

ETT — FROM RICHARDS BAY TO THE WORLD



CONDITION MONITORING: Condition monitoring: simple in principal, complex in application, essential for every fleet

ATTACHMENTS: The attachment revolution: turning tool carriers into versatile instruments

COMPACT EXCAVATORS: Compact excavators — leading the road to electrification



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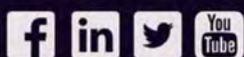
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IS RENTAL THE REPRIEVE FLEET OWNERS NEED?

Traditionally, local capital equipment owners have generally preferred outright purchase and ownership of their assets. The majority of large fleet operators still own their assets and equipment. Owning equipment and other hard assets, such as warehouses or property, may be part of company culture or simply a financial preference. Additionally, some companies prefer to own because it gives physical assets and a sense of control over them.

However, in recent years the situation has changed significantly as varying dynamics – including the size and duration of projects,

as well as the general tough economic conditions – have had a far-reaching impact on fleet owners' businesses. It is for these reasons that the rental culture is entrenching itself in the local market.

One of the areas where this is apparent is in the trucking industry. In an environment where transport contracts are few and far between, and those that are available have become shorter, rental gives fleet owners the flexibility they need to navigate the tough economic climate.

In a recent chat with Scania Truck Rental executives, they confirmed that they had seen significant growth of their rental business in recent times. The rental trend, according to Scania, is largely driven by the growing emerging contractor sector, especially in communities situated close to mines.

This group of customers is benefitting from the mines' enterprise development programmes, with most of the transporting tasks outsourced to them, especially in the coal industry. Consequently, a large portion of Scania Truck Rental's fleet is operating in the commodity market, especially coal, with the tipper application taking preference. Scania also has its own enterprise development strategy, which helps emerging contractors through tailored pricing, packages and recommendations, but subject to minimum qualifying criteria.

As you will see in this edition of **Capital Equipment News**, another company that has found the rental route an amicable one is Global Oil, the largest 100% black-owned fuel retail company in South Africa. It took delivery of its first Scania rental truck in March 2017 and three months down the line, it had already grown its rented fleet to five. Having grown its filling station business to more than 120 sites across South Africa, the company's Scania rental fleet is now in excess of 20.

By embracing rental solutions, fleet owners can obtain the trucks they need without the upfront costs and credit constraints associated with outright purchasing. Renting also reduces the need for a down payment and allows fleet operators to redirect the little cash they have to other areas of the business.

With the current COVID-19 scenario and the subsequent tough economic conditions, one would think that rental would be the standard across the capital equipment space. Surprisingly, that's not the case in the material handling and industrial equipment sector. To provide context, CEO of EIE Group, Gary Neubert recently noted that what he thought might herald the move to more of a rental market did not transpire in a significant way.

The company had predicted that its materials handling and industrial equipment customers would choose the rental route to preserve their cash-flow situations. Instead, what happened is that the interest rate dropped and banks continued to lend money. For many of the fleet owners, it made more sense to purchase equipment than go the rental option.

EIE initially envisaged COVID-19 to be the transition driver to a mature rental market like the United Kingdom where more than 80% of the business is rental. However, its rental business has only increased by about 10%, from 50% before COVID-19 to about 60% now.

There is no right or wrong in renting or buying – fleet owners just need to know when to consider either of the options, depending on their financial situation. Renting or buying is a decision that many will be divided upon, but everyone can agree on the favourability of rental at the moment. It is quickly becoming a staple for many businesses and can bring many benefits. 🌟



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ETT has set the standard in the water tanker business over the past 20 years.

ETT — FROM RICHARDS BAY TO THE WORLD

Founded 25 years ago, ETT has over the years expanded its traditional off-highway tanker trucks business to become a global designer and manufacturer of a diverse line of open pit mine support equipment and specialised mobile industrial equipment aimed at improving productivity and safety. Now offering a line of more than 70 machines, complemented by strategic global partnerships, the company has in the past five years embarked on a global expansion strategy with resounding success, writes *Munesu Shoko*.

Building a company with staying power is no easy feat. The ability to weather storms and compete over decades – and longer – is a primary metric for the success of any business. Every organisation is unique, and there is no precise formula for sustaining a business long term.

For ETT, its 25-year success is owed to offering products and services that continually surpass customer expectations, as well as nuanced growth strategies – of which internationalisation is one – and a close understanding of the competitive marketplace.

Reflecting on the past 25 years, co-founder Richard Everingham tells *Capital Equipment News*



QUICK TAKE

ETT's 25-year owes to offering products and services that continually surpass customer expectations, as well as nuanced growth strategies



ETT was founded on its ability to design and manufacture ultra-low centre of mass off-highway tanker trucks



Now offering a line of more than 70 machines, complemented by strong global partnerships, the company has in the past three years embarked on a global expansion strategy with resounding success



ETT recently formed a 50/50 JV partnership with ASX-listed Austin Engineering



that a combination of design capability, technical excellence and manufacturing flexibility provided the business with a strong foundation for its long-term success. ETT was founded on its ability to design and manufacture ultra-low centre of mass off-highway tanker trucks.

"We have been and are still successful with our traditional off-road tanker business. We set the standard in water tankers some 20 years ago and still remain the market leader in that segment in sub-Saharan Africa. We have also revolutionised the off-road lowbed trailer and lubrication service vehicle business on the continent," he says.

In addition to its traditional mining support equipment business, ETT added the aluminium smelter logistic vehicle business to its portfolio in 1998. Since then, the company has established itself as a go-to solutions provider of mobile equipment for the aluminium smelter industry in southern Africa. This has led to the conclusion of a technology sharing and manufacturing agreement with GLAMA Maschienbau, GMBH, where ETT will manufacture a range of GLAMA equipment at its factory in Richards Bay, South Africa.

Strong OEM partnerships

One of ETT's strong points is the trust it has established with large international original equipment manufacturers, such as Caterpillar, Komatsu, Volvo Construction Equipment, Bell Equipment and Hitachi.

Andre Mc Duling, MD of ETT, says it is one thing for any self-respecting engineering company to take an OEM's piece of machinery and modify it, but it is quite another to maintain that machine's warranty and to ensure that it remains reliable and safe after the adaptations.

"Although our business is based on adapting or adding to large OEMs' products, there is still a lot of engineering that goes into it, without compromising the integrity of the OEM product. We have demonstrated our engineering capabilities over the past 25 years, gaining the confidence of global OEMs in the process," says Mc Duling.

ETT, for example, has a limited manufacturing agreement with Caterpillar and intellectual property agreements with Volvo CE and Bell Equipment. While the relationships extend to all major OEMs, Mc Duling explains that the company has formal agreements with these three OEMs. The Caterpillar limited manufacturing agreement has been aided by the local Cat dealer, Barloworld Equipment's localisation strategy, and is reinforced by a frequent interaction with



The newly-launched Austin Ultima truck body continues to break lifecycle costs and production records.

Caterpillar's corporate representative.

Commenting on the changing dynamics in the equipment market, Mc Duling says because of the increasing need for machines to be safer and the rapid move towards autonomy, there are more and more electronics installed on big machines. It's, therefore, important for engineering companies to work closely with OEMs when modifying these machines to make sure that their systems integrate seamlessly with the OEMs' systems in order to maintain the performance, and more importantly, the safety of the products. ETT has established a strong integration function within the organisation, which makes sure that all adaptations meet OEM standards.

Global expansion

Traditionally, ETT's business has been concentrated in its home market of South Africa. However, in the past five years, the company has embarked on a global expansion programme, which has already yielded massive success. To provide context, between 2011 and 2012, 85% of ETT's business was locally based, but today 75% of its business is export.

"It has been a priority for us to expand our footprint into the global market. For a small company that comes out of an area that traditionally doesn't make a lot of specialised equipment for export markets, we are very proud of the progress we have made thus far in our global strategy," explains Mc Duling.

The company intensified its export strategy some five years ago with an OEM aligned push into Africa anchored by the appointment of key accounts operations executive, Andrew Stainland, who with more than 20 years' experience in OEM engineering, manufacturing and service, is focused on ensuring world class client experience in a challenging region. Key to the success in Africa is ETT's strong support structures across the major mining regions on the continent. The company has placed a major focus on four major regions – West Africa, Central, Southern and Eastern Regions.

West Africa, says Mc Duling, offers the biggest opportunity to date, with ETT currently involved in a major project in Ghana and southern Mali. The company has successfully completed several projects in Gabon and Liberia. The Central Region, anchored by the DRC, offers great opportunity through an array of mining projects. In the Southern Region, Zambia and South Africa remain the two major markets, while the Eastern Region is predominantly Mozambique.

To maximise opportunities in these markets, ETT has set up local support structures, in line with the host governments' push for indigenisation. The company has a local, established company in Botswana, which allows it to manufacture in the country. This is complemented by two entities in Mozambique, one supporting the aluminium business and the other



focusing on the traditional mining interests. "We are also currently setting up shop in Zambia, with Ghana following later this year," says Mc Duling.

Elsewhere, ETT has just established local representation in the United States to support its products in that market. The United States is one of the most important markets in ETT's global strategy, and the company has just delivered its first equipment, designed and manufactured in South Africa, to the US market.

Key partnerships

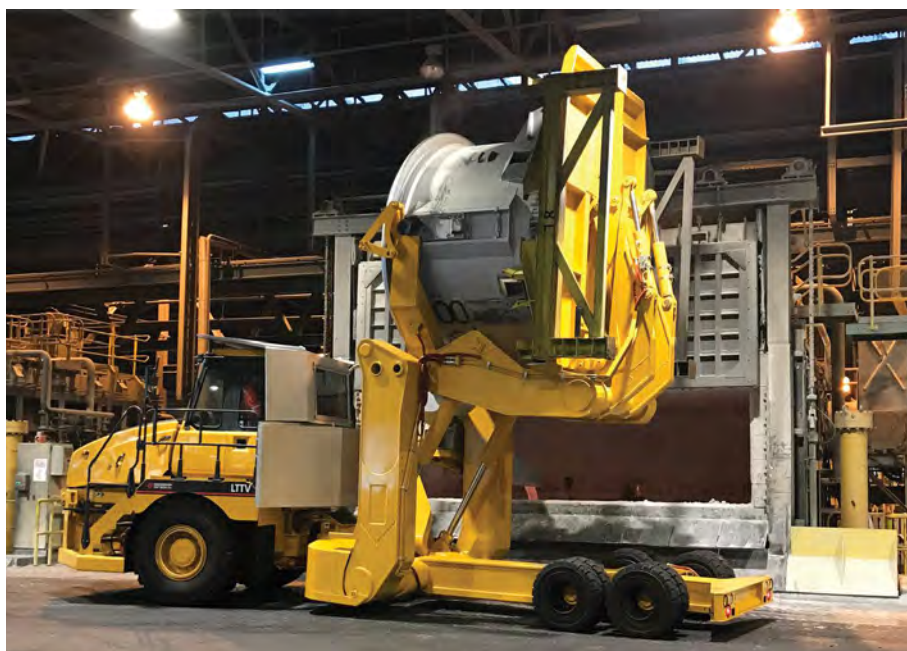
Equipped with well-engineered, state-of-the-art products, ETT has in recent years prioritised strategic partnerships as part of the global expansion strategy. "Evidence of the world-class nature of our offering is that it has been easy to find good partners in the world," says Mc Duling.

One such partnership is with ASX-listed supplier of customised equipment to the global mining industry, Austin Engineering. The two companies entered into a joint venture (JV) in January this year, which allows them to manufacture each other's products in their factories.

"Three years ago we appointed Donald Paynter, an internationally experienced business development executive with broad knowhow of the yellow metal industry to find the best global partners that trade in the same segments as we do, mainly mining and aluminium. We also identified several key global markets of interest, mainly the Americas (Canada, North and South America),



One of the most exciting products for the Austin-ETT JV is off-road lowbed range which has received excellent customer reviews from companies in West Africa.



ETT has established itself as a go-to solutions provider for the aluminium smelter industry in southern Africa.

Africa and Asia Eurasia," says Mc Duling.

After several engagements, ETT went into a 50/50 JV with Austin Engineering. The Australian-based company is well represented across all the global mining destinations, with factories in Australia, Indonesia, Colombia, Chile and the United States. Austin Engineering manufactures the two-piece excavator bucket, dump bodies, specialised tyre handlers, water tankers and a wide range of ancillary equipment.

Given that the two companies manufacture almost the same type

of equipment, Mc Duling says there was some rationalisation needed where overlaps existed. As part of the agreement, ETT will focus on its water distribution equipment (water tanks) up to 85 000 l capacity, lubrication solutions and transport equipment solutions (off-road lowbed trailers).

Austin Engineering will offer its specialised two-piece excavator buckets and dump bodies, large water tankers up to 230 000 l capacity as well as the big tyre handlers. "We agreed that Austin

Engineering has the best intellectual property in that product segment," says Mc Duling. "We are combining the best of what ETT and Austin Engineering have to offer. The broad range, complemented by the huge global footprint, is a winning formula for the JV."

