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JUNE 2022



SCANIA: DRIVING CUSTOMER PROFITABILITY THROUGH SUSTAINABLE TRANSPORT SOLUTIONS



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TRANSPORT AND LOGISTICS SECTOR BOUNCES BACK

By Ctrack South Africa

The heavy rains and floods that occurred in KwaZulu-Natal in mid-April this year had a severe negative impact on the South African logistics sector. The flooding was particularly devastating in the Durban-South area and resulted in a major disruption to the Port of Durban, the fourth largest in the Southern African Development Community (SADC) region.

The overall Ctrack Transport and Freight Index for April 2022 declined by 0,4% compared to March but was still up by 8,6% compared to a year ago, although this represents a setback compared to March's strong 12,4% year on year increase.

Three of the six sectors that the Ctrack Transport and Freight Index measures declined during April, with the biggest contractions evident in sea freight and rail, both of which were particularly hard hit by the floods in the Durban area. The port is the primary multipurpose gateway to the main economic hub of Gauteng – with a key focus on containers, automotive and liquid bulk transport, and is critical for the stability of the South African economy.

Taking a closer look reveals that container handling dropped by 22,8% in April

compared to a year ago, while other cargo handling (excluding vehicles) dropped by a notable 16,8%. Because the Ctrack Transport and Freight Index is calculated on a three-month moving average, the impact is somewhat softened, with sea-freight declining by 7,8% in April compared to a year ago, which was the biggest decline for this sector since August 2010.

Rail Freight also declined further during April and now indicates a 13,4% year on year decline. This continuous decline can partly be attributed to the damage to the Durban Port. In addition, sections of the main railway line between Cato Ridge and Durban were impacted for days by severe wash aways and mudslides, particularly in areas where communities have encroached on the rail reserve. In addition to the flood-related challenges, ongoing issues pertaining to inadequate infrastructure and crime incidents on rail lines remain relevant and contributed to a 2,9% overall year on year decline in the rail freight sector.

"The devastation caused by the floods in KZN was tragic to behold. However, it is truly impressive how the industry has recovered and shows the transport industry's commitment to the recovery of the South African economy, despite all the ongoing disruptions from a variety of external factors," says Hein Jordt, CEO of Ctrack Africa.

Transport of liquid fuels via the Transnet Pipeline Lines (TPL) remained mostly unaffected during April, with no weather-related impact. TPL has also accumulated stock at the Jameson Park Terminal to feed the reef (Gauteng) and ensure supply security for the inland market. The overall Transport via pipeline segment returned a 6,3% year on year growth in April.

Thanks to the gradual recovery of international supply chains and the normalisation of economic conditions post COVID-19, air transport continues to show steady growth. The air freight segment of the Ctrack Transport and Freight Index grew by 3,7% in April compared to a year ago.

Road freight remains the star performer among the various sub-sectors of the logistics industry and, during April, this was once again the case. Road freight has certainly picked up where rail freight has fallen short in recent years. As such, the road freight segment of the Ctrack Transport and Freight Index returned growth of 19,8% compared to a year ago, which is the strongest growth outside of the recovery in 2021 from the COVID-19 hard lockdown levels.

Ctrack Transport & Freight Index and GDP growth.

While this year's Q1 real GDP growth was stronger than expected, with growth of 1,9% compared to Q4 2021's revised growth rate of 1,4%, the latest figures measured by the Ctrack Transport and Freight Index indicate that the economy has lost some momentum in Q2. This could be due to various factors, including the flooding in KZN, Stage 4 load shedding during April and May, inflation, and higher interest rates. This trend was mirrored by a notable drop in the ABSA PMI and passenger vehicle sales in April.

While the May 2022 ABSA PMI did recover from the very low levels of April 2022 (54,8 in May vs 50,7 in April), the index remains below the March 2022 level (60,0), indicating that the post-April recovery could be slower than initially expected. 🌟



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Scania enjoys recognition as the truck with the best fuel consumption and especially with the New Truck Generation series that was launched about three years ago.



SCANIA: DRIVING CUSTOMER PROFITABILITY THROUGH SUSTAINABLE TRANSPORT SOLUTIONS

Having won the Green Truck Award in Europe for six consecutive years, sustainability is at the core of Scania's business strategy. According to Scania Southern Africa MD Erik Bergvall, the company's overarching purpose is to drive the shift towards a sustainable transport system as it aims to decrease its carbon footprint by 50% by 2025 and the footprint of its vehicles on the road by 20% compared to 2015.



Scania has won the Green Truck Award in Europe for six consecutive years.

TALKING POINT



"Our overarching purpose is to drive the shift towards a sustainable transport system."

Erik Bergvall, MD of Scania Southern Africa

Scania Southern Africa MD Erik Bergvall, who took up the position in January this year, says the war in Ukraine has affected almost every country around the globe and that South Africa is no exception when it comes to the

50%

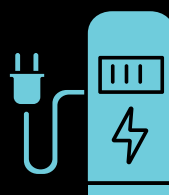
"Scania's plan is very clear: by 2025, our company's carbon footprint should decrease by 50% compared to 2015 and the footprint of our vehicles on the road by 20%."



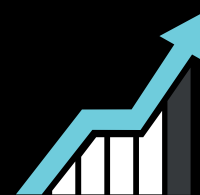
"By 2025, our company's carbon footprint should decrease by 50% compared to 2015 and the footprint of our vehicles on the road by 20%."



"Our overarching purpose is to drive the shift towards a sustainable transport system."



Scania expects electrified vehicles to account for around 10% of its total vehicle sales volumes in Europe by 2025 and 50% by 2030.



Bergvall expects the extra-heavy truck market in South Africa to grow by between 10% and 15% this year.

skyrocketing price of fuel, which calls for trucks with, first and foremost, economical fuel consumption.

"South Africans also feel the bite of the war in rising fuel prices and if ever there was a time to make sure the truck you choose is not fuel greedy, it is now," he says.

Internationally, Scania enjoys recognition as the truck with the best fuel consumption and especially with the New Truck Generation series that was launched about three years ago, Scania has set a standard that is difficult to beat.

The company has won the Green Truck

Award in Europe for six consecutive years. However, good fuel consumption and low carbon emissions are not all that it focuses on.

"Scania's plan, which is also my mission for the near future, is very clear: by 2025, our company's carbon footprint should



decrease by 50% compared to 2015 and the footprint of our vehicles on the road by 20%.

"My goal is to lead this transition to sustainable energy use in southern Africa," says Bergvall.

The company has come a long way in terms of the development of electric trucks, but Bergvall predicts that trucks driving in Africa will have to provide for both diesel and electric options for some time to come, due to the distances to be covered and unreliable power supply.

He says that, at Scania, there is no separate strategy for sustainability. Instead, sustainability is at the core of the company's business strategy aiming to align its targets and activities with sustainable development.

"Our overarching purpose is to drive the shift towards a sustainable transport system. To achieve this goal, we must do the right things in terms of solutions for sustainable transport, but also do things in the right way and act as a responsible business – environmentally, socially and ethically," Bergvall says. Scania measures and follows up on its sustainability performance in relation to set targets.

"To track our performance, we have developed 18 sustainability indicators linked to our most material areas with connection to impact, risk and the life cycle of our products."

During 2020, Scania set science-based targets related to decarbonisation. These science-based targets are part of the

company's corporate targets, and will impact on investment decisions across its business areas, from production and logistics to product development and sales priorities.

"More than 90% of the carbon emissions from our business is generated when products are in use. Our ambition is to measure the emissions from fuel consumption during the use of our products, considering the emissions generated in the production of the fuel or electricity," says Bergvall.

Customer profitability, operating efficiencies

He says his focus as the MD of Scania Southern Africa is to offer innovations that increase customer profitability and operating efficiencies. The major focus is on vehicles with better fuel efficiency and emission standards, says Bergvall, who, during his tenure as MD of Scania Middle East, delivered strong growth in both vehicle sales and after sales while introducing several new sustainable transport solutions to the Gulf region.

Fuel efficiency is one of the main selling points of Scania's new truck generation, thanks to improved aerodynamics and powertrain updates. Vehicle data recorded from multiple Scania trucks in daily operation yielded an average 10% fuel saving across the new generation truck range that was launched in South Africa in 2019, a saving that potentially offsets

monthly maintenance costs.

