



MODERN QUARRYING

QUARTER 3 | 2023

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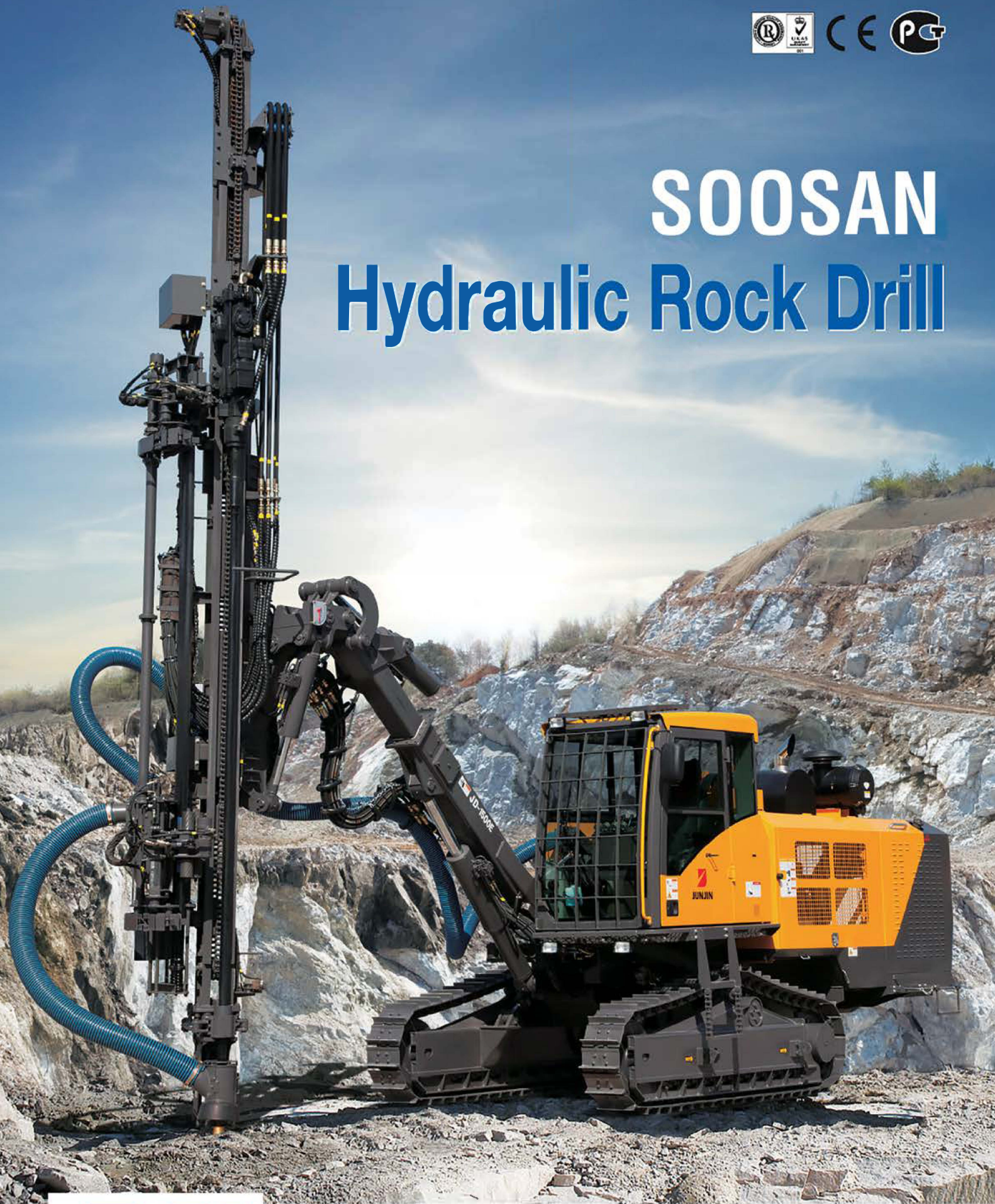


MDS M515 HEAVY DUTY TROMMEL

CHANGING THE WAY SCREENING IS DONE IN AFRICA



SOOSAN Hydraulic Rock Drill



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ACI shows positive growth for value added by construction sector. **PAGE 08**

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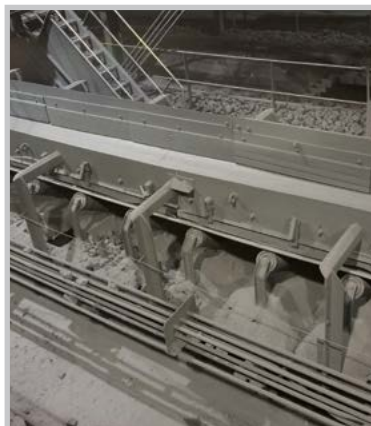
COMMITTED TO REDUCING TOTAL COST OF OWNERSHIP OF MINING TYRES

Kal Tire offers best-in-class services to customers that relate to everything around the wheel. This not only includes the on-site services, but also tyres, rims and all accessories relating to these wheel components.

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SAFETY AROUND THE CONVEYOR BELT'S RETURN SIDE

The extraordinary expense of ignoring safety standards both monetarily and operationally cannot be ignored.



RESIDENTIAL BUILDING BACK TO PRE-COVID LEVELS

The quarry industry is driven primarily by the construction industry as it provides the products needed for residential and non-residential building, while the industry's health is directly linked to especially civil construction.

Since 2017 the construction industry has been in a steady decline because of reduced government infrastructure spending, a depressed economy, less foreign investment due to various rating downgrades and the rising cost of materials. Then came the COVID-19 pandemic which impacted significantly on an already ailing industry. The result has been growing stockpiles at quarries because there were no major projects, or in some cases, even the shutting down of some quarries until demand returned.

Even though not vaguely back to the levels that it used to be, there has been an increase in public spending with several major SANRAL projects kicking off which has led to an increase in the demand for aggregates.

Quite ironically, semigration to the Western Cape that was initially started by COVID and more recently buoyed because people want to live in better run municipalities, has led to a significant increase in



building plans and the subsequent downstream positive impact for quarrying.

Statistics SA recently released a report that indicates that in 2022 the total value of residential building plans passed in South Africa had recovered to its pre-COVID record. While the value of all building plans passed nationally rose by 84,1% between 2010 and 2022, during the same period the total value of residential plans more than doubled, increasing by 129,8%.

The value of non-residential building plans (including office, retail, industrial, religious and educational buildings) had a more modest increase. It rose by +66,2%, while building plans for alterations and additions rose by 41,5%. During the COVID-period, this is what kept the construction industry (and the quarrying industry) ticking over.

Just over 80% of the value of residential building plans passed last year (2022) were in the Western Cape, Gauteng and KwaZulu-Natal. The Western Cape accounted for just over a third (33,7%) of all residential plans passed in SA last year, followed closely by Gauteng (30,8%).

The robust growth in the value of residential plans passed in the Western Cape relative to Gauteng suggests that the Western Cape will increasingly dominate the new residential housing market in the years ahead. The province also tops the list with the largest share of residential building plans passed and the second-highest increase over the past decade.

In this issue

For this issue I spoke to Scott Danoher, the CEO of Danoher about the company's careful approach to diversification and expansion. He says that no single large project is worth putting the company's future at risk.

Just as leadership decisions are important, equipment that consistently performs at the highest possible standard is vital.

Modern Quarrying interviewed Pilot Crushtec about the significance of warranties and aftermarket support.

There is also an interview with Dynamic Weigh Systems which highlights the importance of accurate and optimal weighing in a tough industry as well as an article on the importance of optimal drilling and blasting for maximal output and profitability.

PUBLISHED QUARTERLY BY:
Crown Publications
P O Box 140
Bedfordview, 2008
Tel: +27 11 622 4770
www.crown.co.za

abc
TOTAL CIRCULATION
Q2 2023: 6 775

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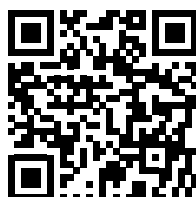
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The views expressed in this publication are not necessarily those of the editor or the publisher.

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HIGH EFFICIENCY MOBILE TROMMELS AVAILABLE IN SA

Crushing and screening giant, ELB Equipment, has completed the minerals processing equipment cycle with the addition of a complete range of high efficiency trommels that are set to change the way screening is done in South Africa.

Its Powerscreen scalpers and screens already dominate the local market and the addition of the world's leading trommel manufacturer, MDS, is bound to close the circuit for miners who are already familiar with the ELB Equipment way and its high-quality minerals processing offerings that are predominantly derived from the Terex Corporation.

MDS track, static and recycling trommels, as well as apron feeders, are quick and can handle a wide range of media including blasted rock and riprap, as well as varying substrates such as clay, limestone and even recycled concrete rubble. But, most importantly, it is the new trommels' ability to speed up processing and ability to handle oversize materials that is most exciting for the local market.

Volumes up

ELB Equipment Divisional Director, Wakefield Harding, says the range of static and tracked trommels are unmatched in the local market and are simply not available as standard production machines elsewhere. This means it will introduce a totally new way of doing things in the local market and is bound to turn up production volumes while increasing profitability on many new and existing plants in Southern Africa.

MDS tracked and mobile units especially have the ability to be gamechangers bringing the speed and versatility of trommels to sites wherever they are needed. Trommels have the ability to separate up to four streams of aggregates quickly and efficiently starting with soil and fines at the



feed-end moving through to larger rocks and oversize rock up to 1,5 m at the discharge end.

It is this rugged ability of the MDS designed and manufactured trommels that makes them unique as they have the ability to shorten the processing equipment chain onsite – either direct from blasting and loading or from a primary crusher or even recycled materials and composting. The addition also supports ELB Equipment's growth strategy to expand its offering into new crushing, screening and environmental industries with products that complement its existing portfolio.

Trommel types

MDS design and manufacture heavy duty static trommels in the M615 and M820 models. These can process from 500 to 750 tons per hour with 3-4 outputs each. The trommels are built with portability in mind for applications processing overburden, recycling/skip waste, general scalping, all quarried aggregates, demolition waste, riprap/armour rock and blasted rock.



