag outside the load zone to prevent spillage.

To fully prevent spillage, dust, premature belt wear, wear liner depreciation, and skirt seal wear in the load zone, the sag must be significantly less than that recommended by CEMA. For example, using the CEMA method results in a recommended maximum sag between idlers of 12.5 mm (0.5 in.) for 35° idlers and 19 mm (0.75 in.) for 20° idlers [Figure 1]. For loading zones with many gaps and tons of material escaping from the chute, field tests have shown that this is clearly unacceptable sag for control of fugitive materials in the load zone.

Sag ( $\Delta Y_s$ ) is proportional to the weight (force) of the belt and bulk material ( $W_b + W_m$ ) [Newtons (lbf)] and the idler spacing ( $S_i$ ) [millimetres (in.)], and is inversely proportional to the minimum belt tension in the load zone ( $T_m$ ) [newtons (lbf)].



[Figure 1]. To control fugitive materials, designers should consider managing the belt tension and idler spacing in the load zone to keep belt sag at no more than 3 mm (0.12 in.) and preferably 0.0.

Even with very little sag, if belt support is not continuous, fugitive materials can escape and cause wear.

The example in Figure 1 shows that, with idler spacing of 600 mm (24 in.), there is 3.37 mm (0.135 in.) of sag. If the idler spacing in the example is reduced to 178 mm (7 in.), the belt sag drops to 1.0 mm (0.039 in.). On the other hand, if a belt-support system such as an impact cradle or air-supported conveyor section is used, idler spacing ( $S_i$ ) can be assumed to be 0.0. The calculation then yields belt sag of 0.0, because there should be no sag when the belt is a continuous, flat surface.

### Cradles and Power Requirements

Belt-support systems have a significant effect on the power requirements of a conveyor. Changes in belt support will have a particularly noticeable effect on short or underpowered systems. Conveyor designers should ensure there is adequate conveyor drive power available to compensate for the additional friction placed on the conveyor when calculating the theoretical power requirements of proposed changes in belt-support systems.

Added kilowatts (hp) consumption can be calculated by determining the added belt tension, using the standard methods recommended by CEMA. The coefficient of friction of the new (or proposed) support systems, multiplied by the load placed on the belt support from belt weight, material load and sealing system, equals the tension. There is no need to allow for the removal of idlers, the incline of the conveyor, or other possible factors, as estimates provided by this method will, in most cases, produce results higher than the power consumption experienced in actual use. In applications where a lubricant, such as water, is consistently present, the actual power requirements may be one-half, or even less, of the amount estimated through these calculations.

### Conclusion

Additional power requirements and costs will seem minor when compared to the power consumed by operating with one 'frozen' idler or several idlers operating with a material accumulation. By implementing the proper belt-support systems, a plant can prevent the more costly problems that arise from the escape of fugitive material. Cleanup of spillage not only increases labour costs but, in lieu of unscheduled downtime, exposes workers to activities around and under a running conveyor, a major cause of injuries and death in bulk handling industries.

Testing has found that a well-designed system incorporates slightly elevated power consumption, required to prevent spillage, rather than suffer the much higher power consumption and greater consequences that arise from fugitive material. The costs for installation and operation of proper belt-support systems represent an investment and commitment to ongoing efficiency and workplace safety. ■

# The allure of the “Rwanda Model”:

By Dr Ross Harvey, director of research and programmes at Good Governance Africa (GGA)



Dr Ross Harvey.

**A** view that appears to be gaining traction in some policy circles is that African countries need a benevolent dictator. The argument runs along the lines of suggesting that we’re not quite ready for democracy. Due to democracy’s apparent inability to strengthen institutions and produce economic growth, we should resort to a kind of autocracy that delivers material dividends. Some have framed this as a choice between inclusive or effective governance. But even this framing presents a false dichotomy. Effectiveness is a function of inclusiveness, though admittedly under the right conditions of a relatively cohesive state.

These debates are not merely theoretical. Empirical data from the Afrobarometer 2023 survey, for instance, showed that 72% of South African respondents said they were willing to forego elections if it meant increased security and material wellbeing. This correlates closely with 63% of respondents to the same survey indicating that they did not feel close to any political party. From 2000 to 2015, respondents felt a strong sense of ‘partisanship’ (feeling represented by a party), but the post-2015 drop-off to 37% correlated with a sharp increase in those willing to forego elections. The drop in partisanship seemed to precipitate the willingness to abandon democracy. Until 2015, the trends largely moved together. Thereafter, they diverged radically.