Hein Snyman, GM – Africa for the Austin-ETT JV, says the key focus in the early days of the JV is to be closer to customers. For example, the JV's teams are doing in-field product performance and lifecycle performance audits. This not only feeds back to the engineering teams for continuous improvement and development, but also provides customers with data for accurate parts scheduling and budget planning.

"From a product perspective, the Austin-ETT partnership now brings our customers a one-stop shop for complete mining equipment attachments, from industry leading off-road lowbed trailers, service/lube and water tankers to high performance truck bodies and excavator buckets. But the most important synergy is the customer centric business ethos forming the cornerstone of our partnership," adds Snyman.

The JV, says Snyman, has already garnered positive feedback from customers in Africa to date, specifically in terms of support. The partnership also opens new doors in new territories for the JV partners, with the North and West African regions providing new frontiers.

"Between the two companies, we have products in the field covering the full African continent, from as far east as Mauritania and Egypt in North Africa, all the way down to South Africa. Our most exciting products are the fleet mobility solutions, in the form of our off-road lowbed trailer range which we are exceptionally proud to have received excellent customer reviews from drilling companies in West Africa. At the same time the latest Austin Ultima truck body continues to vastly improve lifecycle costs and production records, a true industry leading design developed with feedback from our customers," adds Snyman.

In conclusion, Snyman says Africa remains one of the most challenging, yet most exciting regions to work in. "Our vision is to partner with innovative mining companies to help drive production improvement and support equipment effectiveness. We will continue to grow our team and invest resources to support our customers on the African continent. Our end goal is to guarantee world-class support for our products," he concludes. 🌐

Global Oil now operates in excess of 20 units from Scania Truck Rental.



SCANIA TRUCK RENTAL TICKS ALL THE RIGHT BOXES FOR GLOBAL OIL

Having taken delivery of its first Scania rental truck in 2017, South Africa's largest independent fuel retailer, Global Oil, now operates in excess of 20 Scania rented vehicles, and counting. With a solution tailored to its specific needs, Global has found Scania Truck Rental to be the ideal trucking partner of choice, writes *Munesu Shoko*.

Since its inception, Global Oil has rapidly grown to over 100 fuel retail sites across all nine provinces of South Africa. In a market previously dominated by major oil refining brands, the company has raised the bar to become the largest 100% black-owned fuel retail brand in South Africa.

The family-owned group operates two entities, Global Oil, the filling stations division, and Platinum Bulk, the transport arm of the business. With about 120 filling stations across South Africa, transportation is an essential part of Global Oil's business. Right from the start, explains senior manager Solly Mphosi, the company was looking for an affordable, yet reliable solution for this important arm of its business.

"We approached a couple of trucking companies in South Africa, but Scania was the first to respond to us. As a start-up business at the time, we took the decision to go the rental route, mainly due to the fact that we could obtain the trucks we needed without a huge capital outlay. Since then, we have never looked back – Scania Truck Rental continues to tick all the right boxes for us," says Mphosi.

Global Oil initially bought its own five trucks, says wholesale manager Anneké Kruger, before taking a couple of Scania trucks on rental. "We bought five of our own tankers when we started. After a while we compared the cost of running these trucks against

the Scania Truck Rental offering and it was clear that rental made more sense for us. The return on investment was quite good as we didn't have to deal with maintenance issues and all the nitty-gritties of running a truck – that's all done by Scania on our behalf," she says, adding that "trucking is not our core business, so we leave it to the experts."

Global Oil took delivery of its first Scania rental truck on March 24, 2017, and by June 4 of the same year, the company had already grown its rented fleet to five. On October 22 this year – at a handover ceremony attended by *Capital Equipment News* under strict COVID-19 protocols – the company took delivery of a new NTG R40 6x4 Highline supplied with an air suspension and Hazchem kit. With the latest delivery, the company's rental fleet now exceeds 20 vehicles.

Tailored to specific needs

All Scania rental trucks are registered for Dangerous Goods. Global has been supplied with a mix of G460 and R460 tractors, explains Gerhard le Roux, Scania's national truck rental manager, with a few of these units being full ADR spec from the Scania factory, while the majority have been upgraded at the Scania local workshops to be Hazchem compliant to meet the demands of the Global's line of business.

The fleet supplied to Global is tailored to its needs. Richard Brown, Scania's rental sales manager, says this is in line



Scania Truck Rental and Global representatives at the official handover of the new NTG R460.

QUICK TAKE

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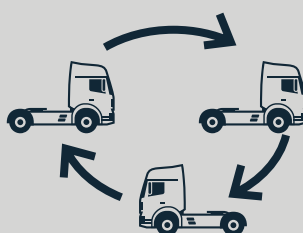
On October 22 this year, the company took delivery of a new NTG R40 6x4 Highline supplied with an air suspension and Hazchem kit, taking its rental fleet to over 20



Global has become the first rental client to take delivery of the Scania NTG Highline



Scania Rental keeps its fleet up to date with three-year/ 600 000-km replacement cycles



with Scania Truck Rental understanding that every company has its own unique needs. "As an extra heavy truck rental service provider, we have evolved to be solutions-driven as opposed to offering rigid rental packages," he says.

"You can imagine the stringent health and safety complicity that Global operates within, hauling tankers filled with diesel. Given the premium upfront capital required to buy a truck of that nature, exacerbated by the typical lengthy waiting period, rental made sense for them, not only in terms of accommodating their budget, but also realising the benefit of the short window for delivery. We identified available stock that could be purposely spec'd at our workshops to operate optimally and safely within the client's scope of work."

As Global continues to grow its business, so is its Scania rental fleet, which is continuously expanded to meet the increased volumes of fuel moved. The fleet is generally delivered on short notice, given the unpredictable nature of the change in Global's needs.

Key benefits

With rapid changes in technology, vehicles become obsolete more quickly. With renting, trade cycles are shorter, and fleet operators can upgrade to new technology sooner than if they owned the vehicles. Scania Truck Rental keeps its fleet up to date with three-year replacement cycles. Bear in mind that



Global has been supplied with a mix of G460 and R460 tractors.



The Scania rental fleet offered to Global is tailored to its needs.



The new NTG R40 6x4 Highline has been supplied with an air suspension and Hazchem kit.

every unit introduced to the rental fleet is straight out of the production line.

“Our truck replacement cycle in the rental fleet is three to four years, alternatively 600 000 km (whichever comes first). This affords our customers the opportunity to experience the benefits of operating world-class technology that delivers on reliability

and uptime with superior fuel efficiency,” says Brown.

For example, Global has become the first rental client to take delivery of the NTG Highline. Scania’s New Generation Trucks offer the latest advances in automotive technology for heavy-duty trucks. Since its local launch last year, the Scania NGT range has attracted a lot of interest. It represents the largest ever investment in Scania’s 125-year history, designed with a major focus on giving customers the tools they need to achieve profitability in their businesses.

In an environment where transport contracts are few and far between, and those that are available have become shorter and unpredictable, says Le Roux, Scania Truck Rental Division provides a plug and play solution to fleet owners – both established and emerging companies – offering the flexibility they need to navigate the tough economic conditions.

The rental period is generally one to 12 months – and is renewable – allowing for adaptability and alignment to the client’s needs. A big benefit is the flexibility to ramp up or ramp down the fleet with minimal capital outlay of fully refundable deposits. Trucks are supplied white in colour and may be branded in the customer’s corporate identity.

One of the major benefits of the rental solution is that it includes full repair and maintenance contracts, allowing for the trucks to be repaired and serviced at any Scania branch along the customer’s route within South Africa and select neighbouring countries within the SADC region.

“Rental customers like Global also benefit from Scania Assist – 24/7/365 road side assistance for breakdowns and recovery to Scania workshops should the vehicle be unrepairable for whatever reason, within South Africa and the neighbouring SADC countries,” says Brown.

The vehicles also come with Scania Fleet Management System, ensuring optimum fleet performance and driver behaviour. For peace of mind, the vehicles are provided with full comprehensive insurance – third party and SASRIA – subject to Scania Truck Rental’s standard excesses.

In conclusion, Le Roux says Scania’s short-term rental solution is an off-balance sheet transaction that is not subjected to depreciation. “Our invoice per truck per month covers truck rental, insurance, maintenance, roadside assistance and more, reducing administrative responsibilities for the customer,” concludes Le Roux. 🌐

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Barloworld Equipment's condition monitoring centre.

CONDITION MONITORING: SIMPLE IN PRINCIPAL, COMPLEX IN APPLICATION, ESSENTIAL FOR EVERY FLEET

Condition monitoring of capital equipment can save millions of rands in secondary damage, lost production and unnecessary maintenance. It is critical as it provides fleet operators with a better understanding and knowledge of their equipment and allows for equipment longevity, lower TCO and improved long-term productivity. By Mark Botha.

Addressing the role of condition monitoring in a world where every fleet equipment owner seeks to get the best out of their mission-critical capital equipment assets, Barloworld Equipment head: Technology JP Briggs says condition monitoring is a pro-active process of evaluating equipment and application data. This, he says, provides maintenance, component replacement, application and repair recommendations that help customers lower owning and operating costs.

"Understanding the condition of your assets means you have more opportunity to save cost by acting before failure

occurs, or to structure maintenance tactics that keep your assets running when you need them."

He says Barloworld Equipment helps customers by analysing electronic data, fluids analysis results, inspection results, equipment history and site analysis, and provides value-added recommendations for its customers.

Lourens Zeelie, product manager: Condition Monitoring at SKF, notes that condition monitoring also allows continuous surveillance, providing the fleet equipment owner with the peace of mind that, should anything happen, "they would know about it".

"This allows the owner to better

understand the condition of their fleet and thereby manage it better."

Condition monitoring plays a key role in boosting the bottom line for fleet equipment owners who seek to maximise the productivity of their capital equipment assets, says WearCheck MD Neil Robinson.





"Unscheduled machine failure is never good news, particularly when it is severe. The unbudgeted costs of wasted downtime, lost production and emergency spare part replacement can be brutal to the financial well-being of an operation."

He says WearCheck has developed proven techniques to reduce maintenance

The SKF Enlight Collect IMx-1 system measures and processes vibration and temperature.



QUICK TAKE

	<p>Condition monitoring is a pro-active process of evaluating equipment and application data</p>
	<p>Condition monitoring allows continuous surveillance, providing the fleet owner with peace of mind</p>
	<p>Condition monitoring plays a key role in boosting the bottom line for fleet equipment owners who seek to maximise the productivity</p>
	<p>Continually monitoring performance ensures maximum time between unplanned and unscheduled repairs</p>

costs, enhance machinery availability and boost production in industrial operations.

The company's suite of preventive maintenance solutions features traditional analysis of used oil as well as a range of reliability solutions including thermography, vibration analysis, balancing, laser alignment and motor current analysis. The company offers specialist field services such as rope condition assessment, technical compliance and non-destructive testing, as well as a dedicated transformer

services division.

"Each customer has different needs, so a bespoke programme is compiled from WearCheck's range of techniques to ensure that the correct monitoring methods are employed."

Importance of condition monitoring

Continually monitoring operating performance through condition monitoring will ensure maximum time between unplanned and unscheduled repairs, says

Barloworld Equipment's Briggs.

"This improves overall availability of the equipment and helps manage owning and operating costs. As part of an overall equipment strategy, condition-based maintenance is a competitive advantage which provides a significant opportunity to increase productivity while reducing costs and mitigating risks."

Controlling costs on assets can be difficult without insight onto asset health.

"There are two main factors for uncontrolled costs," he says. "The first is the scale of the cost. For example, a minor component replacement versus an engine replacement.

"The second is the frequency of failures or worse, repeating failures. Condition monitoring provides the business with control of these two factors."

SKF's Zeelie agrees, adding that capital equipment is a "large and expensive" investment and that any owner would like to get the best value out of their equipment.

"Condition monitoring allows the owner to know exactly what the condition of the equipment is. This allows them to do proper planning for maintenance and replacement activities. From the start of the equipment's life, condition-based maintenance could result in increased life span."

He says operation becomes riskier towards the end of the equipment's life, at which point condition monitoring will enable the owner to avoid failure and secondary damages.

For a business to be profitable and efficient, says WearCheck's Robinson, their investments must provide the best possible returns. In the case of capital equipment, this means that the machinery must run at optimum efficiency and availability.

"Ongoing condition monitoring is the best way to ensure that capital equipment operates at peak performance and does not break down due to a surprise failure." WearCheck has therefore developed planned maintenance tools such as the used-oil analysis and other solutions, which have been proven to yield good return on investment.

"A good condition monitoring programme provides good returns. This translates into reduced maintenance costs and improved planning of scheduled maintenance tasks, leading to fewer unproductive 'lost hours' while the machinery is repaired."

New trends

Barloworld Equipment, says Briggs, takes a "wide-angle view" of condition monitoring and leverages the appropriate technology to provide insight on what is happening and how to react.

He says an update in inspection data



“Understanding the condition of your assets means you can save costs by acting before failure occurs.”