KEY TAKEAWAYS



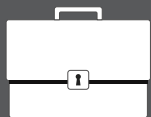
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MDS manufactures a variety of tracked trommels to make mobility easier for customers and improve mobility on site making this an ideal solution for mining contractors. These versatile trommels can handle material up to 1m in size and have outputs from 300 to 750 tph. Some applications include:

- **Placer Mining:** Trommel screens are commonly used in placer mining operations to separate valuable minerals from the surrounding gravel or alluvial deposits. The rotating drum of the trommel screen allows the fine particles to pass through while larger rocks and debris are separated and discarded.
- **Gold Mining:** Mobile trommel screens are extensively used in gold mining operations. They help in the screening and separation of gold-bearing material from other debris, such as rocks, clay, and sand. Trommel screens are particularly effective in capturing fine gold particles.
- **Coal Mining:** Trommel screens are utilized in coal mining to separate coal from waste material. The trommel screen separates the coal based on size, ensuring that the appropriate coal product is processed further while discarding larger rocks and debris.
- **Quarrying:** Mobile trommel screens are used in quarrying operations to separate different sizes of stone and aggregate materials. By utilizing different screen sizes and configurations, trommel screens can produce various sizes of screened material for further processing or sale.
- **Mineral Processing:** Trommel screens play a crucial role in mineral processing plants by separating valuable minerals from waste material. They are often used in conjunction with other equipment like crushers and conveyors to efficiently process bulk materials.
- **Sand and Gravel Operations:** Trommel screens are commonly employed in sand and gravel operations to separate and classify different sizes of material. The screens help remove oversize rocks and debris, allowing the sand and gravel to be processed further for various construction and industrial applications.
- **Recycling:** Mobile trommel screens find applications in recycling operations, such as construction and demolition waste processing. They

aid in separating and sorting different types of recyclable materials, such as wood, plastics, metals, and aggregates.

Countrywide availability

"We believe that the addition of the MDS brand will open up new markets for both the company and for our clients. These are top quality machines from the world's leading supplier within the portfolio of our long-time supplier, Terex Corporation, which also owns Powerscreen and Terex branded processing equipment which has been distributed by ELB Equipment for decades.

"As a result of this trusted combination, and with our footprint throughout southern Africa, we expect the MDS offering to expand quickly across all mining types and into the growing recycling markets. There are also some commonalities between equipment under our umbrella and it simply makes sense to go with a single supplier for all equipment requirements on site.

"This type of approach also supports our 'Best of breed from a single supplier' approach which means that customers are able to buy the best types of equipment from specialist manufacturers around the world from a single supplier – ELB Equipment," concludes Wakefield. ●

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ACI SHOWS POSITIVE GROWTH **FOR VALUE ADDED BY CONSTRUCTION SECTOR**

Afrimat, the JSE-listed open pit mining company providing industrial minerals, bulk commodities and construction materials, has released the findings of the Afrimat Construction Index (ACI) for the first quarter of 2023. The ACI is a composite index of the level of activity within the building and construction sectors compiled by economist Dr Roelof Botha on behalf of Afrimat.

According to Dr Botha, the poor performance of the economy over the past two quarters was evident in construction sector activity, with the ACI declining by 8,6%, compared to marginal growth in real GDP of 0,4% quarter-on-quarter. "The year-on-year decline in the ACI was more muted, with the ACI declining by 3,4%, compared to GDP growth of 0,2%," says Dr Botha.

A highlight of the first quarter reading was the consolidation of positive growth for value added by the construction sector, with real expansion recorded both on a



It is evident that the results of the ACI in the first quarter compared to the fourth quarter of 2022 were mainly influenced by sharp declines in the values of building plans passed and buildings completed in the larger municipalities of South Africa.

quarter-on-quarter and year-on-year basis.

"It should be pointed out that the construction sector component of GDP only includes the value added by contractors, whilst the ACI is based on a composite index of construction sector activity that includes another eight indicators, all of which are measured in real terms, i.e., adjusted for inflation. The ACI is therefore a substantially more comprehensive barometer of the state of the construction sector."

Compared to the first quarter of 2022, i.e., year-on-year, the outstanding performances were the increases of almost 12% in construction sector employment and more than 4% in value added by the sector. Two other indicators also recorded positive growth rates, namely retail trade sales for hardware and sales of building materials.

"It is evident that the results of the ACI in the first quarter compared to the fourth quarter of 2022 were mainly influenced by sharp declines in the values of building plans passed and buildings completed in the larger municipalities of South Africa."

The highest interest rates in 15 years have served to dampen the demand for new houses, as also illustrated by the sharp decline in the number of mortgage bond applications administered by BetterBond. Due to the pervasive negative influence of higher interest rates on most of the economy's demand components (via raising the cost of capital and credit), a host of economic indicators started reversing the recovery trend from the Covid pandemic.

According to Dr Botha, construction sector activity has been hit hard by the increases in the Reserve Bank's repo rate since the end of 2021. "The Monetary Policy Committee of the Reserve Bank seems to have overplayed its hand in continuing to raise the official bank rate against the background of a pronounced drop in consumer and producer price indices."

On a positive note, he is confident that the rate hiking cycle is nearing its end, with both the producer price index (PPI) and the consumer price index (CPI) having peaked and beginning to enter a downward trajectory. "The PPI has dropped from a high of 18% in July last year to 8,6% in April 2023, a decline of 52%, whilst the CPI is down from a peak of 7,8% to 6,8% currently, a drop of 12,8%."

Another positive development is the increase in the ratio of capital formation to GDP by both the private and public sectors during the first quarter of 2023. "Although the current combined level of 15,1% remains well below the average for emerging markets, the upward trend is encouraging," says Dr Botha.

More good news is the fact that the Government has effectively admitted its negligence in the areas of maintaining and expanding the country's infrastructure by creating two Crisis Committees to deal with these challenges.

CEOs from some of South Africa's largest companies have also agreed to lead work streams set up to support Government in tackling the country's prevailing crises in the energy and transport sectors, as well as debilitating levels of crime and corruption. Following a meeting between organised business and government on 6 June 2023, an agreement was reached to form a partnership to tackle the three issues, which have emerged as major obstacles to growth, development and job creation. Key to this new initiative is the undertaking by business leaders to collaborate with the National Energy Crisis Committee (Necom) and the National Logistics Crisis Committee.

"Hopefully, a much greater emphasis on private sector involvement in the planning and execution of infrastructure maintenance and development will eventually pave the way for a revival of construction sector activity in South Africa," says Dr Botha.

According Afrimat CEO, Andries

van Heerden, the Group remains exceptionally well positioned to reap the benefits of any upswing in construction sector activity.

"Our balance sheet is technically debt free and supported by strong cash generation. We see many opportunities across our segments, as evidenced by the recent announcement of our acquisition of Lafarge South Africa, where we saw the opportunity to bulk up our Construction Materials segment in particular. This exciting deal forms part of our ongoing diversification strategy and will increase our offering in the construction industry by expanding our quarry and readymix operations nationally and allowing for Afrimat to enter the cement value chain competitively. To quote Warren Buffett, 'Be fearful when others are greedy and greedy when others are fearful'."

Van Heerden went on to say that Afrimat will continue to focus on projects both consistently and diligently. "We have such strong existing projects to execute on like the Jenkins, Nkomati and Glenover mines that I am genuinely excited for the next eighteen months. These projects will increase our volumes, especially of iron ore and anthracite volumes available to the local market, and of course increase our product diversification as additional volumes of phosphate and vermiculite are introduced into the mix. This latest acquisition announced will now bolster this further."

He added that he was also hopeful that in the next two years, the private sector will assist proficiently in reducing the need for loadshedding and that Government realises that it needs, at the very least, to maintain infrastructure more than it is at present. "This will greatly benefit our Construction Materials and Industrial Minerals divisions as Afrimat is well positioned to provide the aggregates and products required for infrastructure maintenance and upgrades." ●

AFRIMAT TO ACQUIRE LAFARGE SOUTH AFRICA

Leading mid-tier mining and materials company, Afrimat, recently announced the acquisition of Lafarge South Africa Holdings (LSA), including all its subsidiaries (LSA Group), subject to the fulfilment of conditions precedent relating to the receipt of customary regulatory approvals.

LSA Group, a member of the Holcim Group, is a provider of construction materials in South Africa, offering an extensive range of products to the construction and infrastructure industry, including aggregates, concrete, cement, and fly-ash.

The acquisition will be housed in Afrimat's Construction Materials division, which together with its subsidiaries (Afrimat Group) supply a wide variety of aggregates and concrete-based products to the market, and the Afrimat Group, in response to customer demand, continues to focus on market and product development within this segment.

Speaking on the acquisition, Andries van Heerden, CEO of Afrimat said, "A key focus of Afrimat is our conscious operational efficiency initiatives, which are aimed at expanding volumes, reducing costs, and developing the required skill levels across all staffing categories. This exciting deal forms part of the Afrimat Group's ongoing diversification strategy and will increase Afrimat's offering in the construction industry, by expanding our quarry and readymix operations nationally and allowing for Afrimat to enter the cement value chain competitively."

Afrimat is highly cash-generative and effectively debt free, allowing this acquisition to be financed largely in cash. "We are confident that this acquisition is a good use of our cash reserves, and following the purchase, the Afrimat Group's balance sheet will remain healthy

with debt levels well within our target range."

Core assets acquired consist of aggregate quarries, readymix batching plants, an integrated cement plant, cement grinding plants, cement depots, and high-quality fly-ash sources. The lime and aggregate sources are long-life assets, well-designed and all with good-quality plants and infrastructure characterising the entire portfolio being acquired.

The purchase price for the acquisition of the equity in the LSA Group is USD6 million, with an additional amount of R900m towards repayment by or on behalf of LSA of an amount owing by LSA to the Holcim Group. The effective date of the acquisition is 10 business days after all the conditions precedent have been met.

Van Heerden adds that "Operational synergies between the two businesses are substantial, considering Afrimat's existing national footprint of aggregate quarries, readymix concrete operations and precast manufacturing operations, and we believe that the time is right to strengthen our Construction Materials division."

He went on to add, "Afrimat operates its Construction Materials segment at a low and efficient cost, supported by ongoing efficiency projects. This philosophy will be applied to the acquisition, where we believe further efficiencies can be extracted, and build on our successful integration of similar transactions. Afrimat's Construction Materials division contains all the expertise and strategic

management execution capabilities required to ensure successful integration and expansion of our products into the infrastructure and construction sectors of South Africa."

According to Van Heerden, management is confident that a sharp commercial strategy comprising operations, marketing, and logistics, will enhance the Afrimat Group's overall business strategy in the Construction Materials segment.