"It is our responsibility to push things in the direction of higher emissions standards," says Bergvall in reference to Scania's plug-in hybrid vehicles and electric trucks which have received positive reactions in Europe.

The company expects electrified vehicles to account for around 10% of its total vehicle sales volumes in Europe by 2025 and 50% by 2030. In terms of introducing electrified trucks in South Africa, Bergvall alludes to some "exciting news" to be shared by Scania in the near future.

"Increasing the use of renewable fuels and sales of electrified vehicles will play a key role in achieving our science-based targets," says Bergvall. "In order to decrease the use of fossil fuels, renewable fuels must become more available. Scania offers the broadest range of renewable or alternative fuel solutions on the market." He says all Scania diesel vehicles can be fuelled with HVO biodiesel, without any modifications or limitations.

"Electrification of the transport sector is growing fast. Scania's electric solutions include hybrid buses and trucks as well as battery-powered electric trucks and buses," says Bergvall, adding that this portfolio is set to grow in the coming years and so add to the company's environmental sustainability.

He lists smart technologies and flexible finance schemes as further customer

benefits offered by Scania.

"With our fleet management solutions, we are able to get more information about the status of vehicle components and how the vehicle runs. It gives us a better basis to support the customer by being proactive and avoiding unexpected downtime," he says.

The company's after-sales support to reduce downtime includes the brand's very large network coverage. Around 95% of the business goes through its own retail network but because of the geographic vastness of South Africa, Scania offers on-site servicing at customers' premises while Scania Assistance provides on-road support.

"We also recently launched flexible maintenance where we alternate from the more rigid fixed maintenance intervals. The benefit for the customer is that the vehicle only gets the service it needs, depending on its usage and operation," says Bergvall.

By using data from the vehicle, the right service is planned for each vehicle, adapted to route and driving style. Factors such as road roughness, fuel quality, and start and stop frequency all affect which maintenance is needed for a vehicle.

The strengthening of Scania's customer proposition, with particular emphasis on the launch of new innovations designed to increase customer profitability and operating efficiencies, is another focal point for Bergvall's tenure as MD.

As southern Africa's transport industry looks to adapt and embrace the benefits of digitalisation aimed to improve efficiencies, reduce costs and increase service levels while increasing environmental sustainability, Bergvall is well positioned to support both Scania's internal team and a strong growth in customer acquisition.

Scania Southern Africa's increased ability to support its customers' business growth through one-on-one partnerships, unrivalled fuel efficiency and advanced technological innovations are heralding a new era for sustainable local transport operators. While driving these changes, Bergvall is looking forward to building on Scania's reputation as a leader in the local transport industry.

The truck market

He says he expects the extra-heavy truck market in South Africa to grow by between 10% and 15% this year, with Scania to reflect the same upward momentum.

He says the local company would have been able to move a bigger number of new trucks this year, had it not suffered from stock shortages at the end of 2021 and the beginning of 2022, owing to the global semiconductor shortage.

He notes that supply has since normalised and that the outlook for the rest of the year is positive.

Bergvall says that excellent utilisation levels at Scania's workshops also tell him that activity in the truck market appears to be returning to normal post-COVID-19.

"In general, fleet owners have been forced to run their trucks for longer due to constraints in the supply chain."

He says much of the current demand is driven by a strong uptick in the resources cycle.

"Right now, raw material prices are booming, so I have quite a positive outlook when it comes to the truck side of our business, especially in the mining sector."

Forestry and waste management are also two areas of potential growth for Scania Southern Africa.

New bus sales are, however, still lagging post-COVID-19 figures, with the market expected to remain flat this year.

Bergvall says there is a strong focus in the market on total cost of ownership as fuel prices continue to skyrocket on the back of Russia's invasion of Ukraine.

"At Scania we strongly believe in the electrification of trucks, also in southern Africa. We hope we'll be able to share some more news on this in the coming months."

Scania currently sells Euro 3 emission standards trucks into South Africa, adhering to local regulations.

To counter load-shedding, and also as part of Scania's global sustainability drive, the truck manufacturer has taken the first steps to roll out solar power at a number of its local dealerships.

One-stop service

Bergvall says more than half of the vehicles sold by Scania are financed by the company itself as Scania Southern Africa has a close collaboration with Scania Finance and Insurance, its in-house finance company, with integrated sales teams promoting not only vehicle and service contracts but also the financial programmes, creating a one-face solution for the customer. This means that approvals can be given sooner and that the payment arrangements regarding the purchase and maintenance packages are structured from the beginning to suit the customer's circumstances.

"It is important for us to understand our clients' businesses with their short- and long-term goals, so that we can make the right recommendations. All our packages are flexible and this is very important, especially for farmers who experience seasonal pressure."

Maintenance can be arranged by

We have identified three key sustainability areas that permeate all parts of our business: people sustainability, circular business and decarbonisation. Each of these areas is connected and dependent upon the others.

understanding how and when a truck is used. Smart monitoring and communication equipment in each truck enables the owner and their nearest Scania workshop to know when it has to go in for servicing. This does not always have to happen at set kilometres or work hours, meaning that farmers can plan their servicing times in such a way that their trucks can work all day, every day, in peak time.

Three key sustainability areas

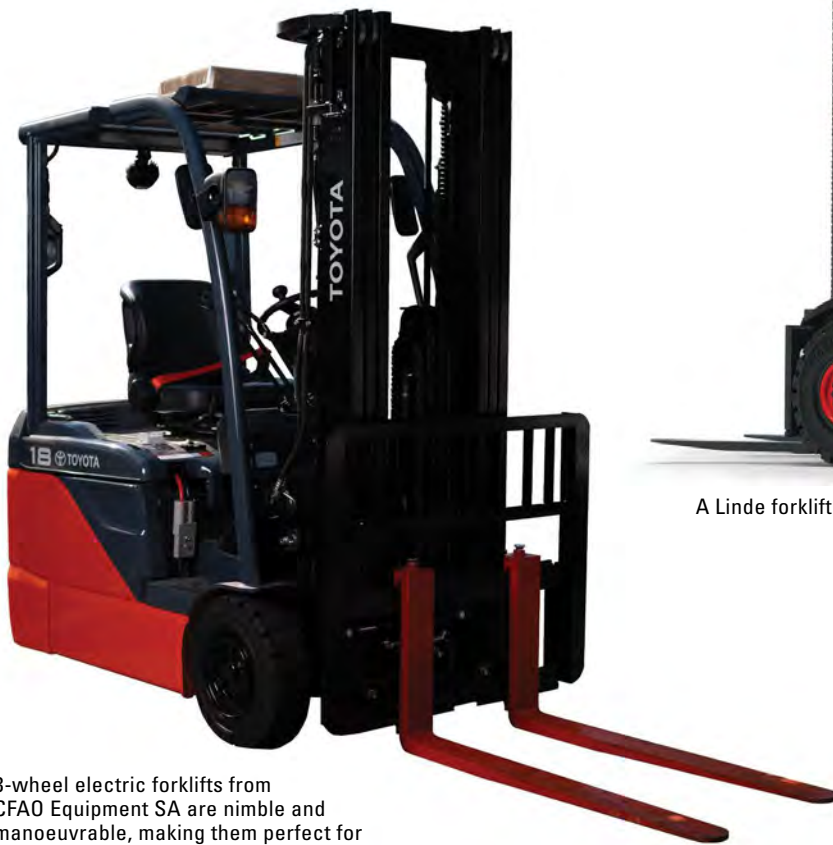
Bergvall notes that Scania's strategic work depends on its understanding of its impact, including the risks and opportunities along the life cycle of its trucks, with the aim of linking targets and actions with science.

"We have identified three key sustainability areas that permeate all parts of our business: people sustainability, circular business and decarbonisation. Each of these areas is connected and dependent upon the others."

He says Scania is a global company with a presence on five continents, and with customers in more than 100 countries.

"Every day, our operations and products impact millions of people, both directly and indirectly. For Scania, being a responsible business means understanding and managing these impacts across every stage in our value chain, from the way we source materials all the way through to the end-of-life phase of our products.

"Driving customer profitability through sustainable transport solutions and pursuing responsible business are complementary long-term perspectives for continuing to be a profitable company." 🌱



3-wheel electric forklifts from CFAO Equipment SA are nimble and manoeuvrable, making them perfect for warehouse applications.



A Linde forklift from Eazi Access.