JP Briggs, Barloworld Equipment head, Technology



“Condition monitoring allows the owner to know exactly what the condition of the equipment is. This allows them to do proper planning for maintenance and replacement activities.”

Lourens Zeelie, product manager: Condition Monitoring at SKF



“Unscheduled machine failure is never good news, particularly when it is severe.”

Neil Robinson, MD of WearCheck

TALKING POINTS

incorporated into the company’s condition monitoring process brings “more value than before”.

“The Cat Inspect app provides access to your equipment data. This app allows the equipment owner to capture inspection data while integrating with other Cat data systems.”

The company’s SOS service for fluid analysis evaluates customer oil and coolant samples based on knowledge of the product, fluid properties and analysis of data points.

“Whether Caterpillar or another manufacturer, we can help. In fact, about 25% of all samples come from equipment other than Cat.”

Barloworld Equipment’s electronic data solutions offer a range of connectivity options for customers who need detail in real time, to deploy systems quicker.

He says the latest in equipment management on offer from Barloworld

Equipment is the CAT app, designed as a companion app to the My.Cat.Com web portal.

“The app provides the user with a convenient way to manage their equipment and access multiple Caterpillar systems such as Parts.Cat.Com.”

Designed as a lightweight telematics tool, the Cat app displays basic fleet information, asset hours and location. Additional features include keyless start for next-generation Cat machines.

It has become the norm to include condition monitoring from the start at projects and on new equipment, says SKF’s Zeelie.

“It is sometimes difficult to motivate the cost of a condition monitoring system for older equipment. The new trend is for condition monitoring to be specified as a requirement for any new project and for new capital equipment. Another trend is

the move towards cloud-based systems. This is a result of the COVID-19 lockdown, which required many companies to work remotely.”

He says WearCheck’s condition monitoring app, WearCheck Mobile, remains popular among customers for communicating with WearCheck about oil sample results. The app provides maintenance managers immediate access to data about machinery components.

In addition to the traditional scientific analysis of used oil, WearCheck offers a range of condition monitoring techniques to help extend the remaining life of machinery by testing for potential component malfunctions before they happen.

“These condition assessment techniques are performed by our Reliability Solutions division and include thermography, vibration monitoring, motion amplification video, operational deflection shape analysis and motor circuit and signature analysis,” says Robinson.

The data collected by the company’s monitoring teams is stored and analysed. According to Robinson, big data and artificial intelligence are gaining traction within the machine condition monitoring market and Industry 4.0 and the Industrial Internet of Things (IIOT) present a new approach to the monitoring of machine health.

WearCheck has maintained and analysed a database of machine test results since its inception in 1976. As a form of AI, this big data provides insight into failure trends and enables predictive maintenance programmes while serving as a resource of information for training technicians and customers.

“Our diagnostic capability is built on big data – by comparing various test results to determine the asset and environmental condition, we could say that WearCheck is already a digital twin of all our clients. We could even break this down to component level and geographical area.”

Ongoing analysis of periodic and real-time data provides WearCheck with the opportunity to overlap the data that enables the two diagnostic models to “learn” from one-another.

“Our analysts learn as much from these models as the models learn from one-another. Pattern recognition derived from signature analysis combined with our in-house IP ensures the accuracy of our results.”

All analytical oil testing and vibration data is diagnosed by trained personnel while the accuracy of WearCheck’s recommendations is further ensured by AI, algorithms and real-time data.



Testing for water content samples at WearCheck.

New trends: key benefits

"You need access to your data wherever you are," says Briggs. "The Cat app is the mobile companion to My.Cat.Com, bringing information straight to the client's phone or tablet."

He says the Cat Inspect app enables clients to complete digital machine inspections and prioritise actions to keep equipment at peak performance. Both apps are available at no cost at Google Play and at the Apple App Store.

Zeelie says it is "easy" to motivate an investment in condition monitoring on new machines, given the cost of these machines and the benefits offered by condition monitoring.

"This ensures the owner that they have the best machine in the best possible condition from day one. Having more systems based in the cloud allows for easier access to information from any location, eliminating the need for virtual private networks (VPNs) and crowded plant networks due to multiple remote connections."

The benefit of the digitisation of assets and processes, paired with real-time data acquisition, advanced data analytics and machine deep-learning," says Robinson, "is that the focus has shifted to even earlier detection of failure modes and emerging stage defects."

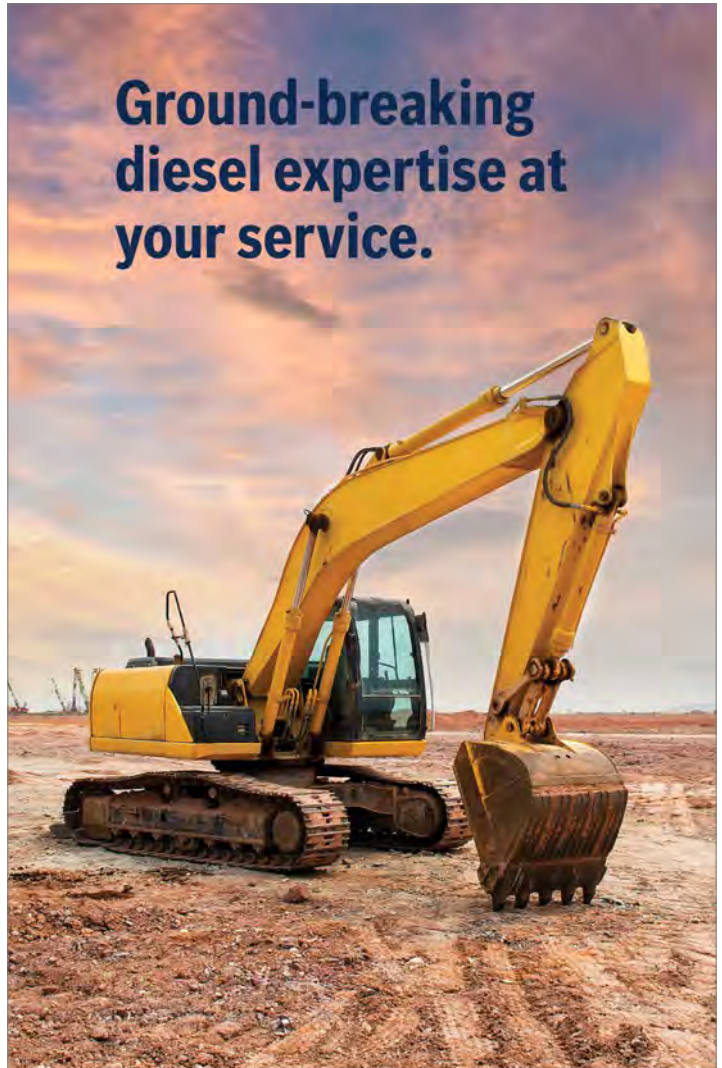
He says WearCheck uses these advancements in technology to develop its own analytical abilities which it plans to use in the development of future AI condition monitoring ecosystems that will identify and minimise risks to assets simultaneously, in real time.

"Online monitoring reduces human error, relying instead on automated systems which run 24/7, 365 days a year."

Further benefits come into play when human movement is restricted due to Covid-19 regulations. In such cases, owners will know that their equipment is still being monitored and is not dependent on human intervention.

In closing, Barloworld Equipment's Briggs notes that condition monitoring is "easy" in principal but can be difficult in application.

"Not everything can be measured and therefore monitored, so a robust process to embrace the benefits of condition monitoring is essential," he says. 🌐



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WHY AUTONOMOUS TRANSPORT WILL HAPPEN IN QUARRIES AND LIGHT MINING FIRST

Creating solutions capable of maximising transport efficiency through advanced automation is the goal of an entire industry. For Volvo Autonomous Solutions, it's likely to happen first in the controlled world of quarrying and mining.



Volvo Autonomous Solutions was created on January 1, 2020 to develop and commercialise autonomous transport solutions for the whole Volvo Group.

After developing steadily, step-by-careful-step, for more than 100 years, the automotive world is currently in the grip of a two-sided revolution: on the one side under pressure to reduce emissions by going electric, and on the other, striving to reach the Holy Grail of transport – the vehicle/machine that doesn't need an operator. While great strides have been taken in the switch to hybrid and all-electric drive, creating autonomous transport is proving harder to perfect.

"Automation has struggled in the mainstream automotive world because they are trying to get autonomous vehicles to work everywhere and safely coexist with all the variables of life – cars, trucks, bikes, people, dogs, cats – you name it," says Per Johan Rosdahl, head of Off-Road at Volvo Autonomous Solutions.

"Solving all these issues at the same time is proving to be an enormously complex challenge, even for the world's biggest automotive and technology companies. Our approach is to start small, in a tightly confined environment and build on our successes over time. A perfect place to start is quarries, which have clearly defined load-and-dump locations over generally short circuits."

Start simple. Grow from there

The move to autonomous machines will not be simply a case of replacing a machine with an operator to one without. Autonomous machines will prompt the automation of the whole process and require a new way of looking at the entire operation. Volvo Autonomous Solutions was created on January 1, 2020 to develop and commercialise autonomous transport solutions for the whole Volvo Group.

As well as providing adapted machines from within the Volvo Group, Volvo Autonomous Solutions will support customers with solutions to autonomous machines' other challenges, namely the supporting infrastructure, control towers, repair and maintenance, virtual drivers and even run the operations if needed.

"It's as much about a new mindset as it is about developing autonomous machines," says Uwe Müller, sales and marketing lead for Off Road Solutions at Volvo Autonomous Solutions. "We are talking about automating a transport process, not just selling a single machine. Because of that we need to develop a total solution to manage this full process."

Autonomous enabled platform

Volvo Autonomous Solutions is working closely with the Volvo Group's other business areas, especially Volvo

Construction Equipment in the off-road segment. This ensures that new machines, whether developed specifically to be autonomous – like Volvo's award-winning TA-15 hauler – or traditional operator-based equipment, use the same autonomous drive platforms, coding languages etc. This allows them to be 'talked to' in the same way, as well as offering the ability to scale up easily. Not all machines will be autonomous but being 'autonomous enabled' allows Volvo Autonomous Solutions to supercharge the standard products into operator-less machines, using its own proprietary autonomous drive kit.

Quarries and mines

"To reduce the complexity of the world we need to standardise the process as much as possible," says Müller. "In quarries we can do this as they are in a confined area, are highly regulated and it's easier to separate autonomous transport from other processes. Involving loading and dumping, the process itself is simple and repetitive."

"We are starting small with less complex use cases and will build on our successes," says Rosdahl. "With the right customer partners, the next step could be underground mining and tunnel applications – autonomous machines (especially electric ones) work just as well in the dark as in the light, and it's good to remove people as much as possible from these hazardous locations. From there we could focus on large earthmoving projects that are still contained but have more variables to cope with, as our technology becomes more embedded over time."

Improved process optimisation, lower energy consumption and improved safety are just three of the benefits of autonomous machines. There are lots of R&D challenges to be overcome – and they will be. But it won't be a technical innovation that makes the breakthrough – that requires changes in legislation and a new mindset as to how the whole process can operate more effectively. Make no mistake, autonomous solutions are coming, and they will be disruptive to current business models. 🌐



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CORONAVIRUS – A HAZARDOUS DISTRACTION IN MINING AND CONSTRUCTION

In recent months there has been an enhanced spotlight on alcohol consumption in South Africa and the various dangers associated with it. Media and government have shone light on just how many casualties, traumas and accidents alcohol is directly responsible for. Realising the very real dangers posed by intoxicated people and the very high alcohol abuse problem among South Africans, government has also recently gazetted procedures to for mines to carry out safe breathalyser testing. It's essential that construction and mining companies prioritise intoxication testing with confidence.

By Rhys Evans, MD at ALCO-Safe.

With a few tweaks to the standard operating procedure for breathalysers they are safe to use and will not increase the risk of infection. Things such as the use of a face mask, face shields and gloves for the operator are mandatory along with physical equipment enhancements that make it possible to add a level of physical distancing between the operator, the test apparatus and subject matter.

Companies are advised to implement increased hygiene practices and to continue educational health awareness training for staff that provides clarity on the spread and symptoms of the virus. It is critical that testing not be overlooked at this time. Although under restricted conditions, risk of injury or death increases drastically where heavy machinery and alcohol are allowed to meet undetected.

Not just a short-term concern

The mining and construction industries urgently need to update their protocols and train personnel on breathalyser methods and procedures that ensure the safe use thereof, in addition to considering a long-term plan for occupational safety as the virus is unlikely to disappear any time soon.

Safety managers will need to realign their testing equipment and procedure to comply with the regulations laid down for the mining industry in the recent Government Gazette. A smart way to enable physical distancing in the testing procedure is by means of a housing station for the breathalyser that removes the need for the operator to physically handle the apparatus while testing the individual.

This holding device can either be mounted to a wall at the entrance of the



Rhys Evans, MD at ALCO-Safe.

workplace or mounted on a tripod and test results can be viewed instantly through the side panel window.