Van Heerden noted that "Afrimat believes the private sector will assist significantly in reducing the need for loadshedding over the next two years and that Government will, at the very least, realise that it needs to maintain infrastructure. This will greatly benefit the Construction Materials and Industrial Minerals divisions as Afrimat is well-positioned to provide the aggregates and products necessary for this infrastructure maintenance."

Van Heerden concludes that this acquisition is planned in accordance with the Afrimat Group's cash generation, operational expertise and capacity, and thorough market research. "I am confident that we have the marketing and logistics know-how, expertise, experience, skills and business acumen to inculcate all elements of this acquisition into our current businesses and continue to ensure the growth of Afrimat through diversification. As always, Afrimat will execute this exciting endeavour guided by the precision and cautiousness that we have come to be known for." ●

THE MUTUAL BENEFITS OF REGISTERING WITH THE BCCEI

Registration with the Bargaining Council for the Civil Engineering Industry (BCCEI) is not only compulsory but also incredibly advantageous for both companies and their employees. The operations manager at the BCCEI, Lindie Fourie, strongly believes that company registration promotes a more balanced and sustainable sector for all parties involved.

Membership with the BCCEI transforms a company into an active participant in the civil engineering industry. The BCCEI plays a pivotal role in facilitating collective bargaining concerning wages and general terms of employment, consequently leading to fairer outcomes for everyone involved.

Fourie underscores the advantage of this process, stating, "Being part of the BCCEI makes a company an active participant, able to leverage our national footprint and information sharing abilities including the opportunity, through party representatives, to lobby stakeholders in the industry."

Collective bargaining outcomes benefit both employers, especially those lacking the resources for prolonged negotiations, and employees, who may not be adequately organised to present their demands at the company level. Not only does it facilitate a fairer outcome, but it also minimises disruptions in the working environment, allowing resources and energy to be channelled where most needed.

Furthermore, certain minimum allowances which employees are entitled to, under the conditions of employment for the civil engineering sector, often go unnoticed by both parties.

Fourie points out that registration with the BCCEI can help clarify these conditions, ensuring that both



Lindie Fourie, Operations Manager at the Bargaining Council for the Civil Engineering Industry (BCCEI).

employers and employees understand their rights and obligations. In addition, this does lead to a levelling of the playing field in some respects encouraging

contractors to compete fairly against each and end the practice of under cutting minimum wages in an attempt to secure contracts at the detriment of employees.

"Registration with the BCCEI presents an opportunity for companies to actively contribute to the civil engineering sector's stability and sustainability. The mutual benefits for both employers and employees resulting from the BCCEI's involvement cannot be overstated, making it a win-win for all," Fourie concludes. ●

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BOOST YOUR BUSINESS WITH BEST-IN-CLASS DRILLING

The global rock drill rig market was recently projected to grow at a CAGR (Compound Annual Growth Rate) of 5,5% during the forecast period of 2018-2028. The global water well drilling market size is expected to reach USD4,12b by 2028 – CAGR of 5,20% from 2021 to 2028. Maintaining leadership in the water or rock drilling market is essential to keeping your company ahead of competitors in these rapidly growing industries, and partnering with Powerbit Rocktools can help you maintain your competitive advantage.

The company is renowned for listening intently to its customers and cultivating an in-depth understanding of their challenges, problems and goals. And with over 20 years of experience, Powerbit drilling products remain at the forefront of technology at affordable prices.

With a singular focus on customer needs and a passion for excellence, Powerbit Rocktools continues to innovate, empowering drilling businesses to conquer even the most challenging drilling operations with ease and efficiency.

As the industry rapidly adopts technological advancements and mining and drilling operations expand to new frontiers, the need for robust and reliable rock drilling tools has become even more critical. In the face of extreme and challenging environments, businesses need cost-effective and enduring solutions to conquer the tough terrain they inhabit.

Powerbit has been a prominent player in the southern African mining industry since 1996, addressing the unique demands of drilling-related industries with unwavering dedication and a commitment to excellence.

The company's product range is extensive and purposeful, catering to various drilling needs across industries. The fit-for-purpose line-up includes DTH hammers and bits, RC hammers and bits, tri-cone bits, top hammer bits



Thomas Chao, Managing Director at Powerbit Rocktools.



and rods, casing systems, grinding machines and more. Each tool has a proven history of enhancing drilling operations' efficiency and longevity.

One key factor that sets Powerbit apart is its focus on building long-term partnerships with its clients. Thomas Chao, Managing Director at

Powerbit Rocktools, emphasises the value of maintaining a reliable supply chain in the context of African industry, where drilling and geotechnical excavation operations form the backbone of resource extraction and optimisation, driving the continent's survival and progress.

"In the drilling industry, our clients can't afford downtime. We pride ourselves on being a partner who is always on hand to help our clients address their unique challenges. Our team is not just a supplier, we are a valued partner for our clients' businesses. And that makes all the difference.

"We consistently maintain and adapt to new quality standards by collaborating with our facilities offshore and continuously work alongside our clients to understand their needs and provide products that serve their

specific requirements."

Powerbit continuously collaborates with its facilities in Taiwan, China and Japan, where they have advanced research centres and applied technology experts in the rock drilling tools field working tirelessly to innovate new products and methods, cultivating a practical understanding of emerging engineering challenges to effectively tailor their products to meet clients' specific needs.

The value of economical, long-life rock drill bits, hammers and grinding machines in today's drilling operations cannot be overstated. Powerbit recognises these tools' pivotal role in enabling clients' success and driving infrastructure projects that underpin local economies.

The Powerbit Product Roundup is a testament to their commitment to empowering

progress in drilling operations. From DTH hammers and bits to top hammer drilling tools and RC hammers and bits, each product is meticulously engineered to ignite the power of remarkable rock drilling. With a versatile range suitable for various working conditions and industries, Powerbit is well-equipped to serve diverse clientele with different drilling requirements.

Experience Powerbit precision

Experience the power of precision-engineered rock drilling tools and exceptional customer support, empowering your operations to thrive in the face of modern drilling challenges. Connect with Powerbit Rocktools and embark on a journey of progress and empowerment that has been driving the southern African mining industry for almost two decades. ●



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- Long service life, easy repairs
- Carbonised sample collection tube surfaces

Tricone Bits:

- Various drilling options, carbide button types
- International standard thread types
- Excellent abrasion resistance, fast drilling speed

Casing Systems:

- Various options available
- Hardened part surfaces for anti-wear properties
- Unmatched drilling speed and reliability



COMMITTED TO REDUCING **TOTAL COST OF OWNERSHIP OF MINING TYRES**

Kal Tire offers best-in-class services to customers that relate to everything around the wheel. This not only includes the on-site services, but also tyres, rims and all accessories relating to these wheel components. OTR (off the road) tyre repairs is a key service offering that helps to minimise waste, but also serves to give a severely injured tyre a new life and reduce the operating costs of the mining operation.

Modern Quarrying spoke to John Martin, VP Southern Africa – Kal Tire's Mining Tire Group about its service offering and how it can assist quarry operators.

What is Kal Tire's main aim?

Kal Tire has seven AIMS, which – in short – is the value system by which Kal Tire operates. Our AIMS define who we are, how we behave and how we treat all our key stakeholders, from customers to team members to our suppliers.

Our AIM number one, states that we aim “To provide customers with a level of quality and value, of both service and products, that exceeds their expectations and surpasses the competition.”

Our reason for existence is to prove to customers that we can reduce their total cost of ownership of mining tyres. This is achieved through the provision of well-trained team members that are able to deliver services better than any other competitor, as well as the provision of best-in-class products, that are best suited for the operational environment they are expected to perform in.

Further and deeper understanding of Kal Tire's AIMS will show our undeniable commitment in all that we do, to support our customers in their ESG endeavours. The concept of reduce/reuse/recycle as well as the reduction of the world's carbon footprint, is all contained within our way of working.

In what has Kal Tire invested in Southern Africa?

Kal Tire has invested in many areas of the mining tyres service



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business, which includes service and support infrastructure and network, with branch structures, team member development, community development as well as supplier development. Our investment is focused primarily on the improvement and development of our services to the tyre industry, that includes TBR (truck, bus, radial) retreading facilities, OTR tyre repair facilities and breakdown services delivered by team members that have been trained in the most comprehensive tyre services training programme available.

How long has the company had a presence in the region?

We have been present in the Southern African region for almost 15 years. Our early presence was initiated in East Africa, that included Tanzania and Mozambique, and progressed to South Africa, Zambia

and Botswana. Kal Tire's acquisition of Tyre Corporation in 2017 was a significant indication of Kal Tire's intent and commitment to the region. Although Kal Tire has no legal entities in countries such as the DRC, Namibia, Zimbabwe and Lesotho, we do have an active supply chain and service capability to many of our customers operating throughout the Southern African region.

The investment obviously indicates that Kal Tire views the region as significant. How significant though?

The Southern African region remains one of the few mining geographies that still has extensive volumes of untapped mineral resources. The volume of annual exploration investment in this region substantiates the notion that there is still an abundance of natural resources available, including oil and gas. The



KEY TAKEAWAYS



Kal Tire has invested in many areas of the mining tyres service business, which includes service and support infrastructure and network, with branch structures, team member development, community development as well as supplier development.



Kal Tire's investment is focused primarily on the improvement and development of services to the tyre industry, that includes TBR (truck, bus, radial) retreading facilities, OTR tyre repair facilities and breakdown services delivered by team members that have been trained in the most comprehensive tyre services training programme available.



Traditional self-propelled machines see most of their maintenance downtime and costs from engine, transmission and associated parts repairs.