There are all kinds of reasons for the



steep drop in partisanship; state capture was exposed but prosecutions have been slow. Simultaneously, the institutional fabric required to attract investment that could generate labour-absorbing growth was being badly frayed. This is the very fabric required to ensure swift prosecutions. It hasn’t helped that 2022 and 2023 were the worst load-shedding years since 2008. Voter turnout plummeted in line with the Afrobarometer survey results, and in the most recent elections was a poor 58%. So, do we need to drop all this idealistic democratic flag-waving and embrace aspirant autocrats who will set everything to right with an iron fist?

Many point to Rwanda as a model example. Not those who’ve fled for exercising judicial courage, of course, but armchair observers who see apparent value in the empirical results. Everyone knows that the elections are a sham, and one could thumb suck a winning number for Kagame (though the minimum floor is 80%).

But let’s examine the results against Kenya and Zambia, for instance, two democracies in Africa that have withstood the test of power turnovers. I could have chosen any number of metrics, but there are at least three quite important determinants of whether a country has long-run success probability or not. First is access to electricity for the rural population, as this indicates ability of the state to deliver public services outside of urban areas that can typically raise their

own taxes, and electricity is a necessary condition for economic growth. As the graph below indicates, Kenya outstrips Rwanda by a country mile. By 2021, 68% of the Kenyan rural population had access to electricity, whereas Rwanda only reached 38%. Zambia had been beating Rwanda until 2013, after which it fell behind and is yet to catch up.

Second, Rwanda’s unemployment levels have climbed from a steady rate of 12% in 2017 to 15% in 2023. Kenya’s levels also rose during that time, but from 2.76% to 5.6%.

And Zambia’s rate, for all the country’s volatility and poor leadership until Hakainde Hichilema entered office (in 2021), plummeted from a high of 16% in 2005 to beat even Kenya by 2023 with a low of 4.22%. An improved investment environment for mining will help to bring that figure even lower.

Thirdly, the “Country Policy and Institutional Assessment” (CPIA) “public sector management and institutions cluster average” scores (1=low and 6=high) of each country reveal that this is the only arena in which Rwanda wins, which is not nothing. The cluster “includes property rights and rule-based governance, quality of budgetary and financial management, efficiency of revenue mobilisation, quality of public administration, and transparency, accountability and corruption in the public sector.” This is more important for us to understand than ‘outcome’ data such as economic growth, given how pivotal a

# why it's misplaced



2022 and 2023 were the worst load-shedding years since 2008.

country's institutional framework is for catalysing and sustaining growth and poverty reduction.

Rwanda's score has climbed from 3.3 since 2005 and stabilised at 3.8 (by 2022). Kenya started in the same place but has only moved up to 3.5 (by 2022). Zambia, by contrast, has declined from 3.2 in 2005 to 2.9 by 2022. The hope is that under Hichilema's leadership, the country will implement the right institutional changes and reverse the decline.

By the above, one can understand why the Rwanda model seems attractive. When one considers the long-term risks, though, it is harder to understand.

Kagame is a ruthless operator, and civil liberties are deeply repressed in Rwanda. Aspirant autocrats – especially when they become entrenched dictators – start to make mistakes that hurt the citizens who were perhaps willing to forego liberties such as a free press, an independent judiciary and a credible vote. “Big men” surround themselves with yes-men and avoid any

checks and balances. Accountability goes out the window. Even patronage beneficiaries start to live in fear.

So, what to do then, given that democracy appears to not always deliver?

An under-appreciated 2006 paper by Michael Ross - “Is Democracy Good for the Poor?” – is worth consulting: “Over three decades [1970-2000, in which

there was a radical reduction in child mortality rates across the world], there was also

a dramatic rise in the prevalence of democracy; yet we find little evidence that the rise of democracy contributed to the fall in infant and child mortality rates.

Democracy unquestionably produces noneconomic benefits for people in poverty,

endowing them with political rights and liberties. But for those in the bottom [income] quintiles, these political rights produced few if any improvements in their material well-being. This troubling finding contradicts the claims made by a generation of scholars.”

However, a 2019 paper by a group of

world-class economists (Daron Acemoglu and James Robinson among them) ran several complex econometric regression models to try and isolate the impact of democratisation on economic growth. They found that “democratisations increase GDP per capita about 20% in the long run.” This is mostly likely due to democracies (on average) “enacting economic reforms, improving fiscal capacity and the provision of schooling and healthcare, and perhaps also by inducing greater investment and lower social unrest.” Clearly, as Michael Ross points out, under-5 mortality (a sensitive indicator of poverty) has not necessarily reduced due to democracy being better than autocracy at reducing poverty per se. Nonetheless, the results from Acemoglu and his co-authors show that the economic benefits of democratisation are not heterogeneous at different income levels. In other words, countries with more inequality and lower average income levels did not fare worse than their richer or more equal counterparts in terms of long-run growth.