This allows the testing operator to stand at a safe distance from the test subject by means of an extendable arm in order to avoid contamination from respiratory droplets. In this scenario, it's not the test subject or the breathalyser that is at risk in transmission of the virus, it's the test operator. In large mines, testing operators can be exposed to hundreds of workers in a single day, which makes this a high-risk occupation.

Physical distancing is key

Physical contact with the actual breathalyser device can be eliminated

through the use of disposable paper straws for test subjects to blow through. According to the Gazette mining regulations, a minimum distance of 5cm must be maintained between the test subject and the breathalyser, while the use of straws makes it possible to achieve a distance of up to 30 cm, which is much safer.

It's unclear exactly how long this pandemic is going to last, which makes it critical for the mining and construction industries to accept heightened health and safety requirements as standard operating practice, taking every precautionary measure to ensure that intoxicated workers do not enter the workplace. 🌐

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The new Cat GB120 and GB124 smart grader blade attachments are available for Cat D3- Series skid steer loaders and compact track loaders.

THE ATTACHMENT REVOLUTION: TURNING TOOL CARRIERS INTO VERSATILE INSTRUMENTS

An 'attachment revolution' is helping capital equipment owners maximise the versatility of tool carriers such as TLBs, excavators, skid steers, telehandlers and loaders, with many new attachments coming to market in recent years. Traditional attachments, including hydraulic hammers and buckets, have also seen significant improvements. *By Mark Botha.*

To remain competitive in a challenging economic environment, equipment owners are looking at ways to make the most of their mini-excavators, skid steers and backhoe loaders, among others. The focus is therefore shifting to attachments as they can elevate these assets from one-dimensional equipment to multipurpose, adaptable tools.

When asked about this attachment revolution in which some companies offer up to 80 attachments from a single stable, Thabile Dube, product manager, Construction and Building: Southern Africa at Barloworld Equipment, says the development of attachments is a "customer cost solution" targeted at solving and improving machine versatility and utilisation.

"Attachments maximise customer productivity and growth by transforming or converting single-use units into many different types of machines that can perform in varied applications," she says.

Bobcat Equipment sales consultant Brad Freeman says the use for attachments has grown because of the numerous applications in which these machines are used. "Attachments are now more in demand than before, especially given the rising cost of labour."

Mishen Naidoo, engineering and solutions manager at Manitou Southern Africa, says the economic climate has been demanding on the business owner, with competitive markets and a variety of options for customers to choose from.

"The typical business owner's reaction is to search



A Bobcat dumping hopper from Goscor Earth Moving

for improvements in efficiency, which improve their bottom line. This has led to many businesses looking for versatility from their machines – machines that can perform multiple tasks. The key to this is a vast selection of attachments.”

Maximum Equipment MD Vaughan Ellis sums it up: “It is about getting the best use from your machine investment and reducing labour costs in order to maximise productivity and efficiency”.

Innovations

In terms of attachments brought to market in recent years, Freeman refers to Bobcat’s planer, which is used for milling asphalt or concrete and features hydraulic side-shift for planing close to walls and curbs.

“This attachment is designed in such a way that the operator has clear visibility of the skis and depth gauges from the cab.”

He says the bits mounted on the planer’s revolving drum are carbide tipped, enabling them to pulverise through tough materials.

“The attachment can even taper roadway edges, cut drainage in concrete and mill around manholes, and the operator can set and maintain every aspect of the job, including slope control, width and depth.”

The planer is available in four models, with several drum options. Each of these models provides a choice between standard flow and high flow, enabling the attachment to be customised to suit the job at hand.

The milling process involves low-angle, high-velocity blows in a controlled pattern that chips pavement uniformly. The operator sets and maintains depth, width and slope control and the milled material can be recycled immediately.

“Today’s technology is ever-evolving,” says Freeman. “That, together with the fact that the materials used nowadays are much tougher than before, makes attachments so much more viable.”

Dube says Barloworld Equipment’s attachments for the CAT D3 series skid steer, compact track and multi-terrain loader are considered smart because of their plug & play functionality. They feature a special display screen and feature “tailored machine controls”.

“These machines feature optional plug & play attachment recognition which integrates the attachment and the machine for a seamless user interface.”

She says the electronic display on the loader includes a dedicated attachment screen to identify the attachment type in use, while the machine controls have



The development of attachments is a customer cost solution targeted at solving and improving machine versatility and utilisation



The use for attachments has grown because of the numerous applications in which tool carriers are used



Hammers are becoming more powerful and reliable, with longer service intervals



Flat top or top-mount hammers provide a larger work area and improved operator visibility

TAKE

QUICK

ATTACHMENTS

a mode selection allowing for rudimentary attachment recognition. This allows the host machine to deliver specific flows and pressures to the attachment.

CAT has recently launched the PL161 attachment locator mounted on the attachment to track location and utilisation without interfering with the work at hand.

"A number of enhancements which will communicate with the PL161 and help recognise the attachment have been made on select machines," she says.

Naidoo says Manitou's Vario winch attachment "basically turns a telescopic handler into a crane". The winch is equipped with a fail to safe hydraulic motor and is available in a range

of lift capacities.

"Also worth mentioning is our remote controlled man-baskets which basically give a telescopic handler the ability to operate as an SANS compliant aerial platform." He says derivations of the baskets are available for work under bridges and on roofs.

Maximum Equipment's Ellis says his company has brought to market detachable rock drill and vibrating ripper ranges.

"Our screening buckets and crusher buckets are gaining popularity," he says, adding that hydraulic hammers are "growing in demand" as an alternative to blasting.

Hydraulic hammers and buckets

Ellis says hammers are becoming more powerful and reliable, with longer service intervals.

"New technologies such as vibrating buckets allow for greater breakout and specialist applications. Quick couplers allow for speedy attachment interchanges and are also becoming popular."

Dube says the Cat B6 hammer can now be supplied in either silenced or non-silenced mode. The hammer is designed for skid steer, multi-terrain and compact track loaders and is suitable for

applications including sidewalk, pavement, roads and masonry breaking, as well as for site preparation and landscaping.

Silenced hammers enclose and isolate the power cell between urethane and nylon buffers to limit noise and damp vibration, whereas non-silenced hammers mount the power cell between two metal frames.

These breakers also feature a gas-fired design which delivers consistently high production over time, so making the breaker reliable in applications including concrete, asphalt, rock and light trenching.

An internal control valve maintains maximum hydraulic pressure to ensure the breaker delivers all its blows at full power, with no residual blows. This valve stops the breaker when oil flow ceases, as it controls the movement of the piston.

Dube says ergonomically positioned hydraulic lines optimise serviceability, are easily accessible and require no special tools.

"Hydraulic lines and back head pressure can be checked and charged while breaker is mounted to the machine, allowing quick monitoring of the condition of the breaker.

Another innovation relates to slip fit bushings which are field replaceable and easy to maintain as there is only one locking pin, extending wear life and reducing ownership and operating costs. Play between the tool and the bushing is minimised by an upper bushing which rotates 360°, and a two-position lower



"Attachments are now more in demand than before, especially given the rising cost of labour."

Brad Freeman, Bobcat Equipment sales consultant



"Attachments maximise customer productivity by transforming single-use units into many different types of machine."

Thabile Dube, product manager, Construction and Building: Southern Africa at Barloworld Equipment



"New technologies such as vibrating buckets allow for greater breakout and specialist applications."

Vaughan Ellis, MD of Maximum Equipment



"The economic climate has been demanding on the business owner. The typical reaction is to search for improvements in efficiency, which improve the bottom line."

Mishen Naidoo, engineering and solutions manager at Manitou Southern Africa



The Simex crusher attachment from Maximum Equipment.

bushing with 90° rotation.

Flat top or top-mount hammers provide a larger work area and improved operator visibility.

“The top-mount style increases impact power by keeping breaker force and stick force in line. A top-mount bracket will transfer back significantly less recoil and bending stress into the end of the stick, resulting in reduced impact on machine structures,” says Dube.

Flat top hammer bracket design features enhanced hose routing and improved ingress/egress with a new bolt-on step and updated central step.

She says Barloworld Equipment has improved the ground engaging tools (GET) on its larger machine buckets.

“You can potentially see a 15% increase in productivity due to the improved tip and adapter geometry and up to a 50% improvement in adapter nose life due to wear. Changing out the tips is quick and easy with the new Advansys locking system. All our 20 to 95 t excavators come standard with the new penetration and tips designed in such a way that they sharpen as they wear.” The company has also recently released its GC series hammers for its 13 to 49 t excavators. 🌐



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Liebherr has developed its single line guiding system designed to handle blades on the latest generation of wind turbines.

AT THE LIFTING EDGE

As innovation continues apace across the capital equipment industry, one sector that has in recent years witnessed a massive technological shift is the mobile crane sector, with manufacturers such as Liebherr seeking to address the ever increasing demand for safety, efficiency and productivity on sites. By Munesu Shoko.

Lifting operations can put construction workers at great risk of injury. The costs of accidents related to lifting operations, can be immense. To help lifting companies address safety on sites, Liebherr offers an array of technologies that speak directly to this important parameter.

The company, for example, has brought to market its VarioBase and VarioBasePlus features for improved safety and enhanced performance. VarioBase, explains Erik Benz, GM – Mobile Crane Division at Liebherr-Africa, allows each individual crane support outrigger to be positioned at random.

“The load controls the crane work moment limiter within the LICCON control, which calculates the maximum load capacities precisely for this situation on the actual site. This prevents accidents by human error during both set-up and when hoisting loads. The increased safety and ease of use takes away the strain from the crane driver who can concentrate fully on the hoist,” says Benz.

The digital possibilities afforded by VarioBase were taken into consideration in the design of the structural steelwork, thus enhancing the crane’s performance. The result is a trapezoidal support. The rear

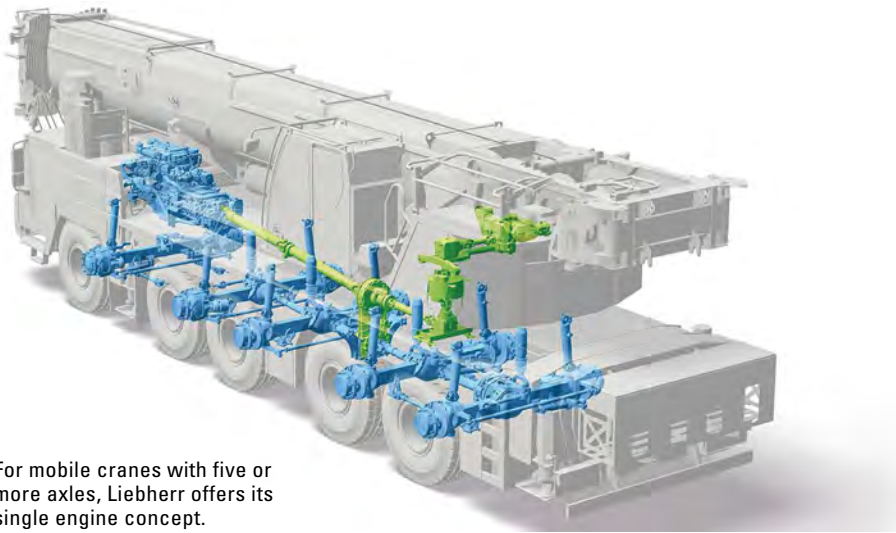
outriggers have a double-stage design and produce a wider support base than the single-stage outriggers at the front. This increases the capacity over the rear supports even more. And that sums up precisely what VarioBase Plus is about – higher load capacities by combining a trapezoidal, variable support base.

In 2018, Liebherr also brought to market its single line guiding system. The blades on the latest generation of wind turbines are nowadays installed individually using rotor blade yokes. “Liebherr has developed a system for this future-oriented application, which makes the installation process safer, more economical and in many cases also greener,” explains Hendrik Burger, technical sales liaison, Mobile Crane Division at Liebherr-Africa.

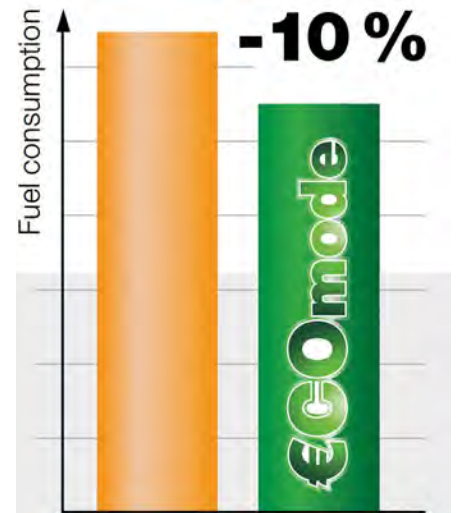
Efficiency matters

Crane efficiency is extremely important as this has a cost implication to the customer, says Liebherr-Africa’s Benz. To maximise lifting efficiency, Liebherr has developed several systems.

For mobile cranes with five or more axles, Liebherr has created a new drive concept for the crane superstructure. A single engine in the chassis powers the crane via mechanical shaft. “Even at low engine speeds, the chassis engine supplies sufficient power for the crane operation.



For mobile cranes with five or more axles, Liebherr offers its single engine concept.