FORKLIFTS — ‘WAREHOUSE WORKHORSES’ OF THE MATERIALS HANDLING SECTOR

The forklift forms the backbone of logistics operations around the world. Available in an array of models, shapes, sizes and lifting capacities, these ‘warehouse workhorses’ are designed for a wide range of applications in materials handling. This feature discusses the types of forklift, provides pointers for choosing the right forklift for the application at hand, sheds light on purchasing versus rental and highlights some of the ranges available in the South African market. By **Mark Botha**.



Orizen Group stocks an industry-first model known as the ICE series designed to replace diesel forklifts with fully electric lithium powered machines.

Akshay Manchanda, operations head,
Orizen Group

Discussing the various types of forklift in the market, Mishen Naidoo, engineering/solutions manager at Manitou Southern Africa says industrial forklifts are used mainly in warehouses and for transporting goods on smooth surfaces while rough terrain forklifts are used for outdoor applications, particularly on uneven, rough terrain.

“These machines have more powerful engines than their industrial counterparts, so they can reach greater speeds with

A T-Matic automated truck from Eazi Access.



A Doosan D25S-7 diesel forklift from Goscor Lift Truck Company.



Internal combustion forklifts are the driving force behind the African forklift industry as they are suitable for a wide variety of applications



It is essential to understand the correct specification by doing a professional application survey when looking to buy a new forklift



The decision whether to purchase or rent a forklift comes down to the businesses policy and the major consideration is the outlay of working capital



If a forklift is needed often as part of the daily operations, it will make more sense financially to purchase a forklift as the rental costs may outweigh the cost of purchasing

QUICK TAKE



"It is critical that we understand the business requirements and the application in which the unit will operate."

Brent Light Equipment SA product manager at CFAO Equipment SA.

better manoeuvrability and are used for transporting heavy loads across rugged terrain."

Electric forklifts are typically used for indoor warehousing applications, while truck mounted forklifts are designed to be attached to a truck for easy transportation to remote sites.

CFAO Equipment SA product manager Brent Light makes the distinction between 3-wheel electric; electric and internal combustion engine (ICE) forklifts.

He says 3-wheel electric forklifts are nimble and manoeuvrable, making them perfect for warehouse applications.

"The technologies on electric forklifts have come a long way, meaning electric units are now able to handle the majority of applications that were traditionally dominated by ICE units."

Internal combustion forklifts, says Light, are tough, rugged and reliable.

"Powerpallet Trucks are perfect for a wide range of operations. These units are designed for horizontal movements of pallets," says Light.

He says Reach Trucks are the 'bread and butter' of the warehousing industry. These units are perfect for in-rack vertical pallet movements.

"Order pickers are designed with a wide range of lift heights and can be customised for both small and large batch picking requirements," says Light.

He says VNA (Very Narrow Aisle) is the best choice when maximising pallet positions in a warehouse is the goal. These highly specialised units can be tailored to specific business requirements.

"These units are the driving force behind the African forklift industry as they are suitable for a wide variety of applications."

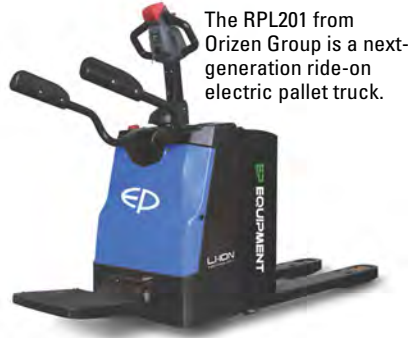
Orizen Group operations head Akshay Manchanda distinguishes between ICE models for indoor and outdoor use; 3-wheelers and articulated machines for narrow aisles; reach trucks to lift loads at points higher than 6 m; power pallet trucks to carry pallets across long distances in quick time; stackers for light racking applications; tow tractors for towing loads across distances, and order pickers for picking stock at height.

Choosing the right forklift

"The crucial factor when choosing the right forklift for the job," says Patrick Barber, business development director for Goscor Lift Truck Company, "is to not be influenced by your current solution, which may well be the right solution, but the technologies on these machines are continuously changing, so it is imperative to engage the right supplier before you buy."



The ICE series from Orizen Group is designed to replace diesel forklifts with fully electric lithium powered machines.



The RPL201 from Orizen Group is a next-generation ride-on electric pallet truck.



A Linde order picker from Eazi Access.



Masslift Africa offers the Mitsubishi Forklifts Grendia range from 1,6 – 16 t.



A reach truck from Eazi Access.



Masslift Africa is the sole distributor of Mitsubishi Forklifts in southern Africa.

CFAO Equipment SA's Light says, "it is critical that we understand the business requirements and the application in which the unit will operate." He says key factors to consider include the working environment; application intensity; stacking, loading and packing requirements; load dimensions and weights; health & safety requirements; lift heights and operator safety and comfort.

Jozua Coetzee, business development manager: Sales at Eazi Access, says it is essential to understand the correct specification by doing a professional application survey when looking to buy a new forklift.

"Energy consumption could be as much as the purchase price of the equipment, which is why it is important to understand the supply and cost of your energy when you choose between diesel; LPG; natural gas; lead-acid battery; Li-ion battery and hydrogen or fuel cell powered forklifts."

Manchanda agrees, calling for a thorough

site analysis conducted by a competent technical sales solutions specialist before purchasing a forklift solution. The site analysis should identify an application-based solution and include aspects such as the warehouse type; a detailed shift breakdown showing hours and days of use, break times and continuous use in one go; monthly hours of use; whether the machine is to be rented or purchased; required special attachments; the environment; lifting heights and capacity; mast heights; 3-phase power availability and aisle widths.

When purchasing a forklift, says Naidoo, the after-sales service offering is often overlooked.

"Neglecting this factor could result in a loss of productivity when waiting for a technician or parts availability."

He says that, as there are many diverse types of forklift available, the prospective buyer should first understand what environment the forklift will be used in, as

well as the material which will be handled.

"This will determine whether an industrial (diesel or gas), electrical or rough terrain forklift will be required. Tyre options (solid versus pneumatic) should also be considered depending on the terrain and use."

Purchase versus rental

Ultimately, the decision whether to purchase or rent a forklift comes down to the businesses policy and the major consideration is the outlay of working capital, says Light.

"Cash purchase requires a significant outlay of working capital, and it must be established how the customer takes ownership of the asset and can recover the return value at its end of life. An operating rental allows the customer to minimise the capital outlay and provides the benefit of reducing the unforeseen variable costs of maintaining the asset, as a comprehensive maintenance contract is included in these rental agreements."

Barber says the decision should be based on the financial viability over time, so what makes the most financial sense over time is not considering aspects like the capital price or the cost of renting, but what the best financial outcome would be for the customer over time.

According to Naidoo, the choice to rent or buy a forklift depends on the activities of the company and the Capex available.

"If a forklift is needed often as part of the daily operations, it will make more sense financially to purchase a forklift as the rental costs may outweigh the cost of purchasing. However, if the use is intermittent or temporary, renting on a short-term basis will be more cost-effective."

He says maintenance costs can become expensive when owning a forklift, particularly if the forklift is not used often but still requires maintenance.

"In this instance, renting a forklift may



"It is essential to understand the correct specification by doing a professional application survey when looking to buy a new forklift."

Jozua Coetzee, business development manager: Sales at Eazi Access



"At Masslift we believe that it becomes uneconomical to maintain a forklift after 14 000 hours."

Marco Caverni, CEO of Masslift Africa



"The crucial factor when choosing the right forklift for the job is to not be influenced by your current solution."

Patrick Barber, business development director at Goscor Lift Truck Company



"When purchasing a forklift, the after-sales service offering is often overlooked."

Mishen Naidoo, engineering/solutions manager at Manitou Southern Africa

makes sense to own the asset and sweat it for another three years thereafter until it reaches the 14 000 hour ceiling.

"At Masslift we believe that it becomes uneconomical to maintain a forklift after 14 000 hours," says Caverni.

He says renting makes better business sense for higher utilisation applications. A forklift that operates around 200 hours per month would clock approximately 12 000 hours after five years. This would leave limited additional time to sweat the asset further. In this case, renting is advised.

"Clients must assess whether they have the cash flow to pay for a forklift. This could also be restricted by required Capex approvals internally. If not, then a rental or rental-with-ownership is the solution."