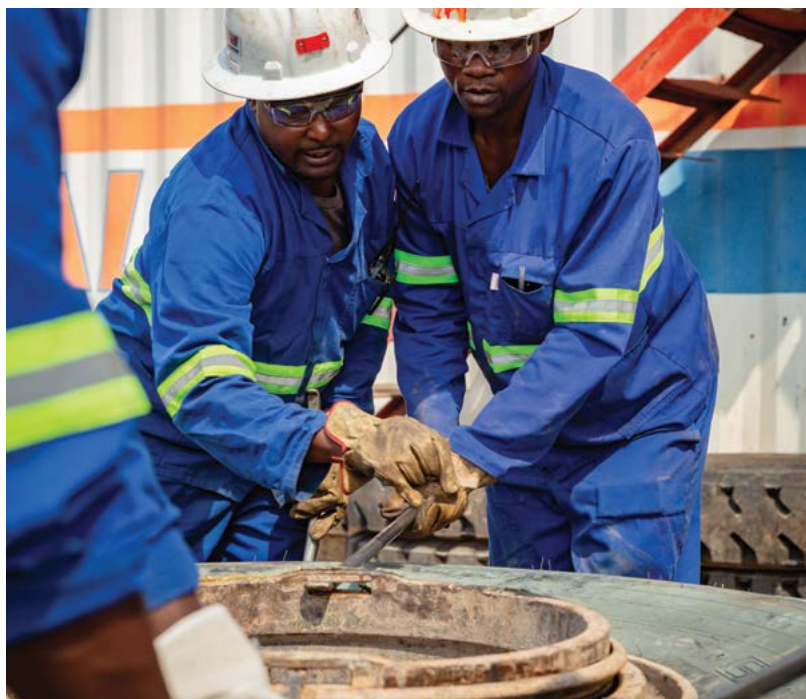


Kal Tire's operational footprint spans four countries in this region, each with its own country-based management, branch structure and on-site service teams.

ongoing discovery of world class deposits in the DRC and Botswana are all evidence of the mineral endowment that exists in Southern Africa. Kal Tire has invested heavily in this region to ensure we are always in close proximity to all the mining opportunities.

What is your footprint in Southern Africa – with reference to your tyre management teams, branch infrastructure and resource capabilities?

Kal Tire's operational footprint spans four countries in this region, each with its own country-based management, branch structure and on-site service teams. South Africa represents our largest group of team members, required to support the numerous on-site service and supply contracts. Additionally, the South Africa office is home to the regional support to our operating countries, that includes our training and safety



management teams, as well as our extensive technical capacity to support every customer with the needed technical expertise.

What products and services do you offer?

Kal Tire is able to offer best-in-class services to our customers that relate to everything around the wheel. This not only includes the on-site services, but also includes tyres, rims and all accessories relating to these wheel components. OTR tyre repairs is a key service offering that helps to minimise waste, but also serves to give a severely injured tyre a new life and reduce the operating costs of the mining operation. Our tyre management system, called TOMS (Tire & Operations Management System) is the most comprehensive tyre management system available, which seamlessly integrates with many of the mine's operational systems, providing real-time decision-making data, for the real time optimisation of mining operations.

How are your application specific products and repair technology adapted to suit the region's mines – particularly surface mining?

Kal Tire's Mining Tire Group (MTG)

has a significant presence in surface mining operations in all mining jurisdictions around the globe. As a result, many of Kal Tire's innovations and adopted technologies in the mining space are purpose-built for surface mining applications. The amount of money surface mining operators invest in rubber and rims is a significant number and therefore justifies investing time and resources into application specific products and innovations that can minimise risk, improve productivity and reduce the cost of operations.

The ongoing collaboration between Kal Tire and many tyre manufacturers, often results in improved product performances of the products for each operation. Our Ultra Repair™ technology is exclusive to Kal Tire, allowing giant OTR tyres, even with severe injuries, to be brought back to life. The Ultra Repair technology is a good example of how modern technology can be brought to site. Some of the more exciting technologies that Kal Tire offers include autonomous tyre inspection stations, Ultra Repair technology and the well-known Gravity Assist System to help with heavy tooling. These are all examples of innovations that are purpose-built for surface mining

applications.

How important is innovation in your offering?

Innovation is an integral part of how Kal Tire functions and operates. As with any service industry, our safety processes and operational efficiencies are improved with each new innovation and operational changes that we deliver to our customers. Kal Tire has a number of patented innovations which complement the value proposition we offer to our customers and widens the service spectrum that Kal Tire makes available to interested customers.

How do you ensure that the teams that you have in place offer the best and fastest service to customers?

In the service industry, it is essential to be located as close to one's customer as practically possible, particularly in the mining industry where machine downtime can result in significant losses. We have an extensive branch network in all our operational countries, all of which are strategically located within the mining geographies of each territory. South Africa has the most expansive road network in the Southern African region, which allows any one of our 15 branch and factory structures to service any of our customers within a few hours.

How can you assist customers with reducing tyre costs?

It remains our mission and primary ambition to reduce the operational tyre costs, and contribute to the improvement of operational efficiencies of all our customers. To provide this benefit to our customer base, Kal Tire maintains strategic important relationships with a number of global tyre manufacturers to ensure we have access to the best performing products available in the market. Kal Tire is able to source the best performing tyre and related wheel products for the unique application of each operation. Additional value is delivered through comprehensive



technical skills, innovations, OTR tyre repairs and as we have demonstrated in a number of countries, the re-treading of giant OTR tyres can contribute to achieving the lowest total cost of ownership of mining tyres.

How do you ensure that you uplift the regions in which you operate?

The investment in our regional infrastructure aligns with Kal Tire's strategy to position our services close to our customer base. To fully support this strategy, it is not only the establishment of infrastructure that is required, but more importantly, investment in the best available local talent as the means to deliver on the services. This investment creates employment opportunities as well as the expansive use of localised companies for any local services we require. ●



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of tyre life**



Making tyre management safer and more productive. Reducing total cost of ownership and putting ESG at the core of our offering.

By delivering more than what is expected, we help make a difference every day.



SAFETY AROUND THE CONVEYOR BELT'S RETURN SIDE

The extraordinary expense of ignoring safety standards both monetarily and operationally cannot be ignored. By Dan Marshall - Process Engineer, Martin Engineering



The return side of the conveyor may be the most deceptively hazardous part of a conveyor system. With long gaps between rollers and carrying no cargo, there is an extensive list of injuries inflicted on workers from the return side of conveyors in the Occupational Safety and Health Administration (OSHA) database. Caused by nip/shear points, belt contact and reach-in hazards from working around a running conveyor, these injuries stem not only from a lack of satisfactory protection of both the worker and system, but also inadequate training. Many experts will attest to the fact that efficiency and safety are inextricably linked.

Belt return hazards

- **Nip points** are created where a moving element of the conveyor machinery meets another rotating or moving component. Based upon common belt speeds and average human reaction times, a shovel or other tool in an entrapment situation will pull the worker using the tool in with it before the person can even let go.
- **Shear points** occur when the edges of two machine parts move across or close enough to each other to cut a relatively soft material. An example of this is

where the belt quickly passes a stationary beam or component, which can trap a limb, abrading it or severing it.

Fugitive material

The fugitive material hazards posed around the belt return begin with the discharge at the head pulley. An insufficiently cleaned belt can cause carryback to drop along the entire belt path and spill into walkways or on the return belt. This produces a trip hazard and a possible violation. In addition, dust can get into cracks and divots in the belt, release along the belt path, and foul gears and bearings of rolling components, causing them to seize and creating a possible fire hazard.

Inadequate cleaning technology and tensioning systems allow carryback to collect directly beneath the discharge zone. If not addressed, material accumulates quickly until the belt runs along the top of the pile, creating carryback across the entire profile while abrasion degrades the belt face and frays the edges.

Fugitive debris on the return side of the belt can rapidly reach the tail pulley. Once caught between the belt and the pulley, these material chunks can recycle through over and over again, each time putting a new divot in the belt, as well as gouging and fouling the pulley face.

This material can become ground into fine dust or ejected from the pulley. Plows are often used to clean the inside of the belt and protect the tail pulley and belt from damage (Figure 1).

Other equipment hazards

Many operators focus on cargo side issues and neglect the return side, where belt tracking should be of pivotal concern. When left unchecked, the belt can drift into the structure, causing fraying and the potential for a fire hazard.

While issues from fugitive material to belt tracking can cause a number of mechanical problems, each one also represents a safety hazard. If components are not functioning at 100%, there is an increased likelihood of a situation that may put a worker in danger while trying to fix the problem. An operation's interests are best served by taking actions intended to prevent the mechanical problems and the accompanying potential for injury, rather than just protecting the worker from hazards that will likely be present with guarding.

Steps toward minimising return belt hazards

According to OSHA, operators should adhere to the standards set

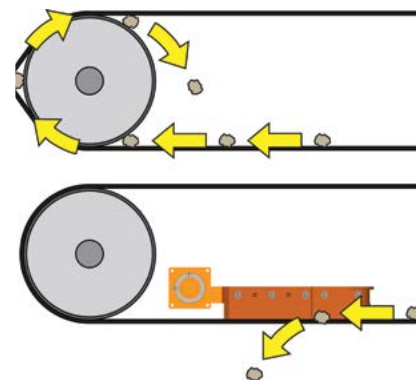
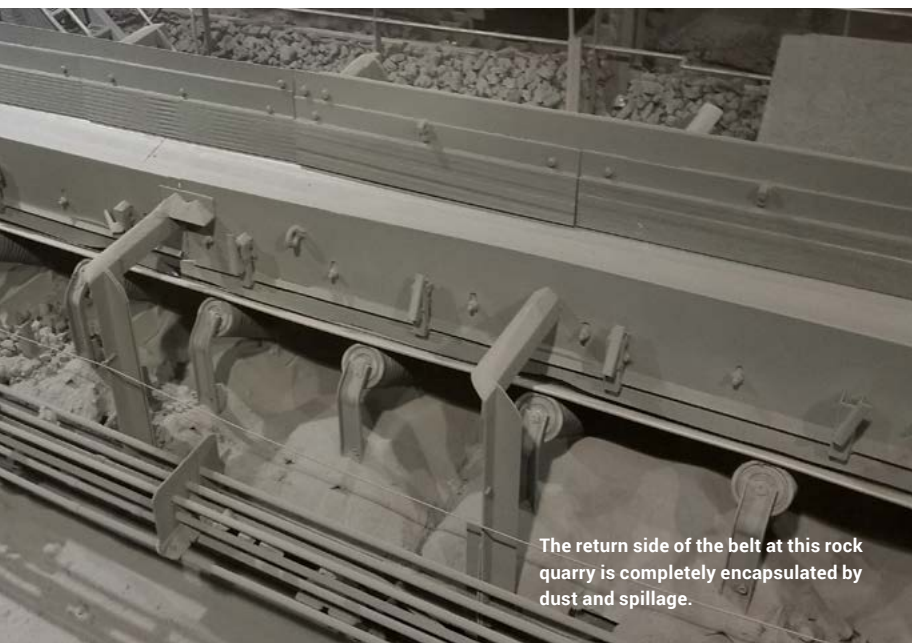
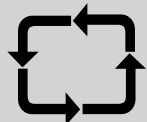


Figure 1: A V-Plow helps prevent repeated entrapment of material between the belt and tail pulley.