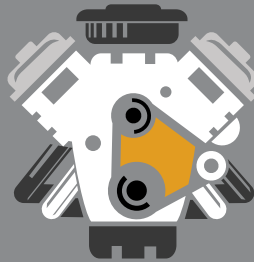
With Liebherr's Eco Mode, there is a reduction in fuel consumption through the automatic disengagement of the complete pump drive unit when the engine is idling.

QUICK TAKE

Liebherr's VarioBase allows each individual crane support outrigger to be positioned at random



For mobile cranes with five or more axles, Liebherr has created a new drive concept for the crane superstructure. A single engine in the chassis powers the crane via mechanical shaft



capacities with a large ballast radius, making it perfect for use on constricted sites with a small ballast radius.

Liebherr has also developed its Eco Mode, a special mode for mobile cranes in the load-sensing range to reduce the cost of crane use while reducing noise. With Eco Mode, there is a reduction in fuel consumption through the automatic disengagement of the complete pump drive unit when the engine is idling. It also activates in seconds via an intelligent control system when power is required," explains Burger.

Focus on productivity

Liebherr-Africa's Benz says the company's MyLiebherr customer portal is the entry point to the Liebherr service world. "Using MyLiebherr, you can access an extensive array of services relating to the world of mobile and crawler cranes such as the documentation for your cranes or our spare parts service," he says.

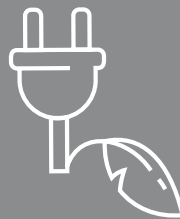
Service also plays a key role in maximising productivity on site. "We as Liebherr South Africa understand that having spare parts in every situation is necessary for all our customers. That is why we can confidently guarantee 80% spare parts availability at all times," he adds.

In conclusion, Benz says as the market leader in mobile cranes, Liebherr strives to always bring great innovations and new ideas to market in its quest to stay ahead of the competition. One such innovation that has already been implemented on Liebherr's tower cranes is the high-tensile fibre rope.

"Liebherr has developed the fibre crane series featuring the Solite hoist rope, working with rope manufacturer Teufelberger. This is a revolutionary hoist rope, which combines all the best features of existing rope types," concludes Benz.



Liebherr has developed the fibre crane series featuring the Solite hoist rope, working with rope manufacturer, Teufelberger

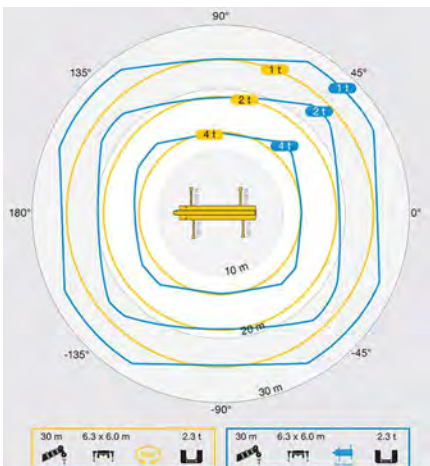


With Liebherr's Eco Mode, there is a reduction in fuel consumption through the automatic disengagement of the complete pump drive unit when the engine is idling

Liebherr's VarioBase allows the crane to be used safely and flexibly in space-constrained conditions.

This results in increased economy and reduced maintenance. It also increases load capacity by using the reduced weight for load-bearing components," explains Benz.

Meanwhile, high performance normally requires a large ballast radius. However, often there is simply not enough space on building sites. This means the ballast radius must be as small as possible. Liebherr solves this problem with its VarioBallast innovation, which enables Liebherr cranes to deliver maximum lifting





Link-Belt's SmartFly integrates new fly erection and storage technology for proper sequencing and reduces work at height.

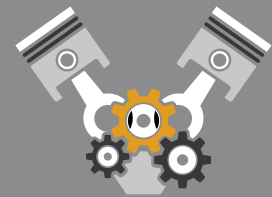
UNPACKING LINK-BELT'S TECHNOLOGICAL REVOLUTION IN MOBILE CRANES

To help lifting companies achieve maximum safety, productivity and efficiency on site, Link-Belt Cranes has brought to market a range of innovations in recent years.

By *Munesu Shoko.*

QUICK TAKE

Link-Belt's six-wheel rough terrains feature a hydrostatic drive system consisting of two variable speed piston pumps that supply hydraulic power to each individual wheel motor



Link-Belt's Variable Confined Area Lifting Capacities, or V-CALC, features 81 different outrigger configurations with real time 360-degree charts



"A fly assist cylinder, boom head speed screws, colour-coded spring-loaded latches, a patented interlocking system and ground level boom controls (rough terrain cranes only) provide a robust, simple and efficient one-person operation. Link-Belt formally patented this technology in 2020."

Chantell Malherbe, operations director at EIE Group

One of the most important parameters in lifting is safety. While those who are on site have to do their part to ensure that lifting jobs are carried out safely, materials handling equipment manufacturers have covered most of the ground by bringing an array of advanced safety features to market.

One area that has seen a technological revolution to aid safety on lifting sites is the mobile crane sector.

Chantell Malherbe, operations director at EIE Group, the authorised distributor of the Link-Belt range of cranes in South Africa, explains that Link-Belt's vision package is available on all Link-Belt telescopic models and enhances jobsite

visibility with increased lighting and cameras for viewing winch, swing, backup and right side. Cameras feature low-light resolution and heated lenses to reduce ice and snow in cold weather situations.

Meanwhile, Link-Belt's SmartFly integrates new fly erection and storage technology for proper sequencing, while reducing work at height. "A fly assist cylinder, boom head speed screws, colour-coded spring-loaded latches, a patented interlocking system and ground level boom controls (rough terrain cranes only) provide a robust, simple and efficient one-person operation. Link-Belt



New crane innovations allow lifting jobs to be conducted safely and effectively.

Link-Belt's vision package is available on all Link-Belt telescopic models and enhances jobsite visibility with increased lighting and cameras for viewing winch, swing, backup and right side



Link-Belt's wireless remote rigging on new models includes the option to boom up, boom down, winch up, and winch down from the ground, so the operator does not have to get back into the cab to complete simple rigging manoeuvres

formally patented this technology in 2020," says Malherbe.

Focus on efficiency

With efficiency in mind, EIE Group's Malherbe says the Link-Belt Pulse 2.0 includes everything from a large high-resolution 25,4 cm screen for viewing crane functions, as well as maximum radius and capacity to pre-sets for the operator like fine metering when lifting.

"A resistive touch screen can be used with gloves and be seen in direct sunlight with larger, clearer images; and the unit is pivot-mounted for optimal viewing. The interface is more dynamic

throughout the operating system, with larger buttons and interactive indicator lights displayed on the margins," explains Malherbe.

Link-Belt's Variable Confined Area Lifting Capacities, or V-CALC, features 81 different outrigger configurations with real time 360-degree charts. V-CALC was proven initially on the 75|RT rough terrain crane and has since been developed and implemented into recent product launches including 100|RT, 120|RT, 175|AT and for the first time on a telecrawler, the TCC-800.

"Once outriggers (or side frames on TCC-800) are set, the user-friendly Link-Belt Pulse 2.0 system verifies inputs, and indicates the crane's available capacity. The system then previews the operator's real time capacities given the crane's current configuration at the next five radiuses for a set boom angle. Upon selection, Link-Belt Pulse 2.0 provides a live view of the working area with colour-coded quadrants. If the load on hook exceeds capacity at a given slew angle, the swing arrest will initiate five degrees prior to entering the overload area of the chart and the crane to come to a smooth stop," adds Malherbe.

An optional wireless remote control system is available for Link-Belt's TCC-800, TCC-1200 and TCC-1400. The wireless remote provides a solution for industries and other operations where required, and allows the operator to be out of the cab and still have control of the crane. The Wireless Remote Control offers multiple display options including: fine metering controls, engine data, crane configuration, boom diagnostics, system diagnostics, and more.

Link-Belt cranes are Wi-Fi-enabled and equipped with telematics data sharing via

iCraneTrax. This service provides customers and distributors overall enhanced product support through field troubleshooting, expedited parts procurement, infield repairs and other various support outlets. Other notable performance related features include wind speed indicators, and other travel and swing alarms notifying those on the ground when the crane is moving or in operation.

Productivity is key

Crane productivity, says Malherbe, begins before even arriving on a jobsite. Link-Belt carefully considers the location of swing out engine access doors and centralised electrical locations – keeping them as low to the ground or near a grab handle or ladder as possible. Transmission oil, engine oil, primary and secondary fuel filters, as well as the engine oil filter are mounted for easy reach. Hydraulic outboard routings and wiring harness improvements offer form-fitted design, providing greater serviceability over the life of the crane.

"Link-Belt's wireless remote rigging on new models includes the option to boom up, boom down, winch up, and winch down from the ground, so the operator does not have to get back into the cab to complete simple rigging manoeuvres. The same feature is also available for outrigger controls, allowing outriggers to be placed on outrigger pads quickly and more easily," explains Malherbe.

Meanwhile, Link-Belt's six-wheel rough terrains feature a hydrostatic drive system consisting of two variable speed piston pumps that supply hydraulic power to each individual wheel motor. Each wheel is computer controlled for smooth and reliable driving operation that provides both 6-wheel drive and 6-wheel steer.

"Link-Belt's 6-wheel rough terrain cranes continue to be the market leaders and trusted option in applications that range from pier and dock work to refineries and industrial plants with their tight turning radius, reach and lower overall height, to wind farm maintenance with their strong charts and ease of travel," says Malherbe.

"Whether it is a with a higher tonnage six-wheel rough terrain crane, the versatility of a telescopic crawler crane or the advantages offered by telescopic trucks and all-terrain cranes Link-Belt Cranes are chosen for their competitive capacities with faster, easier mobilisation, while providing minimal impact to the contractor's jobsite. As jobsites continue to get smaller, with bigger and heavier lifts required, higher demand is placed on getting into and out of a jobsite quickly and effectively," she concludes. 🌟

The low noise and zero emissions JCB 19C-1E mini excavator.



COMPACT EXCAVATORS — LEADING THE ROAD TO ELECTRIFICATION

As electromobility in construction equipment takes shape, the compact equipment sector, especially the mini excavator, is leading the road to electrification, with several models recently coming to market on a commercial basis, writes *Munesu Shoko*.

Governments and manufacturers envisioning a diesel-free future for on-road vehicles hit the headlines in recent years. In July 2017, the automotive industry was rocked by a far-reaching announcement when Volvo Cars stated that all its new cars would be electric or hybrid from 2019 onwards. The following day, the French government announced it would end sales of petrol and diesel vehicles by 2040 as a way to fight against air pollution. A few weeks later, the British government followed with a similar proposal.

But what will these bans mean for the construction industry? Construction equipment is largely run on diesel engines and so far, no official announcements have been made concerning their use once these bans come into effect. While decisions are yet to be made on what a diesel-free future means for construction equipment, Low Emission Zones (LEZs) in the developed world currently provide an insight into how urban construction projects can have a less harmful effect on air quality right now.

The European Union sets emission standards that define the acceptable amount of pollution that can be emitted by the exhaust of a vehicle sold in the EU and EEA member states. Depending on the area, vehicles with higher emissions either cannot enter the area at all, or have to pay a fee if they do.

To avoid the expense – real or perceived – of having to pay fees to bring construction machines into restricted areas, construction equipment firms have increasingly been asked by customers to fit a Diesel Particulate Filter (DPF) to machines, to reduce the diesel particulate matter (black soot) from the exhaust gas of a diesel engine.

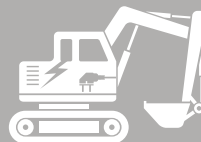
DPFs are currently seen as an extra precaution in response to a perceived need to meet regulations in LEZs. But as regulations around LEZs continue to become stricter, it's likely this trend will continue. In response to the growing need for the industry to clean up its act, leading construction equipment manufacturers have started commercial launches of their first fully electric



Volvo CE is one of the first construction equipment manufacturers to commit to an electric future for its compact machine range with the commercial launch of the ECR25 mini excavator.

QUICK TAKE

Initial strides into electromobility by construction equipment makers are anchored by compact equipment



In early 2018, JCB announced it had developed its first ever electric digger in response to customer demands for a zero emissions machine which can work indoors, underground and close to people in urban areas



At bauma 2019, Bobcat launched its E10e electric mini excavator, one of the industry's first commercially available fully electric, zero tail swing mini excavators in the 1-t class



By mid-2020, Volvo CE started to roll out a range of electric compact excavators (EC15 to EC27) and wheel loaders (L20 to L28), stopping new diesel engine-based development of these models



units, while some are still working on concepts.

It is clear that initial strides into electromobility by construction equipment makers are anchored by compact gear, especially mini excavators and loaders. Some of the names that have already announced commercial launches include JCB, Bobcat and Volvo Construction Equipment. Caterpillar last year also announced that it is working on its Concept 906 – a fully electric drive compact wheel loader powered by a zero emission lithium-ion battery.