He says the benefits of renting often outstrip the costs, including saving on the large capital investment. From a cash-flow perspective, it is more attractive to rent as the monthly amount is determined upfront and is unlikely to change materially over the rental period.

Manchanda says the advantages of renting include cash flow savings, tax deductible monthly payments, the fact that maintenance and service are the responsibility of the dealer, and the balance sheet doesn't show a loan taken for asset purchases.

He lists among the disadvantages of renting the fact that total cost of ownership (TCO) is expensive due to interest or amortisation and that the asset doesn't belong to the client.

The advantages of purchasing equipment include lowered TCO as the purchase is a once-off investment. The asset belongs to the client, so it can be used until it is sweated, and service level agreements are available through suppliers like Orizen Group.

Disadvantages of buying include an affected cash flow and the fact that maintenance is the responsibility of the owner. The client's balance sheet also shows a loan taken for asset purchases.

Ranges

Light says CFAO Equipment offers the widest range of premium material handling equipment (MHE) in the industry. With a complete range on both American and European style warehousing MHE and a comprehensive counterbalance range from 1 t, 3-wheel electrics to 16 t heavy-duty ICE equipment.

Eazi Access supplies Linde Forklifts with a model range of almost 500 variations to address customer requirements. These forklifts are available in the categories counterbalance forklifts (from 1 to 18 t); a full warehouse portfolio; transport and tow

be a better option as the onus falls on the forklift supplier to maintain the forklift."

Another option offered by Manitou is entering a subscription contract. In this case, the customer pays for the forklift based on a predetermined minimum hourly amount, essentially on a 'pay-as-you-use' basis.

Marco Caverni, CEO of Masslift Africa –

the sole distributor of Mitsubishi Forklifts in southern Africa – says the decision hinges on how frequently the client expects to use the machine. He suggests that renting with ownership or outright purchasing is best for lower utilisation applications. If a forklift is used for less than 150 hours per month – less than 9 000 hours in five years – it

tractors, and specialised equipment.

According to Barber, "there's nothing that moves stalls or transports pallets or anything materials handling related that we cannot handle. From a hand pallet truck right up to full container handlers, man-up trucks and semi-automated trucks, we have a solution."

Naidoo says The MI range industrial forklifts from Manitou offers the ultimate solution for stacking, loading and moving material on paved, tarred or smooth surfaces.

"Available in both diesel and gas equivalents, with capacities ranging from 1,8 t to 10 t and lift heights from 3,3 m to 4,8 m, as well as a short turning radius, this range is ideal for tackling congested sites or warehouse aisles."

The company's rough terrain forklifts include the MX (2,6 t to 7 t capacities) and MC ranges (1,8 t to 3 t capacities) and are available in 2-wheel and 4-wheel drive. These forklifts have a ground clearance of 30 cm for the MC range and up to 43 cm for the MX range, as well as an oscillating rear axle with a high degree of articulation. The masts, designed for rough terrain, are fixed directly to the chassis to avoid mast torsion.

He says Manitou's range of electrical forklifts has capacities between 1,5 t and

5 t, depending on the model.

Truck mounted forklifts, says Naidoo, bring autonomy to delivering and loading. Instead of needing a forklift at the place of departure and at the destination, truck mounted forklifts are compact and light, allowing the operator to work autonomously. Manitou's TMM and TMT ranges attach to the back of trucks easily and can be fitted using any coupling kit on the market.

Caverni says Masslift Africa offers the Mitsubishi Forklifts Grendia range from 1,6 – 16 t and the Ninja 2 – 3 t range internal combustion forklifts with proven fuel efficiency.

"The Grendia is our flagship range and boasts health and safety features along with a tier-3 engine that produces exceptional fuel consumption. It is fuel efficient and has ultra-low emissions with increased rider comfort. The Ninja has the same powertrain as the Grendia but with a tier-2 engine, the major difference being the limited electronics and plastic, making it the perfect internal combustion forklift for Africa."

The company also provides 3-wheel (1,3 – 2 t) and 4-wheel (1 – 4,5 t) counterbalance electrics. The new Mitsubishi FB-CB Series electric truck features load capacities of 1 t to 3,5 t and is equipped with features that

simplify the movement of goods. The range boasts powerful AC drive, hydraulic motors, a comfortable cabin, on-demand electric power steering and ergonomic controls.

"A major feature of the Mitsubishi Forklifts range is that it comes with an 8-year/12 000 hour powertrain warranty if you purchase with a full maintenance contract, making this the longest warranty in the forklifts industry currently," says Caverni.

Masslift Africa also offers a full range of warehousing equipment which includes 1 – 3,6 t power pallet trucks; 900 kg – 2,5 t reach trucks; high- and low-level order pickers; 1 – 1,6 t stackers; tow tractors and the Combi Lift Aisle Master.

Manchanda says Orizen Group stocks an industry-first model known as the ICE series designed to replace diesel forklifts with fully electric lithium powered machines for indoor and outdoor purposes.

"These models have big wheels, diesel chassis and improved ground clearance," he says. These forklifts take two hours to charge fully and feature opportunity charge advantages. They have a battery warranty of 5 years or 10 000 hours (whichever comes first) and offer lower running costs and no fuel costs for life. Pay-back time on these machines is between 1 and 1,5 years. ☀



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Doosan International offers hydraulic hammers ranging from 1 t to 120 t.

HYDRAULIC HAMMERS: RANGES, TECHNOLOGY AND NEW INNOVATIONS

The hydraulic hammer (breaker) has many applications and is available in the market in an array of ranges. This feature explores some of the different ranges available in the South African market and looks at technical aspects such as variable-speed technology and the prevention of blank firing, as well as at the effects of carrier equipment designs on the hydraulic hammers available today. By Mark Botha

Often used in mining, quarries, excavation and demolition, hydraulic breakers are percussion hammers powered by auxiliary hydraulic systems from carrier equipment such as excavators. These attachments are mostly used where the job at hand is too demanding

for jackhammers or in areas where blasting is prevented by safety or environmental concerns.

Ranges

According to Tecman South Africa MD Darrell Bendall, the company offers two ranges of hydraulic hammer, the TMB and

TMG series.

"The Tecman TMB Series," he says, "is a fully hydraulic mining hammer range designed to operate in heavy duty mining applications. This line of hammers has been designed for use primarily with the Tecman rock breaker boom range in the production mining environment." Ranging



Tecman South Africa offers two ranges of hydraulic hammer, the TMB and TMG series.



Maximum Equipment offers hydraulic hammers for between 5 t and 100 t carriers.

QUICK TAKE

Tecman South Africa offers two ranges of hydraulic hammer, the TMB and TMG series



Doosan International offers hydraulic hammers ranging from 1 t to 120 t that will fit any excavator, mini excavator, TLB, skidsteer and pedestal boom on mobile or fixed crushers



Variable-speed hammers are efficient production hammers that sense the rock's density or hardness of the material to be broken



The Tecman hammer range uses simple oil cushion technology with a piston design that is stopped by oil before the piston hits the thrust ring



Most equipment that carries hammers is equipped with hydraulic piping systems, hydraulic return filter systems, accumulator systems, and electronic switch-over between attachments



from 250 kg to 7000 kg, the TMB range will operate on 4 t to 100 t excavators.

The Tecman TMG range, says Bendall, is a 'no frills', back-to-basics hammer range made for simplicity of fabrication and service. It is based on the standard Asian type back head technology with European build quality, "but not the European price." This range services the 1 – 40 t excavator range.

Vinesh Naidu, Montabert sales manager at Doosan International, says his company offers hydraulic hammers ranging from 1 t to 120 t that will fit any excavator, mini excavator, TLB, skidsteer and pedestal boom on mobile or fixed crushers. He says the range also caters to customised breaking requirements.

Vaughan Ellis, MD of Maximum Equipment, says the company offers hydraulic hammers for between 5 t and 100 t carriers.

"These are durable mining spec hammers with anti blank-firing technology tried and tested in the South African market for over 15 years," he says.

Variable-speed technology: pros and cons

Naidu explains that variable-speed hammers are efficient production hammers that sense the rock's density or hardness of the material to be broken and speeds up between blows from 1 speed to 15 speed.

"Variable speed hammers work efficiently in areas where rock density changes. This, in turn, reduces operation costs in terms of tool lifespan, higher



"Doosan International offers hydraulic hammers ranging from 1 t to 120 t that will fit any excavator, mini excavator, TLB, skidsteer and pedestal boom on mobile or fixed crushers."