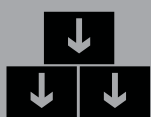
KEY TAKEAWAYS



The return side of the conveyor may be the most deceptively hazardous part of a conveyor system.



An insufficiently cleaned belt can cause carryback to drop along the entire belt path and spill into walkways or on the return belt.



Many operators focus on cargo side issues and neglect the return side, where belt tracking should be of pivotal concern.



Operators must choose the proper equipment to minimize accidents.



Figure 2: Proper signage should be displayed wherever a hazard presents itself.

Safe and efficient cleaning

In the past, belt cleaners were rigid, linear pieces of hardware made out of various materials from brick to plastic that earned the name “scrapers” or “wipers” because that’s what they did. They had a low operational life, broke or cracked often and significantly contributed to belt wear. Modern primary cleaners are usually mounted at the head pulley, made from engineered polyurethane, which is forgiving to the belt and splice, but still highly effective for dislodging cargo. Typically supported by mechanical or pneumatic tensioners designed to meet the needs of the application, the designs require significantly less monitoring and maintenance of blade tension.

As conveyor speeds and cargo volumes increase to meet production demands, secondary belt scrapers are often installed immediately after the belt leaves the head pulley to address dust and fines that escape the primary cleaner. Generally equipped with

by the American National Standards Institute (ANSI), which recommends detailed inspections of the entire conveyor mechanism. The first step is identifying potential problems before they occur (Figure 2). The second step should be putting an emphasis on training and enforcing strict lockout-tagout procedures for any activities on or around the conveyor system.

The third step is for operators to choose the proper equipment to minimize accidents. New equipment designs dispel the myth that conveyors are inherently dirty and in need of constant maintenance.



Figure 3: Innovative belt cleaning technology can improve cleaning, safety, and the cost of operation.



Figure 4: Cleaning a damaged belt with a scraper blade.



Figure 5: Thoroughly clean a damaged belt with a washbox.

spring or air tensioners that easily adjust to fluctuations in the belt, secondary cleaners are particularly efficient for applications that produce wet, tacky or dusty carryback.

In most applications, normal belt wear can yield valleys and depressions in the belt. Dust and fines that get into these blemishes often remain even after passing under primary and secondary belt cleaning blades, becoming dislodged by the impact of any return idler the belt meets (Figure 4). This causes dust and spillage in areas away from the head pulley.

In such cases, operations may choose to install a Washbox Cleaning System, which combines secondary cleaners with water spray bars enclosed in a

self-contained unit that captures residue and drains wastewater safely away from the work area (Figure 5).

Even on a clean belt, mistracking is another concern, especially for operators of long conveyors. Previous **belt tracking systems** were reactionary pieces of equipment designed to help prevent belt contact with the mainframe, however these designs have historically experienced problems with friction heat, edge degradation and belt curling.

Some longer systems may require a series of modern upper and lower trackers hung from the mainframe every 21 to 50 m and on the return run directly prior to the tail pulley.

Tail pulley protection from

build-up riding on the return side of the belt using a V-Plow or diagonal plow can extend the life of the entire system by minimizing fouling of the pulley face that can lead to mistracking.

The workhorse of tail pulley protection, the V-plow safely clears debris without harming the belt.

Installing adequate guarding that encloses the system and has the correct mesh size and mounting distance from the hazard also helps protect workers from fugitive material and reach-in injuries. For systems that are considered “guarded by location” (too high to reach), gates may not be required, although most countries have standards that require guarding against falling bulk materials.

Conclusion

From head pulley to tail pulley, return side belt care is essential to maintaining an efficient and productive system. By installing modern equipment that helps remedy common return side problems, operators reduce the time workers spend near the system servicing and cleaning it. This mitigates hazards, reduces downtime and improves compliance.

In addition to resolving many mechanical problems, these improvements will help prevent injuries caused by incidental contact with a moving belt that can pull a worker into pinch and shear points, some of the most prevalent workplace hazards in bulk handling operations. ●

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THE SIGNIFICANCE OF WARRANTIES AND AFTERMARKET SUPPORT IN CRUSHING AND SCREENING EQUIPMENT

The high-stakes industry of crushing and screening necessitates equipment that consistently performs to the highest possible standard. This technology is paramount to operations across the mining, quarrying and construction sectors, and its ongoing performance is critical. **Modern Quarrying** spoke to Francois Marais, Sales and Marketing Director at Pilot Crushtec to delve deeper into the importance of these factors.

In the selection process for this crucial machinery, factors like equipment warranties and the strength of aftermarket support are often overlooked. However, these aspects can ultimately define the operational efficiency, longevity and total cost of ownership for crushing and screening equipment.

"The choice of crushing and screening equipment goes beyond the immediate technical specifications," Marais explains. "A crucial factor that often gets overshadowed is the warranty that accompanies the machinery. The importance of a robust warranty can't be overstated. It is a key determinant in the lifecycle of the equipment, shaping the overall operational efficiency and cost effectiveness."

Risk mitigation

Marais offers a comprehensive understanding of the role warranties play in risk mitigation. "Warranties play a vital role in risk mitigation. In the event of a technical failure or manufacturing defect, a robust warranty can protect the user from incurring exorbitant costs related to repair or replacement."

These words illuminate how warranties safeguard businesses against the financial implications of unexpected equipment failures. It's the warranty that absorbs the unforeseen technical mishaps, offering businesses a layer of protection against unforeseeable expenses.

In addition to risk mitigation, warranties also provide a level of predictability in financial planning.

The Lokotrack® ST4.8™ mobile screen produces four end products with its triple deck screen, all the conveyors are hydraulically foldable, and it can be transported as a single unit.



KEY TAKEAWAYS



Warranties play a vital role in risk mitigation. In the event of a technical failure or manufacturing defect, a robust warranty can protect the user from incurring exorbitant costs related to repair or replacement.



Warranties serve as a risk mitigation tool, a financial planning instrument, and an endorsement of product quality.



Field service teams form the front line of aftermarket support. These teams should not only be adept at resolving issues but also at proactive maintenance to minimise the chances of major malfunctions.



Access to spare parts is another essential factor. It's crucial that the company has a reliable supply of spare parts.

A lack of warranty leaves businesses exposed to sudden, potentially high costs that can significantly impact the operational budget.

Peace of mind

As Marais explains, "Warranties provide a level of predictability in financial planning. Without a warranty, any breakdown or malfunction can result in unexpected and potentially high costs that could severely impact

the operational budget."

"Importantly, the presence of a warranty equips businesses with the certainty they need to manage their budgets efficiently and prepare for contingencies effectively," he says.

Lastly, the assurance of a warranty is also a testament to the manufacturer's faith in their product. It's an indication that the product has met rigorous quality control standards and that the manufacturer is willing to vouch for

its reliability, Marais points out.

"A warranty is also an indication of the manufacturer's confidence in their product. It suggests that the equipment has undergone stringent quality control processes, and the manufacturer is prepared to stand by its product in the case of unforeseen failures."

A warranty, in this regard, serves as a benchmark of quality, affirming the robustness and durability of the equipment.

Multifaceted value of warranties

The insights offered by Marais underscore the multifaceted value of warranties in the context of crushing and screening equipment. They serve as a risk mitigation tool, a financial planning instrument, and an endorsement of product quality. "Businesses need to evaluate the warranty policies meticulously when investing in crushing and screening equipment. The importance of this factor can't be stressed enough, as it has a direct impact on operational efficiency, cost management, and equipment longevity," he says.

Continuing from the discussion on the significance of equipment warranties, there's another equally vital aspect businesses need to consider while investing in crushing and screening equipment - the strength of aftermarket support. A robust warranty, while crucial, is only part of the picture. It needs to be complemented



Pilot Crushtec is one of the leading after-market genuine OEM parts suppliers across Africa and stocks over 93 000 wear and spare parts.



Having commissioned over 4 000 modular and mobile pieces of equipment, you can rest assured that Pilot Crushtec has sufficient stock for any routine maintenance services or breakdowns.



Pilot Crushtec's modular equipment is ex-stock and easy to configure, prepare and dispatch to site within days.

by solid aftermarket support to ensure equipment longevity and operational efficiency.

As Marais elaborates, "An equipment warranty may provide coverage against manufacturing defects and malfunctions, but it's the comprehensive aftermarket support that ensures the equipment continues to operate at its best over its entire service life."

Aftermarket support

This means it is critical to

consider the level of aftermarket support a company provides. The resources a company possesses for maintaining, repairing, and servicing its products form the backbone of aftermarket support. These include facilities for repair and maintenance, access to competent technical personnel, availability of spare parts and field service teams capable of promptly responding to issues on-site.

A company's facilities, for

example, can make a significant difference in the speed and quality of equipment repair and maintenance. Well-equipped facilities can quickly diagnose and address equipment issues, ensuring minimal operational downtime. Additionally, companies that have access to competent technical personnel can provide invaluable advice and solutions to complex issues, ensuring the equipment performs optimally throughout its lifecycle.

Access to spare parts is another essential factor. It's crucial that the company has a reliable supply of spare parts. Any delay in accessing necessary parts can lead to extended periods of equipment downtime, which can significantly disrupt operations and result in substantial financial losses.

"Finally," Marais says, "field service teams form the front line of aftermarket support. These teams should not only be adept at resolving issues but also at proactive maintenance to minimise the chances of major malfunctions. The ability of these teams to respond promptly and effectively can often mean the difference between a minor hiccup in operations and a serious problem leading to a halt in production."

As such, while a warranty is undoubtedly a vital part of any crushing and screening equipment purchase, it is not the only consideration. Solid aftermarket support – characterised by superior facilities, competent technical personnel, ready access to spare parts and proficient field service teams – is equally essential.

In conclusion, both a robust warranty and strong aftermarket support are critical in ensuring that crushing and screening equipment delivers on its promise of performance, reliability, and longevity. They play a crucial role in determining the total cost of ownership of the equipment and, therefore, must be carefully considered when making an investment decision in this realm. ●

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DIVERSIFYING **FOR LONGEVITY**

The Danoher brand is synonymous with providing excellent drilling, blasting, crushing and screening (both mobile and static) services. For the last 50 years the founders of the group have been regarded as leaders in their field. **Modern Quarrying** spoke to Danoher Group CEO, Scott Danoher about what gives the company the edge in a competitive market, the role of leadership and how the company's careful diversification strategy has led to it remaining such a premium-service provider, from the first hole being drilled to stockpiling of the finished product.