Commenting on why the compact excavator space is leading the road to electromobility, Andrew Boyers, GM – Africa at JCB, says the market potential for this range of equipment is massive, and includes indoor working (where the need for diesel fume extraction is avoided) and quiet urban working, among others.

“More companies – especially utilities, who use many compact machines – are wanting environmentally friendly products. The energy requirement – battery size – for a full day’s shift is easier and more cost-effective to package on a machine which typically doesn’t run 8 – 10 hours in a working day, like say, a heavy excavator on a large construction site,” explains Boyers.



Using an external supercharger functionality, when used with normal work breaks, the E10e can operate throughout a full working day (eight hours) and can be fully recharged within 2,4 hours.

JCB leads the way

In early 2018, JCB announced it had developed its first ever electric digger in response to customer demands for a zero emissions machine which can work indoors, underground and close to people in urban areas.

The 1,9-tonne mini excavator can be charged by simply plugging it into a standard 230 V domestic electricity supply. Once fully charged, it is ready to put in a full normal working day on the building site – digging with the same speed and power as its diesel counterpart. Super-fast charging was also be available at launch, slashing the charging time in half.

The innovative product went on sale at the end of 2018 after being developed in secret at the company’s Staffordshire HQ. Its development was spearheaded by company Chairman Lord Bamford who personally heralded its arrival as a “real breakthrough” for the construction sector.

“JCB has been at the forefront of developing innovative, low emission diesel-powered construction equipment for decades. In fact, thanks to our clean diesel technology, typical JCB machines will be pretty close to zero emissions by 2019,” said Lord Bamford, at the launch.

“However, with urbanisation, machines are operating more closely to people as well as digging underground, indoors, near hospitals and in food production environments. As a result, there is a new zero emissions sector emerging and it’s emerging very quickly. It’s for this reason we have put ourselves at the forefront of alternative power technologies and developed the first ever electric JCB digger.”

The machine – known as the 19C-1 E-Tec – not only delivers zero emissions, it’s also the quietest in the JCB range. This means contractors can work after normal hours in urban streets, around hospitals and close to schools without disturbing people. The machine also has a retractable undercarriage to enable it to negotiate tight spaces.

The electric excavator has an electric motor and three advanced lithium-ion battery packs, to deliver a full energy capacity of 15 kWh.

Following the launch of the electric digger, JCB has gone on to develop electric telehandlers, dumpsters and access platforms as it intensifies its electromobility project. “We are continuously trialling new technologies and machines – more products will be coming in the near future,” says Boyers.

Volvo to the market

Reiterating its commitment to electromobility, Volvo Construction Equipment (Volvo CE) last year announced that by mid-2020 it would begin to launch a range of electric compact excavators (EC15 to EC27) and wheel loaders (L20 to L28), stopping new diesel engine-based development of these models.

With this move, Volvo CE is one of the first construction equipment manufacturers to commit to an electric future for its compact machine range. This follows an overwhelmingly favourable reaction from the market after the successful unveiling of a number of concept machines in recent years, and by working closely with customers. This move is aligned with the Volvo Group’s strategic focus on electromobility in all business areas.

The first machines were unveiled at the bauma exhibition last year, and will be followed by a staged market-by-market introduction and ramp up this year. While the company stresses that diesel combustion currently remains the most appropriate power source for its larger machines, electric propulsion and battery technology is proving particularly suited to Volvo’s smaller equipment. With research and development investment now focused on the rapid development of its electric compact wheel loaders and excavators, Volvo CE is taking a step towards diesel-free compact equipment in the future.

“Volvo CE is delivering on its commitment of ‘Building Tomorrow’ by driving leadership in electromobility and delivering sustainable solutions that support customer success,” comments the company’s president, Melker Jernberg. “The technology we have been developing is now sufficiently robust and this, together with changes in customer behaviour and a heightened regulatory environment, means that now is the right time to commit to electromobility in our compact equipment ranges in the future.”

The company recently announced that seven additional European countries had been added to the list of countries where Volvo CE customers could prebook one of the new electric compact machines via an online portal.

From October 14, customers in Sweden, Finland, Denmark, Belgium, Luxembourg, Austria, and Switzerland joined other European countries and North America in being able to reserve a place in the production queue for the new ECR25 Electric compact excavator and L25 Electric compact wheel loader.

“The online pre-booking tool is a new approach which targets the early adopters



The development of JCB's 19C-1 E-Tec was spearheaded by company Chairman Lord Bamford who personally heralded its arrival as a "real breakthrough" for the construction sector.

of electric machines and identifies new customer segments. We are now making this platform available to an even wider customer base," explains Carl Slotte, head of Sales Region Europe, Volvo CE.

By registering on the prebooking tool, customers will be able to reserve a place in the production queue for the electric machines. After this, customers will then be informed that they have been cleared to place an actual order for the machines. The first deliveries of the electric compact machines to customers in these countries will commence at the beginning of 2021.

Bobcat goes electric

At bauma 2019, Bobcat launched its E10e electric mini excavator, one of the industry's first commercially available fully electric, zero tail swing (ZTS) mini excavators in the 1-t class. With no emissions, a low noise operation and a width of just 72 cm, the new E10e can easily pass through standard doors and in and out of lifts, making it ideal for indoor applications such as demolition and basement construction. In addition, by coupling the E10e to an optional external Bobcat super-charger while operators are on normal work breaks, the E10e can operate for a full eight-hour working day.

At the previous bauma exhibition in 2016, Bobcat showed its prototype of the E10e. Jarry Fiser, mini-excavator product line director, Doosan Bobcat EMEA, says the reason for electrical construction equipment is not only to meet customers' preference to be environmentally friendly, but there is a clear and dedicated business need for zero emission and low noise excavators for some specific applications. As well as indoor demolition and basement projects, these include city centre developments, night-time work and contracts in low noise areas such as hospitals, cemeteries and schools, among others. The electric solution solves many of the issues associated with these tasks.

"At Bobcat, we are strongly dedicated to meeting

these specific business opportunities and we are aiming to lead the industry in innovation within the mini excavator segment with our newly developed, zero-emission E10e, based on our legendary E10 ZTS mini-excavator," comments Fiser.

Developed at the Bobcat Innovation Centre in Dobris in the Czech Republic, in conjunction with electric vehicle suppliers, the E10e is based on the design of the successful diesel powered E10 Bobcat 1 t mini excavator, which has achieved sales of over 10 000 units in 10 years (the E10 is now called the E10z to reflect that it is a ZTS mini-excavator).

The new E10e has the same ZTS profile and identical external dimensions as the standard E10/E10z machine and offers the same or better performance. For example, the E10e offers very low noise levels on site with an LpA of only 64 dBA compared with 80 dBA for the standard E10.

Furthermore, all of the systems and components on the E10e have been optimised for work in harsh environments – the patented electrohydraulic powertrain system fully utilises the electric motor capabilities and all electric powertrain components are fully sealed, meeting the IP67 rating and also designed to meet construction equipment requirements for robustness.

The E10e has a state-of-the-art Lithium-Ion, maintenance-free battery pack with an advanced management system, designed to fit within the standard machine envelope to maintain the machine's ZTS profile.

Based on customer studies, Bobcat has optimised the battery pack to provide sufficient capacity to match typical work patterns. Using an external supercharger functionality, the E10e when used with normal work breaks, can operate throughout a full working day (8 hours) and can be fully recharged within 2,4 hours. The new E10e is also easy to maintain and safe to operate – due to the use of only low voltages, there is no need for operators to have special authorisation to work on the E10e. ⚡

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New TADANO rough terrain crane on SA soil

In September, Babcock delivered the first brand-new TADANO GR-700EX-4 rough terrain crane to a long-standing mining customer. The 70-tonne hydraulic rough terrain crane is the first one to arrive in South Africa, and one of the first to be sold worldwide.

Featuring cutting-edge technology and hydraulics, and smart controls for operator ease, the fourth-generation TADANO GR-700EX is exceptionally well suited for plant maintenance in mining and construction applications where manoeuvrability and access to narrow spaces is essential.

Sales representative for TADANO at Babcock, Claude Delpont, says that the TADANO brand is well established in South Africa owing to the quality and longevity of the products, availability of spare parts, and excellent resale value.

Manufactured by TADANO at its state-of-the-art facilities in Takamatsu, Japan, the GR-700EX-4 maintains the outstanding quality and reliability the brand is renowned for, while remaining well priced within a competitive market. Delpont says repairs are easy to carry out and servicing is economical, making the TADANO range of rough terrain cranes a cost-effective

long-term solution for any customer.

Some of the new features on the GR-700EX-4 that set it apart from its predecessors include an upgraded cab with digital displays and touch screens; automatic speed reduction and slow stop function on boom elevation and slewing; a 20° tilt cab for improved operator comfort and visibility; and a TADANO Automatic Moment Limiter (AML-E2) system that monitors outrigger extended lengths and automatically programmes the corresponding rated lifting capacities table.

"The Tadano AML-E2 system with the outrigger monitoring feature and smart chart system is a particularly useful tool as it automatically calculates the machine's lifting capacity and stability even if the four outriggers are extended at different lengths. This ensures that the lifting capacity is increased in safer areas and adjusted accordingly in more confined spaces," Delpont says.

Delpont says that the range of reliable TADANO cranes available from Babcock are popular across the continent, with some customers operating the same machines for over 35 years. "Our customers are extremely happy with the quality and

longevity provided by TADANO, as well as the long-term investment opportunities the machines afford."

The new rough terrain cranes are available in models with lifting capabilities from 13 to 145 t, while TADANO'S all-terrain cranes have lifting capabilities ranging from 40 to 400 t. 🌐



Babcock executives with the first TADANO GR-700EX-4 to arrive in South Africa.

EIE Industrial Equipment acquires Uni-Cape

While many businesses ground to a halt during lockdown, EIE Industrial Equipment Group continued to pursue growth opportunities, recently acquiring Uni-Cape Equipment, a lifting equipment operation in the Western Cape. Its vision is to double Uni-Cape's size over the next few years and make it a more significant player in the industry.

EIE Group CEO, Gary Neubert, says the decision to acquire Uni-Cape Equipment was prompted by the company reviewing its 600SA business model. "600SA is largely a truck-mounted crane and waste compactor business and we wanted it to have a similar business model to the Toyota Forklift side of our business."

"We have 600SA branches in Johannesburg and Durban, but no representation in Cape Town. We had two options; set up a branch from scratch, which is expensive and time consuming, or acquire a business with a good reputation and similar culture to ours," he adds.

With its 35-year history of supplying cranes, lifts, docking equipment and pallet trucks in the Western Cape, the company was a perfect fit for EIE Group. In addition, its owner and managing director, Chris Coxwell, had approached Neubert in

2019 about selling the business.

Neubert says while the business will become a branch of 600SA, it will retain its unique branding and offering. "Because Uni-Cape is a well-known brand in the Western Cape, it will remain a standalone business, but we will enhance its product range with CT Power forklifts, a Toyota-owned Chinese brand, Waste compactors as well as Sinoboom aerial platforms.

"One of the greatest benefits that Uni-Cape represents for us is its relationship with Stab-A-Load, which specialises in warehouse doors and dock levellers, amongst others. We have always wanted to operate in that market and this will be a good opportunity for us to do so in the Western Cape," notes Neubert.

Uni-Cape also brings Palfinger marine cranes to the product mix. Until recently, 600SA had the Fassi range of truck-mounted cranes in its suite of offerings. The relationship was, however, terminated by mutual agreement at the beginning of this year. Uni-Cape's Palfinger product range will ensure that the EIE Group can continue offering marine cranes.

Neubert says Uni-Cape's culture is similar to that of the EIE Group. "Over the



EIE Group CEO Gary Neubert.

years, we have noted the good relationship Chris has developed with his customers and the way the business is run. We appointed Stephen Berg as branch manager on 1 October, but Chris will stay on for about six months to ensure the handover process is seamless. After that, he will fulfil a consulting role, where necessary. Notably, all Uni-Cape employees will retain their positions in the business as we need their skills." 🌐



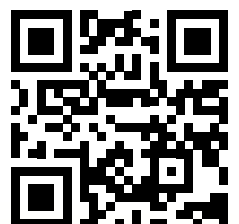
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AFRICA'S HEAVIEST EVER EQUIPMENT TRANSPORT REDUCES DOWNTIME FOR MINING COMPANY

Kenmare Resources plc's mining plant has been safely transported from its previous mining area at Namalope to Pilivilil, a new high-grade ore zone at the Moma Mine, in Mozambique. The transport consisted of a Wet Concentrator Plant (known as WCP B) and its dredge.



Mammoet engineers were able to provide a safe and effective solution to load, move and unload the plant in one piece.

It is said to be the heaviest piece of mining equipment to be moved in Africa, to date. With 290 axles required to lift and transport the WCP B-unit, the move also represented the most SPMT axles used in Africa to date and one of the largest moves of a single piece of mining equipment in the world.

Mammoet has extensive experience in moving entire plants for major industries. This expertise, combined with the capacity and capability to carry out such operations, worldwide, ensured the project was safely and efficiently executed.