Vinesh Naidu, Montabert sales manager at Doosan International



"Maximum Equipment's Komac range has redesigned moils and pistons that alleviate blank firing."

Vaughan Ellis, MD of Maximum Equipment.



"To prevent blank firing, the Tecman hammer range uses simple oil cushion technology with a piston design that is stopped by oil before the piston hits the thrust ring."

Darrell Bendall, MD of Tecman South Africa.



Tecman South Africa is seeing a move to simplicity after many years of higher and higher technology in hammers.

Carrier equipment designs

When asked how developments in carrier equipment such as excavators, skid-steers and truck loaders are affecting today's hydraulic hammer designs, Naidu says that, due to technological inroads, most of the equipment that carries hammers is equipped with hydraulic piping systems, hydraulic return filter systems, accumulator systems, and electronic switch-over between attachments, and offer the advantage of fixed quick couplers used for change-over between attachments, making hammers an easier option to install.

"We supply only plug and play units for 90% of our client base and we insist on complete handover, inclusive in the purchase price. This includes installation, commissioning and on-site product training for operators and maintenance crews," he says.

Bendall says Tecman South Africa is seeing a move to simplicity after many years of higher and higher technology in hammers.

"The main requirements are now driven by the compact end where higher back pressures are having to be accepted by hammers. Excavator manufacturers simplify hammer circuits to run through the main control valve on the return line."

Ellis notes that most modern machines have auxiliary hydraulics as standard to cater for hydraulic Hammers. ⚙️

production volumes in shorter times, hammer lifespan and fuel.

"Montabert is the only OEM that produces variable speed hammers in 2-speed, 12-speed and 15-speed. Due to variable speed, the hammers offer less stress on the cradles, adaptor plates and excavator booms, pins and bushes as they adjust accordingly to absorb rebound percussions with the help of independent internal suspensions."

Tecman South Africa, on the other hand, has not integrated variable speed technology into its hammers.

"We see very little use for it in a production mining environment," says Bendall. "It is just another layer of complexity that can go wrong."

Blank firing

Naidu says blank firing protection is a complex part of the hammer and that,

with the aid of the Montabert system, the hammer will not begin percussion if the actualmoil does not have sufficient downward pressure pushing themoil against the piston to effect the hammer operation.

"This leads to a huge saving on tool damage and mainly piston strike surface damage common in hammers that don't have blank firing protection. The heat generation between piston andmoil is also kept in check with this system," he says.

Bendall says the Tecman hammer range uses simple oil cushion technology with a piston design that is stopped by oil before the piston hits the thrust ring.

"This system is very simple and negates the need to have valving that induces heat and hammer inefficiency," he says.

Maximum Equipment's Ellis says the company's Komac range has redesigned moils and pistons that alleviate blank firing.

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In May this year, Volvo Trucks officially opened the order system for its heavy-duty electric truck range, the Volvo FH, Volvo FM and Volvo FMX.



THE ROAD TO HEAVY-DUTY E-TRUCKS

A few years ago, fully electric trucks in heavy-duty applications were labelled an ambitious proposition, with major concerns around battery capacity, range and price. However, recent developments in the market show that battery electric technology in heavy duty trucking is not a pipedream anymore, with several truck makers successfully rolling out their offerings for all vehicle segments, including long-haul. By Munesu Shoko.

A report published by Frost & Sullivan back in 2018, Executive Analysis of Electric Truck Market, Forecast to 2025, found that the electric truck market would grow significantly by 2025. At the time, it noted that electric trucks would not reach cost parity with their diesel or natural gas counterparts by that time, unless supported by incentives and subsidies.

Depending on the truck segment, the report expected electric trucks to make economic sense only post 2019 for light commercial vehicles (less than 6 t GVW), post 2022 for medium duty (MD) trucks (greater than 6 t to 16 t GVW), and post 2024 for heavy duty (HD) trucks (greater than 16 t GVW).

At the time, battery electric trucks in heavy-duty applications were still deemed an ambitious project, with battery cost and performance restrictions the main drawbacks.

However, according to Transport & Environment, Europe's leading transport campaign group, battery-powered trucks, whose main cost is their large battery, are about to enter a perfect storm. Automotive battery production is now experiencing a self-reinforcing cost dynamic following the rapidly developing scale in the passenger car segment. This trend will now spill over to trucks.

The rapid development of electric solutions for heavy duty vehicles is being enhanced by the fast advancement of battery technology in respect of energy storage capacity per kg. In addition, charging times, cycles and economics per kg are improving rapidly. This means these solutions are becoming more cost-effective, predominantly in repetitive and predictable applications.

Recent product launches from leading European truck manufacturers, including Volvo Trucks, Mercedes-Benz Trucks and Renault, to mention but a few, prove that the

With the world premiere of its battery-powered eActros in June last year, Mercedes-Benz Trucks highlighted its clear desire to achieve CO₂-neutral long-distance haulage.



There is a lot of interest from customers to place orders for these trucks. Until now we have mainly offered customers and partners the option to sign letters of intent to buy, but now we starting to sign firm orders, which is a major step forward for electrification

market is ready for a rapid upswing in electrification of heavy-duty trucks.

Volvo Trucks

In May this year, Volvo Trucks officially opened the order system for its heavy-duty electric truck range, the Volvo FH, Volvo FM and Volvo FMX. Serial production will start later this year and gradually ramp up, the company announced. The electric trucks will initially be produced in the CO₂ neutral Tuve plant in Gothenburg, Sweden.

With the addition of the new heavy duty line with higher load capacities, more powerful drivelines and a range of up to 300 km, Volvo Trucks' electric portfolio could cover around 45% of all goods transported in Europe today.

"This is a milestone for Volvo Trucks. There is a lot of interest from customers to place orders for these trucks. Until now we have mainly offered customers and partners the option to sign letters of intent to buy, but now we starting to sign firm orders, which is a major step forward for electrification," says Roger Alm, president of Volvo Trucks.

In 2021 Volvo Trucks took orders, including letters of intent to buy, for more than 1 100 electric trucks in over 20 countries.

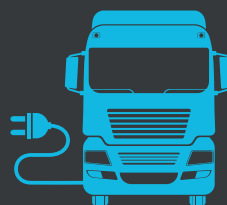
With a total of six electric truck models in production as of this year, Volvo Trucks has the most complete electric line up in the global truck industry, covering everything from city distribution and refuse handling, to urban construction transports and regional haulage. The company's target is that half of its total truck sales will be electric by 2030.

Mercedes-Benz

With the world premiere of its battery-

QUICK TAKE

The development of heavy-duty e-trucks is gathering momentum at a scale many didn't envisage. Recent product launches from leading truck manufacturers prove that the market is ready for a rapid upswing in electrification of heavy-duty trucks



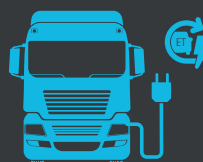
In May this year, Volvo Trucks officially opened the order system for its heavy-duty electric truck range, the Volvo FH, Volvo FM and Volvo FMX



With a range of up to 400 km, a permissible gross vehicle weight with trailer of up to 40 tonnes and two powerful electric motors delivering a top performance of 400 kW, the eActros is perfectly equipped to handle the daily work of heavy-duty transporters



In March 2020, Renault Trucks began series production of its second generation of electric vehicles at the Blainville-sur-Orne plant in France. The OEM now boasts a comprehensive all-electric range, from 3,1 t to 26 t





The eActros is available as a two or three-axle truck with 19 or 27 tonnes permissible gross weight.



The FH Electric from Volvo Trucks.

powered eActros in June last year, Mercedes-Benz Trucks highlighted its clear desire to achieve CO₂-neutral long-distance haulage.

The eActros became the first fully electric series-production truck bearing the three-pointed star and thus marked a crucial step in the direction of CO₂-neutral goods transport. Further steps for long-distance haulage are also in the pipeline: series production of the low-floor Mercedes-Benz eEconic truck is expected to start in 2022. In addition to this, the battery-electric eActros LongHaul is expected to be launched in 2024.

With a range of up to 400 km, a permissible gross vehicle weight with trailer of up to 40 tonnes and two powerful electric motors delivering a top performance of 400 kW, the eActros is perfectly equipped to handle the daily work

of heavy-duty transporters.