When the Danoher family initially established the business in 1972, it focused on road-project contract crushing. Five decades later, the Danoher Group now provides a larger portfolio of services that includes blast-planning and management, drilling, blasting, materials handling, mining and the processing of minerals. This is achieved by using the latest and most advanced equipment technology to produce construction and mining aggregates that meet Danoher clients' specifications and needs.

"Danoher's service offering centres around being a solution-focused end-to-end business that is able to provide tailored solutions where our service offering is needed. This can vary from infrastructure projects, our own commercial aggregate sources through to mining applications. Being a service provider of choice is achieved with operational excellence which includes our support departments," says Danoher.

The company specialises in drilling and blasting operations ranging from smaller scale trenching blasts to construction cuts and larger mining operation blasts. Its flexible crushing and screening solutions enable the company to cater for short and longer-term project solutions and it has an extensive in-house fleet to support this.

Danoher has more recently acquired three aggregate quarries in Botswana. "Acquiring these quarries in the challenging current market conditions, escalating input costs, the higher cost of capital expenditure and lower demand, is risky but the company carefully manages such risks," says Danoher.

"We definitely do not have a 'growth for the sake of growth' mindset. We are conservative and cautious. We very carefully choose what projects we do. Our golden rule is that no one project is big enough to put the entire organisation at risk and cognisant of the geographies we penetrate in terms of its plant, people and security risks."



KEY TAKEAWAYS



The Danoher Group provides a large portfolio of services that includes blast-planning and management, drilling, blasting, materials handling, mining and the processing of minerals.



Danoher's end-to-end approach begins by identifying the source, understanding the geology, through the production process to the required product. The company operates throughout Southern Africa where it has in excess of 50 crushing and screening plants and seven drill rigs.



Danoher embraces technology as this supports its image of reliability and agility – be it investing in the latest equipment to reduce product throughput costs, accurate weight monitoring or the use of drones for monitoring, planning and even health and safety aspects.



Danoher manage exposure through selective diversification.

Operational risks

Danoher says the company does take careful operational risks with the aim of providing the ultimate value-add service to clients.

"We are selective as to who we work for. Firstly, clients must have the ability to pay and must value our expertise. Currently, we are the holders of a fair number of mining authorisations, which enable us to mine for ourselves while we also contract in both the mining and construction spheres. In short – we manage exposure through selective diversification," Danoher explains.

Leadership

"Quality leadership is probably the scarcest commodity on earth," says Danoher. "Leadership is about providing direction and not telling employees what to do on a daily basis. My opinion is that an organisation is best served by having a concentrated leadership who has the correct information to make good decisions and that



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We purchase only trusted brands: Metso for crushing and screening, Atlas Copco for drill rigs and Volvo for mobile equipment,” says Danoher. “These are maintained to the highest standards, ensuring optimal plant availability.

allows the rest of the organisation to follow and execute,” he says.

The company's growth strategy is a blend of contract mining and holding rights to the resource. This is not limited to aggregates but there is a diversification into different commodities.

Optimal solutions

“Danoher has an approach that is solution based. Collectively, we understand the correct application that is required to solve the clients' problems. This includes factors such as the geology, an understanding of what must be

achieved and what the optimal product must be so that we can optimise the process to achieve this.

“We continually push ourselves in terms of being innovative at the top end of the market. The more complicated the geology of the source, the more complicated the specification. In a competitive market, the competition becomes less when you are at the top end. More refined customers are willing to pay for the value-add solution that we offer. This is how we differentiate ourselves in terms of being competitive,” says Danoher.

Cradle to grave solution

From an operational point of view, Danoher offers a cradle to grave solution. “This end-to-end approach is from identifying the source, understanding the geology, through the production process to the required product.” The company operates throughout Southern Africa where it has in excess of 50 crushing and screening plants and 7 drill rigs.

“We purchase only trusted brands: Metso for crushing and screening, Atlas Copco for drill rigs and Volvo for mobile equipment,” says Danoher. “These are maintained to the highest standards, ensuring optimal plant availability,” he adds.

“We also embrace technology as this supports our image of reliability and agility – be it investing in the latest equipment to reduce product throughput costs, accurate weight monitoring or the use of drones for monitoring, planning and even health and safety aspects.”

Danoher points out that the company prefers to manage the entire process of a project. “We feel more comfortable when we are in control of risks and potential downstream costs and opt for an end-to-end process that can be executed by our highly skilled and experienced staff.”

He adds that Danoher steers clear of the one size fits all approach. “We see ourselves as a premium service provider and our business is primarily repeat business.”



how we can improve our skill set to enable us to entertain any market condition. In addition, in a dynamic environment like this, a certain degree of agility is important.”

Danoher says that even though good control is a key concept for the company, the industry has various aspects that cannot be controlled. “Trying to forecast the market can be a little bit of a mug’s game because there are so many factors at play such as the slow (and at times erratic) rate by which government is spending.”

He says that Danoher’s supply to the construction industry – based on the number of projects – is as buoyant as it has ever been specifically referring to road infrastructure. The company is currently working on projects in the Free State, Mpumalanga, Gauteng, Eastern Cape, KwaZulu-Natal while it also has commercial quarries in Bloemfontein, Gaborone and Francistown.

“There are a number of reasonable projects in the pipeline and we are fortunate that we are working at full capacity,” concludes Danoher. ●

Diversify to weather storms

Because it is difficult to predict what will happen in the industry, Danoher diversifies. “We diversify ourselves so we are not exposed only to one industry. We don’t keep ourselves awake at night trying to forecast a specific industry. We keep ourselves awake at night with

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TAKING WEIGHING INTO THE 21ST CENTURY

In an increasingly cut-throat industry where optimal productivity is key, it is vital for quarry operators to accurately and efficiently measure loads. Accurate on-board weighing solutions not only enable operators to load correctly, but it also leads to precise and faster loadout processes while it can track the productivity of loadout at quarries. **Modern Quarrying** spoke to Ivan van Heerden. Director of Dynamic Weigh Systems about the benefits of its systems for the quarrying industry.

Dynamic Weigh Systems (DWS) is a leader in the supply and installation of vehicle on-board truck scale systems and the associated software across various industries – including quarrying. “The range of VEI on-board scale systems that DWS supplies, enables operators to confidently manage their fleets with the easy-to-use on-board weighing solutions,” says Van Heerden.

VEI's range of on-board scale systems are cab-mounted meters that display gross weights, as well as the weight of individual axle groups. “DWS can supply customers with the on-board systems that are needed – whether simple or complex. We will design, supply and install it to a wide selection of vehicles and machines.”

The VEI product is manufactured in Italy while the sensors are manufactured in Germany.

Dynamic Weigh Systems

“DWS came into being in 2010 when I secured the agency for VEI Group, the people who developed the first onboard systems using hydraulic pressures,” explains Van Heerden. The company now services Southern Africa as well

as West and East Africa, while DWS has supplied systems to Guinea and Mauritius.

“We have partnered with Trysome Auto Electrical in order to massively expand our footprint and to provide faster service times and installation options. As Trysome is already on many sites it obviates delays caused due to inductions etc.,” Van Heerden says.

“VEI is the global leader in the field and is ahead of its competitors with regards to reliability and length of service in field for systems. The first system we installed in 2010 is still operating. VEI constantly evolves its products and software and this translates into rapid correction of any software glitches – should they occur,” states Van Heerden.

He says this is what gives DWS its unique selling point. “DWS is linked to a global network of dealers and installed systems. This ensures any question a client may have has been answered or done somewhere on the planet and can be used locally. In addition, the full three year warranty on systems and sensors, is unmatched.”

Optimising payload

“Payload optimisation makes sure that the rated capacity of the loading machine is utilised,”



says Van Heerden. “If an ADT, for example, is regularly overloaded, the running costs are increased. Our systems lead to such an ADT being loaded correctly,” explains Van Heerden.

On-board weighing systems allow for maximum vehicle productivity. By eliminating excess loading at the loading point there is no need to return from a weighbridge at the exit to unload



KEY TAKEAWAYS

0.00

VEI's range of on-board scale systems are cab-mounted meters that display gross weights, as well as the weight of individual axle groups.



The systems can be customised to suit the needs of the user, whether this is simple or complex.



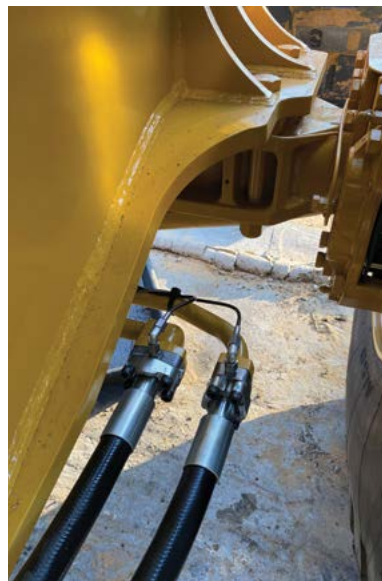
One of the advantages of the VEI systems is that they can constantly be upgraded as the client's needs change without having to resort to trade-in programmes or the replacement of head units.



DWS has the ability to tie into third party telematics systems so that clients can integrate the weighing information into their FMS without any problems.

excess material.

"Trucks being loaded at quarries now proceed directly to the weighbridge and then proceed to go off-site, which obviously speeds up throughput. By using loading tools, haul trucks are only loaded to their rated payloads. This decreases costs while productivity is improved by either adding trucks to the pass or taking them away from a line



that is forming queues," says Van Heerden about how the system can reduce the cost per kilometre by optimising the payload.

Tailored to the client's needs

Starting from as small as pallet jacks and forklifts through to the biggest rigid dump trucks and excavators, Vei Systems has a product that will help with the measurement of loads for any application.

The systems can be customised to suit the needs of the user, whether this is simple or complex. "Our systems have been designed specifically for the third world market. The keyboard and menu systems are easy to use and intuitive with no need for touch screens which have their own problems in field as they can be damaged by users," says Van Heerden.

"One of the advantages of the Vei systems is that they can constantly be upgraded as the client's needs change without having to resort to trade-in programmes or the replacement of head units. From the simple weighing of pallets on forklifts to complex transactions





We also offer telephonic support as many questions can be easily resolved without a costly site visit," Van Heerden explains.