Ideal option

Having considered numerous options, it was chosen to move these assets intact and by road, as this was the lowest-risk option and limited the time out of production. Disassembling and reassembling the plant would have taken significantly longer and transporting the plant by sea barge may well have resulted in substantial delays – as a significant period of forecasted calm seas would be needed for this option.

Mammoet engineers were able to provide a safe and effective solution to load, move and unload the plant in one piece. First, the plant was floated into an excavated starter pond and placed on constructed concrete plinths. The pond was then drained, allowing 290 axle lines of SPMTs (in 5 x 58 configuration) to be positioned underneath the plant, before it was moved along a 23 km long, purpose-built road with a weight-bearing capacity of 8,4 t/m², to its new location.

In Pilivilil, the operation was completed in reverse: the plant was positioned on top of concrete plinths and then pond around it was flooded, which allowed the plant and the dredge to float to their new mining position.

WCP B weighs approximately 7 100 t, including ballast, and measures 80 m long, 60 m wide and 24 m high. The move was particularly unusual due to the combination of the weight of the load and the length of the distance travelled.

Huge achievement

Commenting on the move Michael

Carvill, MD Kenmare Resources plc, says: "Moving the plant in one piece, an object weighing the equivalent of 550 double-decker buses, taller than a seven-story building and wider than a football pitch, is a huge achievement for our company."

"This type of relocation is rare in the mining industry, but it was the clear choice for Kenmare given the economic benefits and lower risk profile it provided, compared to the alternatives we considered. I would like to extend my congratulations and thanks to the Kenmare team on site and our specialist contractors for completing this record-breaking task safely and overcoming many challenges as a result of COVID-19."

Heavy mineral concentrate production from WCP B at Pilivilil is expected to begin in mid-Q4 2020.

The relocation of WCP B and its dredge form the third and final project of Kenmare's development program to increase Moma's ilmenite production to 1,2 million tonnes (plus co-products) on a sustainable basis from 2021. 🌱

Volvo Trucks to supply 70 electric trucks

Volvo Trucks North America has been awarded US\$21.7-million in grants to deploy 70 VNR electric trucks in Southern California for regional freight distribution and drayage. The US Environmental Protection Agency's (EPA) Targeted Air Shed Grant Programme is providing US\$20-million in funding, supplemented by US\$1.7-million from the South Coast Air Quality Management District (South Coast AQMD) for charging infrastructure, to improve air quality in the region.

Volvo Trucks will deliver the EPA-funded VNR Electric trucks to Southern California fleet operators starting in 2021 through the third quarter of 2022, allowing for at least a full year of operations by the end of the project period in 2023. The announcement comes as Volvo Trucks nears the official commercial launch of its VNR Electric truck model later this year.

Volvo Trucks will leverage best practices learned from the Volvo LIGHTS (Low Impact Green Heavy Transport Solutions) project, its collaboration with South Coast AQMD and 13 other organisations to develop an end-to-end blueprint to successfully introduce battery-electric trucks and equipment into the market at scale. Combined with the other 25 truck deployments through the Volvo LIGHTS project, Volvo Trucks is committed to delivering nearly 100 VNR Electric trucks to the region for zero-emission freight transport.

"This grant provides Volvo Trucks with an excellent opportunity to further expedite the success of the ecosystem designed through



The 70 Volvo VNR Electric trucks deployed through this grant are anticipated to provide lifetime emission reduction benefits in excess of 152,63 t of NOx, 1 317 t of PM2.5, and 53 160 t of carbon emissions.

the Volvo LIGHTS project to support the wide-scale deployment of battery-electric heavy-duty trucks," says Peter Voorhoeve, president of Volvo Trucks North America. "We applaud the EPA and South Coast AQMD for addressing the key issues in advancing electromobility and incentivising technology investments in the region, and are proud they continue to trust in Volvo Trucks North America to lead the acceleration of Class 8 zero-emission vehicles."

The EPA's Targeted Air Shed Grant Program focuses on the regions that have the highest ozone and particulate matter (PM) pollution, including California's South Coast Air Basin. South Coast AQMD is the agency responsible for attaining state and federal air quality standards for this region – including the counties of Los Angeles, Orange, San Bernardino, Riverside and the Coachella Valley.

"The EPA Targeted Air Shed Grant has enabled South Coast AQMD to continue partnering with Volvo Trucks for the swift deployment of nearly 100 heavy-duty zero-emission trucks," says Wayne Nastri, executive officer for South Coast AQMD. "Innovative collaborations like this are key to bringing clean air to Southern California. South Coast AQMD is pleased to fund the charging infrastructure to support these new heavy-duty trucks that will operate in disadvantaged communities facing the brunt of air pollution." 🌱

Ctrack Freight & Transport Index returns its best quarter yet

The South African Logistics sector has just completed its strongest ever quarter of growth to date. As often happens the biggest decline was followed by the highest growth. With September being the end of the third quarter, Statistics SA is expected to release the updated GDP figures imminently and all indications are that it will show the strongest growth per quarter in our lifetime.

In June 2020, the Ctrack Freight Transport Index showed that the logistics sector recorded a decline of 17,6% compared to the previous quarter while the growth over the second quarter has improved with 11,8%. According to the Ctrack Freight Transport Index only two subsectors recorded a decline. Those were Pipelines, which is the smallest subsector and Storage, which is historically very difficult to predict.

"The Ctrack Freight Transport Index has been recording these trends for a considerable period of time and we have never seen such growth and recovery, which is excellent news for the economy," comments Hein Jordt, MD of Ctrack SA.

Freight transport tracks the economy in the near real time, and this tell us that the 3rd quarter GDP will be the highest on record too. The Ctrack Freight Transport Index has a very close relationship with GDP and is also strongly correlated to the co-incident index. This is of course why we now expect the strongest GDP on record for South Africa and many other countries too.

While this recovery might seem remarkable, one must remember that if your turnover is cut by 50% from R1000 to R500 in one year and you get a 50% increase on the R500 turnover the next

(year two), your turnover is now only R750, which is still 25% less than in year one.

However, this does not take away from the strength of the bounce or the record-breaking nature of the recovery, but it does indicate that everything is not back to normal yet. With normal meaning the logistics sector returning to where it was before the slowdown in mid-2019.

The effects of the second wave of COVID-19 are yet to be seen, however at the moment it seems to have hit Europe the hardest. China has recovered and is growing strongly while indications are that the recession in the US was not as bad as feared.

"We do expect some negative effects, but believe that they will not be as devastating as those of the first wave," says Jordt. 🌱

XCMG proves its mettle at Limpopo mine

Founded in 1992 in the Limpopo province of South Africa, PMG has established itself as a formidable mining company. In 2018, the company purchased its first XCMG mining machines and never looked back.

After several rounds of discussions on technology and commercial terms, followed by a visit to XCMG's factory in China, PMG decided to place an order for XCMG mining solutions specially designed for its open-pit mine in Limpopo.

The order comprised a LW1200KN (max loading capacity 12 t) wheel loader, an XE470D crawler excavator (47-t operating weight), three 40-t ADTs, an XDA40 and a GR2405 motor grader (4 m cutting blade). The fleet was precisely calculated to match the required productivity of the mine.

National manager for XCMG Derk says the Chinese OEM has proved its mettle in the mining sector owing to the quality, ruggedness of the machines, complemented by unparalleled backup support.

All the machines are equipped with world class critical components that are built for the mining environment. The LW1200KN is said to be the largest wheel loader in China and also the first model from XCMG to be sold in South Africa.



XCMG mining machines at PMG in Limpopo.

The machine comes with a 19-ℓ Cummins engine, a Dana automatic transmission and Dana wet brake axle, as well as a 6,5 m³ rock bucket and 35/65R33 Michelin radial tyres.

The XE470D is a 47 t crawler excavator powered by a 250 kW Cummins QSM11 engine. It also comes with Kawasaki hydraulics and has a bucket size of 2,5 m³. The XDA40 ADT comes with a Mercedes OM502 engine with power output of 350 W, as well as a ZF transmission and a payload of 40 t.

After the machines were delivered, PMG asked a third party to inspect the fleet before it was deployed to work on site. All the machines met the required

standards and were approved for the job at hand. Having run in excess of 10 000 hours with no issues, the machines have won a stamp of approval from PMG.

CEO for PMG Johan says the one-stop nature of XCMG was a big driver in making the purchasing decision. PMG prefers to establish long-term relationships with a single supplier of all its machinery needs.

Machine availability has been a major appealing factor for PMG thus far, among other positive things. The mine is a 24/7 operation and has a strict requirement for maximum availability of all the machines in its fleet. XCMG machines are built for tough mining applications and availability is more than 90%. 🌐

SEW-Eurodrive breaks ground on new R200-million facility

Construction has commenced on SEW-Eurodrive's new R200-million head office and factory in Everton, Johannesburg, to accommodate the company's growth.

The 25 000 m² building is being constructed on property acquired by the company two years ago. The necessary earthworks were completed in late September. Construction is due to be completed by October 2021 and the company plans to move in to its new premises – which will also act as its South African headquarters – in January 2022.

Over a three to five year period, the factory will be fitted with state-of-the-art, Industry 4.0 compliant technologies including automated assembly machines and guided vehicles which the company anticipates will cost at least another R200-million.

"In order to remain globally competitive it's important that this new factory is as automated as possible," reveals Raymond Obermeyer, MD at SEW-Eurodrive South Africa.

The new state-of-the-art, hi-tech facility will allow the company to more efficiently and effectively service customers both in Gauteng and in the rest of Africa, he reveals, adding that the company expects the majority of its growth in the years ahead to

come from Africa rather than South Africa.

"We expect African markets to account for 50% of our turnover within the next three to four years, given that growth in many countries around the continent is much faster than it is locally," says Obermeyer.

"Not only do we expect to see opportunities for growth coming from the establishment of the African Free Trade Continental Area (AfCFTA) agreement, but the removal of border restrictions will make it significantly easier for companies like SEW-Eurodrive to do business on the continent," he says.

The new factory will accommodate a number of the company's assembly plants around the country in order to develop better efficiencies and contain costs. SEW-Eurodrive's existing plants in Nelspruit, Durban, Port Elizabeth and Cape Town will continue to operate with a focus on servicing the company's national footprint of customers, while its current head office and factory will become a large gear box repair centre, reports Obermeyer.

SEW-Eurodrive, which specialises in manufacturing and supplying gear motors



Raymond Obermeyer, MD at SEW-Eurodrive South Africa.

and units, drive solutions as well as various components and supplementary products and services to the mining, renewable energies and industrial sector, has been operational in South Africa since 1986.

"This new facility has been planned for some years already and we're delighted that construction has finally kicked off, paving the way for an exciting period in the company's growth trajectory," concludes Obermeyer. 🌐

Caterpillar introduces Next Gen 785 mining truck

The Next Generation Cat 785 mining truck enhances operator safety and performance, provides more intuitive and predictable operation, delivers faster and easier access to data, and streamlines maintenance – to boost efficiency and lower costs. Leveraging the Next Generation concept, the new 150-t class mining truck features an expandable technology platform, so it is future-ready.

“The 785 was Caterpillar’s first large mining truck, introduced in 1985. It’s fitting that the first Next Generation Cat mining truck is the new 785 – designed to enable mining operations to optimise productivity today and tomorrow,” says David Rea, GM of Cat Large Mining Trucks. “Cat Next Generation mining trucks feature a flexible technology platform and optional configurations that help each mining operation meet their goals.”

Productive hauling begins with the operator, who sits in the new state-of-the-art cab, designed for efficiency and equipped with features that automate functions. The Next Generation 785 offers a new integrated speed coaching feature to give feedback on how to operate the truck most productively. Truck responsiveness and controllability are enhanced through multiple upgrades such as the anti-lock brake system, dynamic stability control, enhanced traction control, machine speed limiting, hill start assist with anti-roll-back, and cruise control. Additionally, new Auto Hoist control reduces dumping time and unburdens the operator.

The improved payload monitoring system offers more accurate measurement and



The Cat Next Gen 785 truck in a mining application.

dipper counts as well as enhanced overload detection and carryback calculation and reporting – to inform operators and production managers. The 360-degree surround view camera delivers a full view of the working area to the operator.

Inside the cab, guidance information, machine data and electronics controls are consolidated into two touch screens that eliminate clutter and promote efficiency. The spacious new cab features a walk-through sliding centre console, increased legroom and new cab air filtration system for operator comfort. The new deluxe seat boasts leather upholstery, air-adjustable bolsters and lumbar support, heated and cooled cushions, dynamic dampening, and a 30-degree recline with thigh tilt and extension, so it comfortably accommodates operators of

all sizes.

The Next Gen 785 is powered by the proven Cat 3512E engine offering selectable power options, allowing operations to match the speed of the fleet or to speed up cycle times. Two tyre options, 33R51 and 36R51 are available, to enable mines to optimise payload capacity. The larger tires allow a nominal payload of 142 t.