The eActros is available as a two or three-axle truck with 19 or 27 tonnes permissible gross weight. Serving as the basis of the new truck is the frame of the Mercedes-Benz Actros. At the technological heart of the eActros is the drive unit with two integrated electric motors along with a two-speed transmission.

Both motors provide for impressive ride comfort and great vehicle dynamics, while the quiet and emission-free electric drive means the truck can also be used for night deliveries and entry into inner-cities with driving bans for diesel vehicles. Depending on the version, the eActros draws its power from three or four battery packs – each with a capacity of around 105 kWh³.

Thanks to a maximum capacity of 420 kWh², a range of up to 400 km is realistic. The eActros can be charged with

The global debut of this ground-breaking vehicle was certainly an electrifying and sensational moment for us locally. Hats off to our Mercedes-Benz Trucks counterparts for this revolutionary vehicle that sets the brand apart.

up to 160 kW. When connected to a regular 400 A DC charging station, the three battery packs need a little longer than an hour to charge from 20 to 80%.

A display in the standard Multimedia Cockpit Interactive keeps the driver up to date on the charge level of the batteries and the remaining range, as well as the current and average energy consumption in kWh per 100 km.

Besides the drivetrain, the batteries also supply the electricity for the entire vehicle. Thus, for example, auxiliary units such as the air compressor for the brakes, the compressor for the cab's air conditioning and, if fitted, a refrigerated body are also electrically powered. If required, the battery packs can be replaced with ease.

In an initial phase the series-production model of the eActros will be available in selected European markets, including Germany, Austria, Switzerland, Italy, Spain, France, the Netherlands, Belgium, Great Britain, Denmark, Norway and Sweden. Further markets, including South Africa, will follow at a later stage depending on viability and market demand. In fact, introduction of e-vehicles for the South African market is expected in 2024/2025.

"The global debut of this ground-breaking vehicle was certainly an electrifying and sensational moment for us locally. Hats off to our Mercedes-Benz Trucks counterparts for this revolutionary vehicle that sets the brand apart," says Maretha Gerber, vice president: Sales and Marketing at Daimler Trucks & Buses Southern Africa.

"This is certainly a giant step towards an electrically driven future, and we are proud to be a part of a brand that is continuously at the forefront of developing cutting-edge solutions for customers. As we wait in great

anticipation to officially launch this truck of the future in the South African market, we look forward to possible customer demonstrations and trial opportunities."

Renault Trucks

As Renault Trucks drives its investment in electric mobility, the company says from 2023, an all-electric offer will be available for each segment, namely distribution, construction and long distance. To support these developments and be able to offer a complete and competitive range, the company is setting up an organisation dedicated to electric mobility.

In March 2020, Renault Trucks began series production of its second generation of electric vehicles at the Blainville-sur-Orne plant in France. The OEM now boasts a comprehensive all-electric range, from 3,1 t to 26 t. Comprising the Renault Trucks D Z.E., D Wide Z.E. and the Renault Trucks Master Z.E., the range meets the requirements of urban transport, delivery, distribution and waste collection.

However, Renault Trucks is seeking to extend vehicle electrification to all uses. Preparations are underway to market a Z.E. truck tractor to meet the needs of regional and inter-regional transport from 2023.



From 2023, Renault Trucks will offer an all-electric range for each segment, namely distribution, construction and long distance.

An all-electric offer designed for urban construction will also be available to order by this date. During the second half of the decade, Renault Trucks will be able to offer a range of electric trucks powered by hydrogen fuel cells, mainly for demanding and heavy long-haul operations.

"Electric mobility is the pillar of our strategy and we aim to lead the field," says Bruno Blin, president of Renault Trucks. "We are aiming for 35% of our sales to be electric in 2030. By 2040, all our vehicle ranges will be 100% fossil-free." 🌱

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RDTs — LEADING THE SHIFT TOWARDS THE ‘MINE OF THE FUTURE’

**As the shift towards the ‘mine of the future’ gathers pace, electromobility and automation are at the centre of the innovation imperative in the mining sector. One area where these trends have taken root is in the development of mining trucks, particularly rigid dump trucks (RDTs).
By Munesu Shoko.**

As technology continues to change the face of mining, automation, digitalisation and electromobility are reinventing processes, transforming mining in ways and at a rate not seen in over a hundred years. While the building blocks for automation have been in place for decades, the use of automated systems in mining has only expanded dramatically in the past decade.

There is also a common understanding that ESG (Environmental, Social and Governance) represents one of the mining industry’s most significant opportunities for long-term value creation, building trust and sustainable growth. Consequently, miners are engaging with various stakeholders, including original equipment manufacturers (OEMs), to ‘bake’ ESG into the core of their strategies.

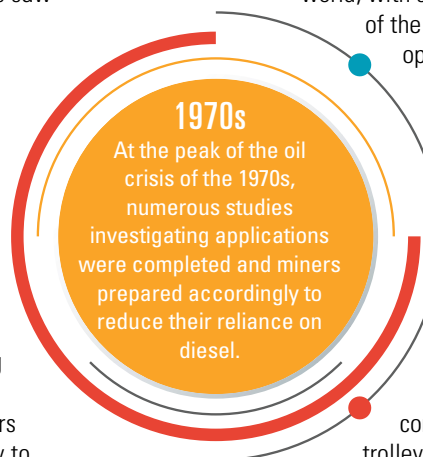
Early steps

For years, forward-thinking mining companies have been investigating the electric route to decarbonise their operations and reduce their operating costs. The early days saw the rollout of trolley assist technology. Offering significant productivity benefits, trolley assist has been considered for decades. At the peak of the oil crisis of the 1970s, numerous studies investigating applications were completed and miners prepared accordingly to

reduce their reliance on diesel.

However, the envisaged widespread industry take-up of the trolley assist technology did not happen. While there have been a couple of installations in the world, with southern Africa being one of the mining markets that has operated trolley assist systems for more than 20 years, the technology has never caught on to the extent expected.

To help mines to stay on top of the cost control battle, OEMs have in recent years revived the trolley assist technology. A case in point is Caterpillar, which commercially introduced its Cat trolley assist system to the global





Command for hauling trucks now span class sizes from 190 to 360 tonnes.

QUICK TAKE

	<p>As technology continues to change the face of mining, automation, digitalisation and electromobility are reinventing processes, transforming mining in ways and at a rate not seen in over a hundred years</p>
	<p>One area where these trends are taking centre stage is in the development of mining trucks, particularly rigid dump trucks</p>
	<p>Late last year, BELAZ presented its all-electric mining dump truck prototype, the BELAZ-7558E. Prototype testing is expected to be completed during the last quarter of this year and production will start in 2023</p>
	<p>In a major milestone in its autonomous hauling journey, Caterpillar last year announced that it had surpassed 3-billion tonnes hauled autonomously by Cat MineStar Command for hauling</p>
	<p>At MINExpo 2021, Liebherr for the first time presented its new Mining Technology Product portfolio which defines the company's interoperable and scalable approach to its equipment, technology and service product offering</p>

market in 2020. This came after the conclusion of a nearly two-year pilot project conducted with four 795F AC trucks using 700 m of electric trolley line at Boliden's Aitik open-pit mine in Sweden.

Trolley assist is a system whereby a diesel-electric mining truck powers itself with electricity from overhead power lines instead of the diesel engine turning a generator onboard the truck. The system functions more like an electric passenger train.

When one of the mining trucks with the trolley assist iron enters a trolley assist segment,

the operator raises the pantographs, connecting carbon brushes on the pantographs to the overhead catenaries. While connected to the catenaries, the mining truck fully powers its electric traction motors from the catenaries and reduces the speed of the diesel engine.

When the mining truck is close to exiting the trolley assist segment, the operator lowers the pantographs, disconnecting from the catenaries, and returns to using the engine for propulsion power.

Joe Rottman, product performance manager, large mining trucks at Caterpillar, says the Cat trolley assist system for Cat electric drive helps mines reduce their carbon emissions, lower fuel and engine costs and boost speed-on-grade for greater productivity.

The benefits of the trolley system abound and include increased productivity (due to increased speed on grade), energy cost savings (by substituting cheaper grid electricity for expensive diesel) and extended engine overhaul intervals (due to the reduced load factor).