"We carry a full range of spares and have facilities to test and repair units both infield and at our head office," says Van Heerden.

Robust for a tough environment

Van Heerden says the VEI system is extremely robust. "We have systems working 3 000 m above sea level in Lesotho and units that are used 2 500 m underground. All units are certified by TUV Rheinland."

The systems are temperature tested, dust and humidity proof, have no ambient interference, and are vibration protected to allow maximum productivity which maximises profits and minimises downtime. ●

in container ports – all can be accommodated. We also have the ability to tie into third party telematics systems so that clients can integrate the weighing information into their FMS without any problems," says Van Heerden.

Once a client has decided on the right system for the task at hand, DWS Systems installs it, and provides training. "We firmly believe that the system is only as good as the training provided. On each installation, time is spent not only with the operators but the training officers and site supervisors.

The benefits of Dynamic Weigh Systems' onboard vehicle systems

▪ Payload monitoring

The systems provide real-time load monitoring capabilities so that vehicle operators know the precise weight of their vehicle load, allowing for increased payload optimisation.

▪ Overload identification

As a result of monitoring total axle load on the

vehicle, the systems identify and alert operators when they approach or exceed the safe and legal limits of the vehicle's weight load.

▪ Data export and monitoring

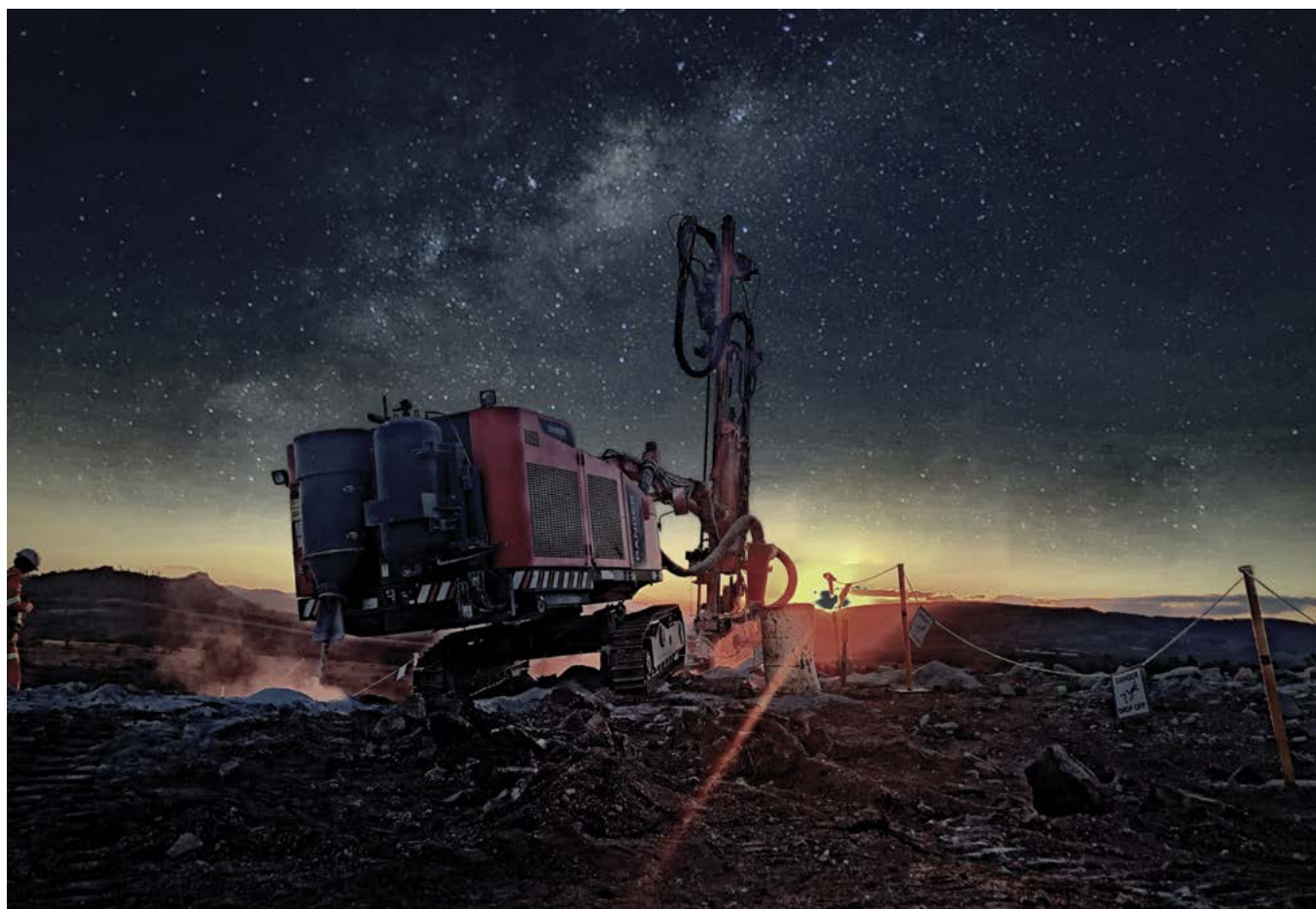
Exporting collected data to the customer's desired network allows them to monitor individual vehicle loads and locations in real-time, perfect for fleet management.

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MAXIMUM FRAGMENTATION AND MINIMUM OVERSIZE

Established as a sole propriety in 1994, Demwreck is a drilling and blasting company servicing the aggregate, cement and mining industries. In addition, it offers contract drilling and rock on ground services. The company started out with hand-held rock drills and pneumatic breakers. “We cut our teeth with air crawlers and compressors doing drilling, blasting and demolition,” says the Managing Member, Pieter Nel. “Today the company is using the most advanced hydraulic drill rigs and hydraulic rock breakers the market can offer and has become a major role player,” Nel tells **Modern Quarrying**.

Demwreck currently services 15 quarries in South Africa by providing quality drilling and blasting solutions. “Our client base ranges from corporate clients to privately owned mines and family operated ventures. We currently have a base of operations in seven of the nine provinces in South Africa, with past exposure into Africa as well,” Nel explains. The company does work for Raubex and its subsidiaries, Unitrans, Trollope, Lafarge, Afrimat, Sephaku Cement and various privately owned entities.

Keeping up with evolving technology

For the past 29 years Demwreck has aimed to constantly improve with technology as it evolves. “We make it our business to keep our fleet up to date with the best and most modern machinery available in the global market,” says Nel.

“We are a safety and maintenance driven company and our approach is to ensure the least possible amount of downtime on the clients’ site, as we understand that time is money.”

Demwreck is currently the biggest fleet owner of Furukawa drill rigs in South Africa. “We also utilise Sandvik drill rigs in our fleet. The different drill rigs



we treat each drilled hole as an asset, taking care in securing collars and preventing collapses,” says Nel.

“Due to our high standard of maintenance, we are able to utilise our machines between 12 000 and 15 000 hours, after which they are replaced with the latest offerings from our OEMs.”

Demwreck ensures drilling efficiency and minimal hole deviation by ensuring drill bits are constantly sharpened with on-site drill bit grinders.

Ensuring maximum fragmentation and minimum oversize

The Demwreck team are market leaders in providing level quarry floors, maximum fragmentation, and minimum oversize. “Our incorporated technologies and standard operating procedures make it possible for us to provide a client with the best drilling and blasting solutions in the country as the end result. We use electronic initiation systems, together with blast simulation software and attention to detail on blast designs. Our blasters receive in-house and external training on the latest software, hardware and the latest generation of electronic detonators,” says Nel.

“Our blasters are fully certified with all the required institutions – Inspector of Explosives and DMR. All our drill rig operators and our excavator operators are certified with the MQA and all personnel have valid medical certificates,” concludes Nel. ●



Our state-of-the-art workshops and offices are situated in Sunderland Ridge, Centurion. This provides a hub from where all administration and most maintenance are done, and it serves as a platform to supply support to our branches in the Northwest Province and KwaZulu-Natal.

have their own specific abilities and characteristics, and we strategically apply each rig in order to service the various needs in the mining industry,” Nel explains.

Demwreck is focused on safety and its approach is to minimise downtime and to maximise productivity. “Our state-of-the-art workshops and offices are situated in Sunderland Ridge, Centurion. This provides a hub from where all administration and most maintenance are done, and it serves

as platform to supply support to our branches in the Northwest Province and KwaZulu-Natal,” says Nel.

Demwreck’s approach to maintenance is what gives the company its unique selling point. “We find ourselves in a maintenance driven environment. A well-maintained machine is a safe and productive machine. Attention to detail is the key to a successful drilling and blasting business. We use laser levelling technologies to help ensure level bench floors and



OVERHAULING HAUL ROAD MAINTENANCE

There is something to be said about a person who looks at their current situation and makes choices that decrease future risk or increase the potential for prospective payoff. This article is about a broad range of topics - including haul road maintenance. **By Josh Swank, Vice President of Sales and Marketing, Philippi-Hagenbuch Inc.**

Haul road maintenance can easily be categorised as just an unavoidable expense. While it is a fact that haul roads must be maintained, there are ways to decrease ongoing costs with preventative maintenance and boost efficiency in the process. Through preventative maintenance, operations can address areas that may seem small in the present moment but reduce risk of more significant downtime and headaches in the future. The key is to incorporate equipment that helps operations realise the long-term benefits.

Tread lightly on haul truck tires

Every minute an operation spends on active haul road maintenance, such as clearing debris or bringing in additional material to repair the effects of wash boarding, takes a minute away from producing and generating revenue. This expense significantly compounds over time. Consider also the cost of damaged tires, and the financial benefit of proper haul road maintenance quickly adds up.

Mining operations can shell out over USD25 000 to replace just one tire on a haul truck. Poorly maintained roads are harder on tires, which causes them to wear out faster. Not only does this force more frequent replacement, which subsequently increases costs, but damaged tires also impact operator safety since a haul truck operating on even one problematic tire can easily go out of control without warning.

Adopting preventative haul road maintenance practices that keep roads in good condition significantly reduces these costly risks. Additionally, it offers greater capacity for operations to focus on production and profit, rather than diverting resources to repairing roads and replacing tires..

Don't pave the haul road with payload

Good haul road health starts with prevention. Many haul roads contain an incline, so naturally, gravity pushes the material to the back of the truck beds. When operations use standard off-the-shelf truck bodies, whether driving on the steep part of the haul road or not, material spillage is common because the truck body



KEY TAKEAWAYS



Every minute an operation spends on active haul road maintenance, such as clearing debris or bringing in additional material to repair the effects of wash boarding, takes a minute away from producing and generating revenue.