The truck is available in multiple emissions configurations to meet different regulatory requirements around the world. The optional Tier 4 Final/Stage V emissions configuration has shown fuel efficiency improvements of as much as 9%. Advanced electronic powertrain controls deliver faster cycle times and acceleration, less spillage and reduced road maintenance in addition to improved engine and drivetrain life. 🌱

Brokk 200 raises the stakes in mining operations

Brokk, the leading manufacturer of remote-controlled demolition machines, offers the Brokk 200 for ultra-deep mining applications. With SmartConcept – the company’s signature system for improved performance and uptime – the machine provides industry-leading power and productivity with zero emissions, making it ideal for deep, challenging applications. Compactness, combined with the power of a machine three times its size, revolutionises efficiency and safety by reducing the need for large crews with handheld equipment.

“Demand for gold and other mined ore has pushed mining operations deeper than ever before,” says Lars Lindgren, president of Brokk Inc. “As shaft depth increases, so does the risk to workers. Electric, remote-controlled demolition machines provide superior productivity as well as a safer alternative to handheld equipment by removing operators from the hottest, most

physical tasks.”

As part of Brokk’s Next Generation of remote-controlled demolition machines, the Brokk 200 is ideal for all-electric mines. It incorporates the SmartConcept system, which consists of three features: SmartPower, SmartDesign and SmartRemote. SmartPower senses when the power supply is poor or faulty then compensates before damage to components occurs, allowing mining operations to use the machine with generators or unreliable power sources.

SmartDesign extends machine life and provides unprecedented ease of maintenance, even in extreme environments. This feature includes 70% fewer cables, hardened components, LED headlights and easily accessible grease points and hydraulic hoses. An ergonomic remote control, the SmartRemote, incorporates adjustable straps, intuitive controls and professional-grade radio technology with a 300-m

The Brokk 200 is ideal for all-electric mines.



working range.

The Brokk 200 is capable of carrying heavy tools, such as breakers, rock drills, buckets and shotcrete attachments. It’s ideal for heavy duty, difficult-to-access projects and applications. 🌱

Bobcat's R-Series B730 backhoe loader for the Middle East and Africa

Bobcat has launched the new generation R-Series B730 backhoe loader, replacing the company's first generation B700, B730 and B750 models, for sale in the Middle East and Africa (MEA). Available in a choice of different configurations for diverse applications, the new R-Series B730 backhoe loader is ideal for use in construction, utility, rental, roadworks, demolition, excavation, waste, recycling, landscaping, agriculture and many other industries.

Gul Nalcaci, product manager for Bobcat backhoe loaders, says: "The R-Series B730 backhoe loader is the result of a great interpretation to meet the needs of our customers and is enriched with numerous new features. The new design is powerful and intuitive, injected with our iconic Bobcat DNA in heavy duty forms adding a huge strength to the product. It now offers a completely flexible solution for any job site with an unbeatable combination of power, drive and control options. Smartly designed with an all new cab with convenience features that ensure it is a fantastic experience to operate a Bobcat backhoe loader."

Bobcat has long been acknowledged as the market leader in skid-steer loaders in MEA. In answer to customer requests, the company entered the backhoe loader market four years ago and quickly gained market share throughout the region, with the first generation of Bobcat machines achieving top three positions in many countries in MEA.



Bobcat B730 R-Series backhoe loader.

Gaby Rhayem, regional director Middle East and Africa at Doosan Bobcat EMEA, says: "Backed by our No. 1 position in loaders and our fantastic Bobcat dealer network coverage for MEA, our first generation backhoe loader range has been very successful – I can proudly say that every second sold machine in the MEA region in our category is now Bobcat-branded, which is an incredible achievement. We also had a very good first half of 2020, despite the market challenges brought by COVID-19.

"At Bobcat, we are dedicated to providing our customers with the performance and innovation they need. Our new generation R-series B730 backhoe loader

meets all these goals and will allow us to gain market share and further improve our position throughout the region."

The new R-Series B730 backhoe loader is powered by the best-in-class Perkins 1104C-44T 100 HP engine with a maximum torque of 408 Nm, delivering more than enough muscle for the most demanding applications. Along with the hydraulics, the B730 can therefore deliver all the power needed to finish work in a shorter time.

In combination with the manual or optional auto-shift transmission, accelerating from 0 to 40 km/h by smooth gearshifts, the operator benefits from an easy and comfortable drive on the road or at the job site. 🌟

JCB celebrates 75th anniversary as family notches up 600 years' service

As JCB celebrates its 75th birthday this month, there is one family with an extra reason to toast the milestone after notching up a staggering 600 years' service to the company.

The Boot family started its long association with JCB in 1949 when Bill Boot clocked on for the first time at the company's factory in Rocester, Staffordshire. In the years that followed, nine of 10 of Bill and his wife Lucy's children went on to work at JCB. In total 27 Boot family members – including nine grandsons and three great-grandsons have followed in Bill's footsteps – registering a staggering 600 years' combined service to JCB.

The milestone has just been reached as JCB prepares to mark its 75th anniversary on October 23 – the day in 1945 that the late Joseph Cyril Bamford founded his business in a lock-up garage in the Staffordshire market town of Uttoxeter.

Today the late Bill Boot's legacy continues as 11 members of his family still work at JCB – including five of his grandsons and three of his great-grandsons.

Bill's son Bob, aged 81 and living in Cheadle, Staffordshire, started work in at JCB in 1956 on a temporary contract – and stayed for nearly 44 years. He says: "It is a company that has changed so much, but so many things have stayed the same. It may have factories in all four corners of the world but it is still based on the values that started it up in Staffordshire 75 years ago."

Bill's grandson Gary Boot, of Uttoxeter, 58, who retired in September, says his family were very proud of their JCB links. Gary, who started working for JCB in 1986, says: "I always wanted to join from an early age. My dad, Dereck, would come home and tell us stories of the company and Mr JCB and that sparked my interest. I've made so many great friends and have so many memories of

the place. It is amazing to think of how many years' service our family has put in – 600, it's astonishing."

Gary's identical twin brothers Andy and Steven both work at the World HQ in Rocester. Andy, 53, says: "I think how it is passed out over the generations has been brilliant. I joined in 1983 on a Youth Training Scheme and haven't looked back from there."

Steven, of Rocester, adds: "Being identical twins makes it difficult for our colleagues, but to be honest, there are so many Boots I find it difficult to keep up myself on some occasions!"

The fourth generation of Boots working at JCB is made up of great-grandsons, brothers Shaun and Daniel Boot and their second cousin Leigh Boot. Shaun, of Denstone, who has worked for JCB for 20 years, says: "There is definitely something in the blood of the Boot family that makes us want to work at JCB."

Liebherr's new R 940 Demolition replaces the R 944 C



With the R 940 Demolition, Liebherr complements its existing range of demolition excavators R 950 and R 960.

The Liebherr-France SAS development and production site is launching a new machine on the global market. As a successor to the R 944 C, the R 940 Demolition complements the product range, which already includes the R 950 Demolition and the R 960 Demolition.

Liebherr benefits from more than 50 years of experience in the development and production of demolition excavators. These demolition excavators are said to set new standards in terms of efficiency and profitability of the machines. Thanks to the wide range of models and

equipment, the optimal combination is available for every application. With the R 940 Demolition, Liebherr complements its existing range of demolition excavators R 950 and R 960.

The Liebherr engine, which complies with exhaust emissions standard Stage V, reaches an output of 200 kW, features a diesel oxidation catalyst (DOC), SCR system, particulate filter and does not have an EGR valve, thus ensuring lower fuel consumption and higher productivity. This machine is also available in a Tier 4 Final version, as well as for less regulated markets with a corre-

sponding engine.

The Liebherr Demolition Control System, which received the Intermat Innovation Award, shows the driver the position of the demolition tool, thus guaranteeing the stability of the excavator. In this way, it was possible to reduce to a minimum the probability of an operating error that could impair the stability of the machine. With the active safety components of the LDC, the driver has real time information in his field of vision on the tilt angle of the machine and the tool position. If a critical value is exceeded, the LDC automatically triggers electronic range information. The safety system informs the driver about every movement of the equipment which could impact the stability of the excavator.

Like the other models in the range, the R 940 Demolition also features optimal properties for selective deconstruction. Apart from the Liebherr Demolition Control System (LDC), a 30°-tiltable cab ensures an optimal view of the working area. The hydraulically adjustable undercarriage with variable track gauge facilitates transport and the counterweight can be removed.

A cab air filtration system for a healthy work environment and a spray system for reducing dust in the working area are available as optional equipment for the R 940 Demolition crawler excavator. The machine can also be equipped with an air compressor for cleaning the radiator and cab. 🌱

SKF joins the Renewable Energy 100 initiative

"Knowing that dad, grandad and great grandad all worked here really does make me sit back and think. I'm really not sure what our family would have done for a living if it wasn't for JCB. I have a six-year-old daughter and my brother Daniel has a six-year-old son. So, you never know, I wouldn't be surprised if they decide to follow in the family tradition." 🌱



The Boot family.

As part of SKF's goal to achieve Carbon Neutrality for its global manufacturing operations by 2030, the company has joined the Renewable Energy 100 (RE100) initiative.

RE100 is a global initiative bringing together the world's most influential businesses committed to using 100% renewable electricity.

Kent Viitanen, president, Bearing Operations, says: "Achieving Carbon Neutrality by 2030 is an integral part of SKF's overall strategy. We see this as part of our responsibility and we are convinced that making this transition will create a long-term competitive advantage for SKF and our customers. We aim to achieve it by improving energy and material efficiency in our operations whilst increasing the sourcing or self-generation of renewable energy. Our aim to get to 100% renewable energy by 2030 or sooner is fully aligned with the

RE100 ambition and approach."

Sam Kimmins, head of RE100, the Climate Group, says: "We are delighted to welcome SKF to RE100. By transforming their global business operations to renewable electricity, SKF are demonstrating a strong commitment to combat climate change, whilst underlining the business case for renewables. We look forward to seeing other industrial businesses follow their example."

Johan Lantering, director Group Sustainability & SKF Nova, says: "This is how we address our responsibility as a user of energy, and we are also proud that our products and solutions are key enablers of renewable energy systems such as wind energy and emerging technologies like tidal power. On the demand side, our Rotating Equipment Performance offer is helping industrial companies in all sectors around the world to improve energy efficiency and operational performance." 🌱

THREE WAYS TO PREVENT ISSUES WITH VIBRATION ANALYSIS

When coupled with routine maintenance, anticipating the needs of equipment is an important way operations can ensure screening performance and productivity. Consistently monitoring a vibrating screen with a predictive analysis program helps to not only keep it up and running, but helps to do so efficiently. By Lars Bräunling, director of product technology at MAJOR.

Predictive analysis is important for products such as screen media. Since screen boxes and screen media are used consistently and undergo a lot of day-to-day stress, it's important they be monitored to avoid unexpected breakdowns and maintenance. Vibration analysis is one way that producers can identify and prevent issues with their operation in real-time. During a scheduled visit, an expert can address problems, make recommendations and provide advice on an optimal screen media solution.

Along with unforeseen shutdowns and maintenance, there are three key issues that vibration analysis can help prevent.

Address improper settings

Applying the incorrect settings to a screening operation can result in lowered production capabilities and output. If an operator adjusts the machine after a certified dealer sets it up, issues can arise.

Changes from the baseline operating data, such as adding more material than recommended or adjusting speeds, can cause poor performance and potential damage to the machine. Vibration analysis helps provide data to identify issues and makes it easy for a dealer to work with the operation to get things back on track.

Accurately measure changes

The data that comes from a vibration analysis delivers quantitative measurement of changes in the screens' performance. Some sensors measure g-force, stroke, rpm and orbit, including lateral movement – a measurement that not all vibration analysis systems offer. The detailed measurements can help operators and their dealers determine whether fine-tuning of the machine is necessary.

Identify maintenance issues

While some sensors aren't designed as



Producers can utilise vibration analysis technology to optimise performance while increasing uptime and profits.

vibrating screen diagnostic tools, the information they provide can help pinpoint possible problems with the equipment. Unaddressed issues, such as cracked side plates, weak or damaged screens and loose bolts, can cause increased wear and poor performance down the road. Identifying these issues early on can help prevent unexpected downtime to fix issues later.

In one example, a mining company benefited from the preventative observations found by a vibration analysis sensor. During a scheduled visit to the operation, a dealer conducted tests and noticed an anomaly on one corner of the discharge end. After confirming the anomaly with several follow-up tests, the dealer consulted with the manufacturer to see if any similar irregularities at other operations had been recorded. They had not.

A site technician took a closer look at the vibrating screen. The bearing temperature revealed that the bearing was running hot and had damaged the shaft. It was deemed that there was no risk of critical failure for both the bearing and the shaft before the next preventative maintenance day.

The team ordered replacement parts, and performed a replacement during the next scheduled maintenance shutdown. Without performing a vibration analysis this could have led to an unplanned outage, which could have resulted in extra costs for the company.

Because of the constant use and day-to-day stress that screen media undergoes, it's important to be on the lookout for potential issues. Producers can utilise vibration analysis technology to optimise performance while increasing uptime and profits. 🌐



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