The idea that democracy is bad for growth at early stages of economic development has been debunked. Dictators can do great damage, as Kagame continues to do, even while having made some incremental gains on the CPIA score. Civil liberties, to the contrary, can equip citizens to call for accountability that will likely produce pro-poor growth (though it's never a guarantee). ■

The idea that democracy is bad for growth at early stages of economic development has been debunked. Dictators can do great damage, as Kagame continues to do, even while having made some incremental gains on the CPIA score.

## WEC Water supplies filter water treatment plant to a mine in the DRC



WEC 3D Model view of DRC mine WTP 3.



DRC mine plant transport.

EPC contractor, WEC Water, recently secured and completed a project for the design, manufacturing, delivery, installation, supervision and commissioning of the largest packaged filtered water treatment plant the company has built to date. Destined for a large copper mine in the Democratic Republic of Congo, the plant has been designed to produce 680 m<sup>3</sup>/h of filtered water to be used as service water for the mine. The plant consists of two treatment trains each with a flocculation tank, three clarifiers, four multimedia filters, and intermediate storage tanks. WEC Water engineered an automated chemical dosing system designed to provide precision control of all chemical dosing. The feedwater is sourced from the mine's tailing dam, boreholes and surface water.

Says Nigel Birchall, Senior Project Manager at WEC Water, "Not only is this the largest packaged water treatment plant of its type that we have delivered anywhere in Africa, but the project also required considerable logistical management of a total of 18 trucks. The plant itself is based on WEC's standard filtered water treatment package plant with several customisations integrated into the basic design to meet the requirements of the client." ■

## Rosond South Africa and Bin Harkil Saudi Arabia establish Rosond Arabia

Rosond, a South African company providing exploration and drilling solutions, and Bin Harkil Saudi Arabia, a renowned name in the mining and construction industry, recently announced the formation of Rosond Arabia.

Rosond Arabia brings together the extensive expertise of Rosond and the deep-rooted local knowledge of Bin Harkil. Rosond is known for its advanced drilling solutions and commitment to

safety and has a rich history of over six decades in the industry. Bin Harkil Saudi Arabia, with its extensive experience in the local market and strong industry relationships, complements this expertise. Rosond Arabia is committed to supporting the Kingdom's Vision 2030 by contributing to the growth and diversification of the mining sector. The company is set to commence operations immediately. ■



Rosond South Africa and Bin Harkil Saudi Arabia establish Rosond Arabia.

## New JCB 3CX Backhoe Loaders range packed with new features

Equipment manufacturer, Bell Equipment's range of updated JCB 3CX Backhoe Loaders, which arrived on South African shores in July, promises to build on the brand's popularity with new features designed to provide improved comfort, versatility, and productivity, and ultimately reduce costs and increase efficiency. Bell Equipment Sales Product Manager for JCB products, Massyn Jansen Van Vuuren says: "This model range will replace the existing JCB 3CX Eco, 3DX and 3CX Global product lineup. The new cab makeover is the most noticeable change and is bound to impress. The JCB 3CX range benefits from improved efficiency in the hydraulics thanks to new variable displacement piston pumps that are standard across all models. The larger pump provides 150 lpm, a 39% increase over the previous model. This allows the engine speed to be reduced whilst maintaining productivity, effectively reducing fuel consumption. The Plus and Pro models have a Smooth Ride System for improved roading as standard and can be provided with a 6-in-1 shovel with the option of flip over forks for added versatility. "The 6-in-1 shovel can be used for dozing, loading, digging, grabbing, spreading, and grading while the optional flip over forks are ideal for machines that will double up as a forklift for pick and place activities around the work site, and to unload vehicles," he adds. ■

## K-Tec joins forces with Ukwazi to revolutionise earthmoving and mining

In a strategic move set to transform the landscape of earthmoving and mining operations in sub-Saharan Africa, K-Tec, a leading manufacturer of innovative earthmoving scrapers, has announced a partnership with Ukwazi, a mining services provider in the region. The collaboration aims to leverage the strengths of both companies to enhance efficiency, productivity and sustainability in the mining and construction sectors. K-Tec's product line includes



K-Tec partners with Ukwazi to revolutionise earthmoving and mining.