Adopting preventative haul road maintenance practices that keep roads in good condition significantly reduces these costly risks.



When looking for a water tank, don't overlook the shape of the tank. While it may seem insignificant, square tanks haul about 20% more water than round tanks with the same basic exterior dimensions.



Tailgates added to a standard haul truck allow operations to maximise capacity without risking material spillage.

is not optimised for the material it's hauling and the open back allows gravity and bumps to slide material off the back onto the haul road.

Tailgates added to a standard haul truck allow operations to maximise capacity without risking material spillage. Without a tailgate, operators tend to adjust their loading strategy to decrease the amount of material they place in the truck while also moving the loading target to the front of the body to prevent spillage. Because of this, trucks often carry 10-20% less than their rated capacity and the additional weight in front leads to faster front tire wear. This is simply not affordable.

While tailgates provide an excellent option to address spillage, mines can fully maximise hauling capabilities by replacing the OEM's standard haul truck body with a custom-engineered body designed to fit the specific needs of the operation.

Custom truck bodies are also designed to address spillage and ensure that the material stays in the truck and does not spill out the

back or sides onto the haul road. They are engineered to match the body shape to the mine's material, loading equipment and haul road inclines to ensure the truck body is optimal for all aspects of the operation. Some manufacturers also add a liner to protect against abrasive or sticky materials that could cause extreme wear or carryback.

Things that don't glitter can still be gold(en) opportunities

For smaller haul trucks, such as those used in quarries, gold mines and environments that use haul trucks in areas with low overhead clearances, operations should consider a custom rear eject truck body.

Once the initial phase of building the haul road is complete, operations can pair their rear eject with a material spreader attachment for finishing touches and ongoing maintenance. Material spreader attachments round out the haul road building process as they fine-tune and place any additional material needed for a

smooth surface. Later, material spreaders fill in maintenance gaps – both literally and figuratively – to maintain a good base layer of material, effectively addressing the washboard effects common on gravel roads.

The spreader attachment also increases haul road maintenance efficiency when dealing with the effects of winter weather. When snow and ice lead to dangerous haul road conditions, the traditional action is to dedicate crews of up to four people to spend a whole day spreading sand for safety. This reallocation of labour and resources negatively affects the mine's overall efficiency.

Water tanks for the win

Another integral product for haul road maintenance is a water tank. Often overlooked in importance, the water truck serves as an important tool for meeting dust restrictions and extending the life of the haul road. However, to maximise safety and efficiency, a customised solution offers the best option. By incorporating a custom water tank



design, mines can convert an older haul truck into a water truck, extending the life of the truck and maximizing their equipment investment. Properly spraying down haul roads prevents dust from migrating from the haul roads, thereby reducing the need to add more material as time goes on.

When looking for a water tank, don't overlook the shape of the tank. While it may seem insignificant, square tanks haul about 20% more water than round tanks with the same basic exterior dimensions. They also improve safety by creating a lower center of gravity. The tank's baffling system should also be designed to prevent water from churning and surging to improve stability and overall safety.

Additionally, it is important to look for a water tank that provides drivers with precise control of the tank's water output. Individually controlled

spray heads make it easier for drivers to optimize water use while reducing the risk of oversaturating haul roads. With some systems, operators can turn on the individual spray heads and program a spraying interval. By boosting precision in water output, operations can increase safety and efficiency.

Change your future self will appreciate

When a mining operation sends a maintenance person or crew to clean and maintain a haul road, they give up the time that would otherwise be spent maintaining equipment.

It is a simple fact that risks such as these are a part of business. However, just as an apple may help decrease the risks that lead to a doctor appointment, certain preventative maintenance practices in mines offer the potential to decrease the risk of future challenges. ●

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compared to paving or tar roads.

CHRYSO ECO DUST MINIMISES DUST EMISSIONS

An innovative range of dust suppressants available from CHRYSO Southern Africa continues to be a gamechanger in the mining and quarrying sectors, providing substantial benefits and enhancing operational efficiency.



CHRYSO Eco Dust has a proven track record as an indispensable tool for industries operating in dusty environments. Michelle Fick, BU Development Manager: Concrete Aesthetics and Key Accounts, at CHRYSO Southern Africa, says this range of dust suppressants offers a comprehensive approach to sealing and maintaining dirt roads, gravel pathways, and other dusty surfaces.

"One of the major advantages of CHRYSO Eco Dust is its cost effectiveness," Fick says. "Compared to alternatives such as paving or tarred roads, implementing the CHRYSO Eco Dust solution leads to significant cost savings. This is particularly important for operations facing challenging economic times as there is immense value in reducing maintenance expenses while achieving optimal dust control."

She explains that CHRYSO Eco Dust provides long lasting effects, ensuring that roads and surfaces remain dust-free for extended periods. This characteristic is crucial in industries where regular

maintenance and constant dust suppression efforts are time consuming and costly. By reducing the frequency of reapplication, CHRYSO Eco Dust streamlines operations and minimises disruption to daily activities.

Another major advantage offered by CHRYSO Eco Dust is its eco-friendly nature. The product is designed to be environmentally sustainable, with low volatile organic compound (VOC) emissions and UV resistance. Industries, especially those subject to stringent health, safety, and environmental regulations, have welcomed CHRYSO Eco Dust as a viable solution to ensure compliance while minimising their ecological footprint.

Fick is quick to point out that CHRYSO Eco Dust has gained traction in mining and quarrying operations. "These industries, which are often located in environmentally sensitive areas, face increasing pressure to minimise dust emissions and their impact on surrounding communities. CHRYSO Eco Dust not only helps meet regulatory requirements but also significantly reduces fuel and

water consumption and carbon dioxide emissions associated with traditional dust control methods, such as water tanker spraying. The result is a greener and more sustainable approach to dust suppression."

Moreover, CHRYSO Eco Dust improves overall safety in dusty environments. By minimising dust particles in the air, visibility is enhanced thereby reducing the risk of accidents. The improved road gripping also enhances traction for vehicles, further contributing to safety and preventing potential mishaps.

CHRYSO Southern Africa's commitment to providing a comprehensive solution extends beyond mining and quarrying. The versatile applications of CHRYSO Eco Dust have made it a preferred choice in cement plants, precast yards, building sites, farms, game reserves, rural airfields and other areas where dirt roads and dusty surfaces require sealing and maintenance. Even less developed residential areas and sandy football pitches can benefit from the long lasting effects of CHRYSO Eco Dust. ●

FIVE TIPS WHEN CHOOSING A DIESEL OR ELECTRIC PUMP

Every dewatering project will invariably demand a specific priority – such as the volume to be pumped, the amount of solids in the liquid, emission limits or performance; meeting this need requires a grasp of diesel and electric pumps' comparative advantages.



According to Steve du Toit, product manager at IPR, there are five main considerations to bear in mind. As a leader in dewatering solutions with over 16 years in the business, IPR was recently appointed as the master distributor in Southern Africa for Atlas Copco dewatering pumps. IPR carries a wide range of diesel powered and electric Atlas Copco pump solutions, for purchase and for rental.

"The **first consideration** is usually the volume of water to be discharged, and this relates to the power and flow of the pump," says du Toit. "Atlas Copco's diesel powered centrifugal pumps are designed for high volumes – with a typical flow range of 10 to 1 500 cubic metres per hour."

Related to the pump's power is the head it can achieve, which for these pumps can reach over 50 metres. He notes that the pumps are also able to operate in a variable speed range, so they can manage different flow-head combinations.

"By way of comparison, electric submersible pumps can offer power ratings up to around 80 kW and can typically manage flows up to 20,000 litres per minute with a maximum head of 85 metres," he explains. "This range is typical but

there are some higher head pumps also available."

The **second consideration** is the amount and nature of solids in the water to be pumped. Diesel driven centrifugal pumps can manage both clean and dirty water as well as water carrying trash and fibrous materials. Thanks to features such as semi-open impellers and abrasion-resistant pump casings, these pumps can handle solids up to 76 mm in size.

"In contrast, electric submersible pumps have the ability to handle abrasive materials and solids up to 12 mm – or even higher with sludge pumps," he says. "When a project involves the pumping of suspended solids, it is ideal to equip the pumps with hardened impellers."

Thirdly, it is important to consider the application's particular limitations; underground mining, for instance, will usually require the units to be easily portable and to have no emissions. This makes electric submersible dewatering pumps the right choice.

"On the other hand, fully automatic self-priming diesel centrifugal pumps are the de facto choice for delivering fast dewatering solutions to sites where an alternative power source, such as a generator or mains feed, is not available," says du Toit.

He highlights the performance of dewatering pumps as a **fourth point** to consider. Submersible pumps can provide days of unattended dewatering operations – even in the toughest environments where the water table needs to be lowered.

"They will also have less noise impact on the immediate environment, so they can be run during the night even in densely populated areas without causing any disturbance," he said. "Some models can run for up to 2 000 hours without needing attention, and can even sustain dry running conditions."

Atlas Copco centrifugal pumps have fuel autonomy of around 40 hours, and can continue to operate even when significant volumes of air are introduced. They can run in these 'snore' conditions as a result of an oil-free diaphragm vacuum pump's automatic priming. Extra-large fuel tanks can allow them to run for longer periods without refuelling.

The **fifth factor** in selecting pumps is the maintenance and service, says du Toit. Atlas Copco's electric submersible pumps are extremely durable and offer high wear resistance. The modular construction of these types of pump provides for simplified maintenance procedures – with some models equipped with on-site servicing and parts replacement kits, including seals and impellers.

"Maintaining centrifugal pumps is also easy and simple, with the exception of replacing wear parts and engine filters," he concludes. "An important feature of this type of equipment is the inclusion of advanced controllers with data monitoring capabilities; these can alert the owners or operators when service interventions are required." ●

THE **REAL** DEAL

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With an operating weight of 23 800kg, JCB's 467ZX Wheel Loader is the ideal loading tool for mining, quarrying, and large construction projects. It ticks all the boxes by providing class-leading productivity and fuel consumption while keeping the operator comfortable in the spacious cab. Even better, it's sold and supported by Bell Equipment South Africa with its strong network of branches across the country. **CONTACT YOUR NEAREST BELL CUSTOMER SERVICE CENTRE TODAY TO FIND OUT MORE.**

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