"The trolley system boosts productivity significantly. Operating with trolley assist, speed-on-grade increases as much as 100% versus diesel-only mode. Using trolley, a laden 795F can run at 28 kph on a 10% physical grade with solid haul road conditions," explains Rottman.

The trolley system significantly reduces diesel engine emissions at the mine via substitution of electricity during the most demanding part of the truck work cycle. Powering a 337-tonne (t) payload 795F AC via trolley on a 10% grade as it climbs the ramp out of the pit saves up to 40 litres of diesel fuel per kilometre of trolley line. Fuel and engine costs are reduced by more than 90% while the truck is on trolley.

Liebherr is another OEM currently driving its trolley assist technology. With the T 264 trolley components production scheduled for 2022, all Liebherr RDTs will be available with trolley assist system, providing a low emission solution for customers.

The Liebherr trolley assist system is an effective first step on the company's road to zero emission mine sites of the future. The company has already proven the concept with 39 T 284 units fitted with the trolley assist system currently in operation on two different sites, with more to be commissioned this year. Liebherr is also said to be the first company to run a 100-t RDT under trolley, with a fleet of T 236 trucks running on a 5 km trolley line in Austria – the longest trolley line in the world.

Key industry collaborations

Shifting to electric RDTs is increasingly feasible and is gathering pace, with mining



The BELAZ electric mining dump truck is based on the BELAZ-7558 family, with a payload capacity of 90 t and a net weight of 76 t.



The Liebherr trolley assist system is an effective first step on the company's road to zero emission mine sites of the future.

houses and OEMs partnering to accelerate the development of 'zero emissions' mining equipment.

BHP and Rio Tinto are some of the mining giants at the forefront of the journey towards zero-emissions mining trucks. The two companies recently announced their respective partnerships with Caterpillar to develop and deploy fully electric haul trucks at their mines.

For BHP, the milestone is a result of over 12 months of close collaboration with Caterpillar in analysing energy demands and the options to apply this new technology on BHP sites. To support progress towards the long-term goal of achieving net zero operational GHG emissions (Scope 1 and 2 from its operated assets) by 2050, BHP will have early access to zero-emissions equipment developed by Caterpillar and hands-on learning opportunities to ensure successful deployment at BHP sites. The collaboration will help shape the processes, technology and infrastructure that will be required to support zero-emissions machines and the mine sites of the future.

"We are pleased to announce our partnership with Caterpillar Inc. to develop and deploy zero-emissions mining trucks at BHP," says BHP's chief commercial officer, Vandita Pant. "Climate change is a critical global challenge, and we know that partnering with others will help accelerate the transition to a low carbon future. The opportunity for our teams to input into the design process also gives us confidence that the trucks will be safer and easier to operate for a workforce that's more diverse than ever."

Denise Johnson, Caterpillar group president, says: "Caterpillar is pleased to work with BHP on the next generation of large mining trucks and mine site technology. Deeply integrating our teams and timelines, will allow for faster deployment to deliver zero-emissions solutions."

Rio Tinto and Caterpillar also recently announced the signing of a Memorandum of Understanding (MoU) for Caterpillar's development of zero-emissions autonomous haul trucks for use at one of Rio Tinto's Western Australian mining operations.

The collaboration will see Rio Tinto work with Caterpillar to advance the development of the OEM's future 220-tonne 793 zero-emissions autonomous haul truck, including the validation of Caterpillar's emerging zero-emissions technology. Rio Tinto and Caterpillar will progress a series of development milestones to include a Cat 793 prototype pilot programme, testing and pre-production trials.

It is anticipated that the world's first operational deployment of approximately 35 new Caterpillar 793 zero-emissions autonomous haul trucks will be at Gudai-Darri once development is complete. Gudai-Darri is Rio Tinto's most technically advanced iron ore mine, in the Pilbara, Western Australia.

Rio Tinto's chief commercial officer Alf Barrios, says, "Our ambition to reach net zero emissions across our operations is a priority. Reaching this ambition will require new and innovative solutions and partnerships with supplier partners like Caterpillar. This collaboration represents a small but major step on that journey."

The electric revolution

BELAZ is another key player in the global RDT market that recently presented its all-electric mining dump truck prototype, the BELAZ-7558E. The electric mining dump truck is based on the BELAZ-7558 family, with a payload capacity of 90 t and a net weight of 76 t. It can reach a maximum speed of 64 km/h. This is said to be the most compact model of all mining dump trucks of the world's leading brands that are equipped with an AC/AC electromechanical transmission. With the drive train already electric, the challenge was to have enough energy storage capacity and controlling the energy.

The truck is powered by lithium-nickel-manganese-cobalt-oxide batteries, which are installed (on present production models) in the engine, alternator, fuel tank and cooling pack bay. In total, there are 15 batteries with a combined energy capacity of 675 kWh. The rated power of the power plant is 640 kW.

The power reserve on a single charge will be at least two hours with a full load of 90 t and on uphill hauling on slope of no more than 10%. After several cycles "loading – transporting – unloading", it will be necessary to recharge. The operating time of a dump truck between recharges depends on the operating conditions. With downhill hauling, a charge will last for 8 hours, if uphill hauling, a charge will last for two hours. Charging is quick, about 20 – 30 minutes is required for a full charge from a special recharging station. The manufacturer of the batteries installed on the prototype



Caterpillar and Rio Tinto have signed an agreement for retrofitting 19 Cat 793F mining trucks for autonomous operation at the Marandoo iron ore mine in Western Australia.

BELAZ-7558E is a South Korean company.

Prototype testing is expected to be completed during the last quarter of this year. Production of the electric truck will start in 2023. According to marketing experts, BELAZ will be able to sell at least 20 such electric dump trucks annually at first.

Meanwhile, Liebherr is targeting to offer completely fossil fuel-free mining equipment for hauling, digging and dozing by 2030. The development will take into consideration the GHG emissions over equipment's full lifecycle, as well as the overall well-to-wheel energy ecosystem. The company is also considering the operational mining process conditions that influence the right energy type choice.

Liebherr will develop three drivetrain options to achieve near zero emissions for its off-highway trucks: battery power module, internal combustion engines powered by renewable fuels, and H₂ fuel cell-battery power module.

Drivetrain electrification through battery combined with trolley assist is already underway. Despite some challenges, Liebherr sees an opportunity that the propulsion energy can be provided by using hydrogen fuel cell-battery hybrids.

Automation

It wasn't that long ago that an autonomous mine site was a far-off dream. Today, it's reality, and it's delivering, with rigid haulers again at the forefront of the autonomous revolution, as mines realise significant benefits in safety outcomes and productivity.

In a major milestone in its autonomous hauling journey, Caterpillar last year announced that it had surpassed 3-billion tonnes hauled autonomously by Cat MineStar Command for hauling. The achievement coincided with an expansion of the types of commodities hauled autonomously across a growing number of Cat mining truck class sizes, as well as other brands of mining equipment.

"Since surpassing the 2-billion tonnes milestone, we have equipped more mines with Command trucks and have established the world's first gold mining application with Command for hauling," says Jim Hawkins, director

of Cat MineStar Solutions. "Since surpassing 1-billion tonnes, we have expanded our Command fleet by nearly 250%."

Command for hauling trucks now span class sizes from 190 to 360 tonnes (t). The Cat line of Command models include the Cat 789D, 793D, 793F, 797F and the 297-t 794 AC with electric drive. Command retrofit kits are available for Cat mining trucks as well as other brands of trucks and loading equipment.

Since the first autonomous Cat trucks were commissioned in 2013, these AHS models have travelled more than 110-million km, equivalent to a minimum-distance, straight-line roundtrip journey to Mars, with no lost-time injuries associated with automated truck operation.

At MINExpo 2021, Liebherr for the first time presented its new Mining Technology Product portfolio which defines the company's interoperable and scalable approach to its equipment, technology and service product offerings. The Liebherr Mining Technology Product portfolio includes

machine automation, digital services, assistance systems and on-board analytics product lines.

For automation of Liebherr trucks, the company is developing the next generation of autonomous solutions with the utmost safety and operational efficiency, supported by an open and interoperable mine autonomy platform. Liebherr's autonomous haulage solution delivers the next generation of on-board intelligence, with reduced dependency on site infrastructure and centralised supervisory systems.