scrapers designed for various applications, from large-scale mining operations to heavy construction projects. K-Tec's scrapers are known for their high load capacities, fuel efficiency, and the ability to handle tough terrains, making them an ideal choice for the demanding conditions often found in sub-Saharan Africa. K-Tec scrapers have been effective in the mining market with a proven track record of stripping overburden, mine reclamation, haul road smoothing, gold, salt, lithium, potash, aggregate, clay, bauxite, and gypsum rock transportation for processing. Ukwazi, headquartered in South Africa, has established itself as a key player in the mining and construction sectors across sub-Saharan Africa. Ukwazi's Contracts Manager, Werner Louw, comments: "Ukwazi has selected K-Tec as its preferred partner, and its K-Tec scrapers as unique earth-moving equipment, due to their innovative, cost-effective, safe and practical onsite applications. The innovative application of established equipment and methods aligns perfectly with our strategy to provide safe contract mining and site construction solutions with a significant competitive advantage, reducing the cost per unit of material moved by up to 30% to 50%. Additionally, the environmental footprint is substantially lower, with diesel consumption approximately 30% to 40% less than conventional methods. Moreover, the reduced reliance on scarce water resources provides a significant advantage over wet mining systems." ■

## TOMRA Mining's sensor-based sorting helps quartz mining operations

The global market for quartz has been growing steadily and this trend is set to continue, demanding increasingly high purity levels. The demand comes from different industries, which have varying requirements, so the most precise mineral sorting is needed. This can be achieved with sensor-based colour and laser sorting technologies – applied individually or in combination – as Jens Michael Bergmann, Global Segment Manager Industrial Minerals and Carolina Vargas Area Sales Manager Europe, India and Rest of the World at TOMRA Mining explain. In addition to meeting these precise requirements, quartz mining operations need to achieve the capacity to meet the rising demand while ensuring their profitability and reducing their

environmental impact. TOMRA Mining's tailored solutions combine its Colour and Laser sorters to differentiate the minerals by colour, composition and size to meet the specific requirements of the mining operation's customers.

The technology proved to be the solution for Spanish Quartz producer Ferroglobe, which was facing the challenge of sorting quartz ore from other contaminants with the same colour properties. Tests conducted on samples at TOMRA's Test Centre in Wedel, Germany, demonstrated that its Laser technology was able to differentiate between high-quality white quartz and other contaminants, while colour sorting would be unable to separate it. Thierry Alary, VP Purchasing & Supply Chain at Ferroglobe highlighted:

"Operations will definitely improve. By solving that specific problem, sorting becomes more accurate, impacting on recovery rate, avoiding contamination and reducing further processing. In addition, we detected potential for development in other products and sites." ■



TOMRA Mining's sensor-based sorting helps quartz mining operations.

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## Mogalakwena commissions first P&H 4800XPC in Africa



Mogalakwena commissions first P&H 4800XPC in Africa.

Global mining companies need machines that maximise value extraction safely with the lightest possible carbon footprint and at the lowest cost per tonne. This requirement was met with Anglo American's recent commissioning of a Komatsu P&H 4800XPC. The investment is core to enabling Mogalakwena mine – already the world's biggest producer of platinum group metals – to achieving the ambitious production targets it has set for itself, while setting new standards in the reduction of emissions. "This asset embodies our commitment to innovation, growth and prosperity, and enables us to both create value and seize opportunities in a dynamic market," said Mogalakwena Senior General Manager, Willie Noordman, at the machine's April unveiling in the resource-rich Limpopo province of South Africa. He added that the unit would enable the mine to remain the lowest cost producer in the world

and increase total volumes by 35 million tonnes a year. The Komatsu P&H 4800XPC ushers in a new era of productivity and was commissioned following more than three years of close collaboration between Komatsu, the mine and manufacturing partners. "It is a symbol of our joint pursuit of innovation and stands as a testament to Komatsu's commitment to creating value for its customers. As we embark on this new journey of enhanced efficiency and sustainability, let us set new benchmarks and shape the future of mining together," said Hermann Hollhumer, General Manager, Komatsu Mining Operations, South Africa. ■

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## Fabchem Mining at the core of making underground mining safer

Founded in 1996, Fabchem Mining specialises in support technology that is at the core of making underground mining safer. The company is a leading manufacturer and supplier of strata control products and solutions to both the mining and civils industries.

It has grown to become a trusted and reliable manufacturer, distributor and supplier over the years, with a footprint across Africa, Australia, North America and South America.

As a technology leader, the company holds several patents over some extremely innovative products. Fabchem

is a Black Empowered company (52.6% black owned and qualifies as a level 1 B-BBEE Contributor, which means our clients can claim 135% of their purchases with Fabchem for their B-BBEE scorecard.

The company will once again be at Electra Mining, Hall 5, Stand B17, where it will showcase some of its most innovative products. Fabchem's award-winning SPT100 Smart Pull tester, the first of its kind, will be on demonstration. Be sure to pop past and see true innovation in action. ■





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