Together with vehicle-to-vehicle technologies, Liebherr's smart autonomous solutions provide on-board obstacle avoidance and load area path planning capabilities for optimisation of traffic flow. Liebherr's solutions offer a high level of safety integrity with the introduction of an eight-layer safety concept in combination with the latest on-board perception technologies for long range, high resolution and 360-degree coverage, which is unique to the Liebherr offering. 🌐

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Ctrack LAUNCHES CRYSTAL ONLINE BUSINESS FLEET DATA REPORTING

Ctrack has 35 years' experience in vehicle tracking and fleet management and, during that time, has developed a variety of innovative solutions for efficient fleet and asset management services.

Ctrack has completely redesigned and consolidated its offering into a new product, with a big focus on how data is managed and presented. Utilising proven hardware Ctrack Crystal allows for the management of movable assets, no matter how big or small, in a new and innovative way.

"In this day and age, the usefulness of data is determined by how easy it is to make decisions based on that data. Ctrack Crystal takes the guesswork out of fleet and asset management by offering cutting edge tools and functionality in an easy to use format," says Hein Jordt, CEO of Ctrack Africa.

Cloud-based

By integrating with hardware installed in vehicles, data is now transmitted to the cloud and hosted within the Microsoft Azure environment, a much faster and more secure solution.

An advantage is that there is no software located on devices such as computers or tablets as the platform runs from the device browser. This means added security and seamless transition between a variety of devices using the same user credentials.

Real-time web interface

For fleet managers and business owners, this means tracking and tracing solution in real-time, with live updates every 15 seconds. It is no longer necessary to wait for data to refresh.

Interactive functionality

Ctrack Crystal is user customisable and features improved functionality such as a live map with traffic views, the ability to send a message to the driver and the setting up of user-defined locations among many other options, from one location, all designed to save time and costs.

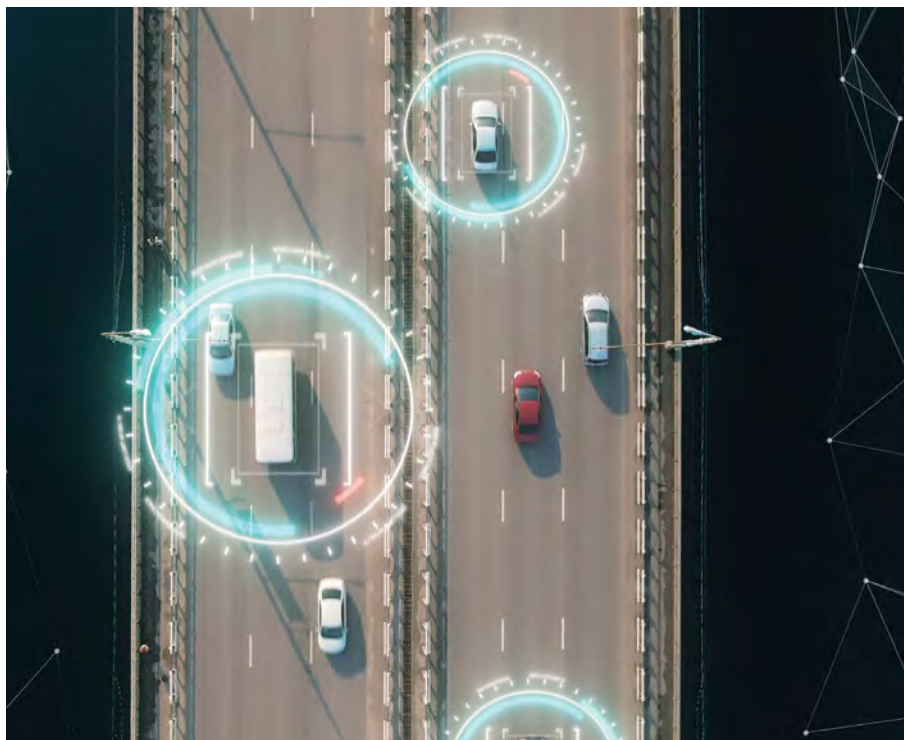
Analytics generated by Ctrack Crystal offers a graphical representation of large data sets, giving insight into your business through prediction models and trends analysis.

Fleet managers are often inundated with data and Ctrack Crystal aims to



"In this day and age, the usefulness of data is determined by how easy it is to make decisions based on that data. Ctrack Crystal takes the guesswork out of fleet and asset management by offering cutting edge tools and functionality in an easy to use format."

Hein Jordt, CEO of Ctrack Africa.



simplify operations.

With the rollout of Ctrack Crystal, users will be able to choose from a variety of functionality packages and add functionality as their particular needs change, including innovative features like voice commands and live in-cab camera views.

As with many of the functions of Ctrack Crystal, the in-cab camera system can be paired with Artificial Intelligence software. As an example, this clever software sifts through the data gathered by in-cab cameras and only reports on the transgressions defined by the fleet manager, instead of on every transgression.

New management reports and dashboards

As part of the improved user experience, users will need to make fewer inputs in order to reach the desired outcome. Best of all, the entire solution is fully customisable by the user and according to their own preferences.

The snapshot dashboard offers a high-level overview and highlights the most important areas where attention is needed at that time resulting in quick and decisive decision-making.

This is done by focusing on critical parameters such as what needs to be done today, what assets worked and which did not, presented with graphics, detailing jobs scheduled, jobs remaining, jobs completed, unscheduled jobs, fleet alerts, and geofence visits, among others.

Better driver management will result in less risky driving behaviour but better driver engagement and performance, including safer more fuel-efficient drivers.

The optimal management of a fleet of vehicles or moveable assets has a direct bearing on factors such as collision, insurance and fleet costs as well as total cost of ownership which in turn results in better utilisation of vehicles and increased profitability.

Similarly, a fleet health summary gives

an easy to understand status on assets and allows fleet managers and business owners to keep a handle on maintenance, servicing and regulatory issues.

The executive dashboard allows decisions to be made more rapidly by highlighting trends based on 72-hour data, selected from any date on the platform, as opposed to the 24-hour view that was given previously. This display allows users to keep an eye on their fleet with readouts of the most pertinent data presented in a manner that makes it easy to understand and utilise in making relevant decisions.

This functionality ensures a 24-hour, 365 days a year view of assets prescribed by the user from anywhere on the planet.

New driver app

A new native mobile app, released alongside Ctrack Crystal, now combines the functionality of Ctrack Mobi, Driver Mobi, Drive and OTR (On-The-Road) into one app that is easy to use yet offers more extensive functionality. The use of this app gives fleet managers true control of their operation from any location. The new Ctrack Crystal app will be available for both Android and iOS devices.

Features include, but are not limited to, two-way messaging, business/private use selection, user-configurable settings, driver behaviour scorecard, pre-trip inspection with photos, jobs (To Do/Completed) with navigation, trip information, and an integrated camera solution. This app allows drivers to manage themselves from their smartphone and see their own scores and driver behaviour on journeys. In the interests of safety certain functionality can only be accessed while the vehicle is stationary. Voice-activated commands similar to Apple Siri add an extra layer of safety for use while on the move.

Conclusion

"Ctrack Crystal is an all-new data processing platform that places operational performance, vehicle utilisation and key result figures based on precise clear data in the palm of your hand, on the platform you choose, or on the device you prefer," says Jordt.

Ctrack Crystal allows the convenient tracking and tracing of multiple assets, and the generation of clear and precise data, all on one easy to use platform.

Ctrack Crystal will be implemented in a phased rollout, culminating during quarter four of 2022. Phase one will see the migration of customers using the light product followed by those who rely on the Assist product offering. Customers who sign up for the new Crystal platform will enjoy a seamless transition from their existing solution. 🌐



Doosan's new DX225LC-7M has been proven to reduce fuel efficiency by up to 12%, with the new Smart Power Control (SPC) function.

CAPITAL EQUIPMENT GROUP LAUNCHES ADVANCED EQUIPMENT FOR HIGH PRODUCTIVITY

Capital Equipment Group (CEG) – a division of Invicta Holdings Limited – supplies and supports an extensive range of branded construction equipment, forklift trucks and spare parts, through its specialist companies. CEG recently launched advanced equipment including crawler excavators, forklift trucks, truck-mounted forklifts and a series of excavators.

“Despite challenging economic conditions, global supply issues and escalating costs – which were exacerbated by the negative effects of the COVID-19 pandemic and ongoing strike action – we are pleased that CEG has maintained its consistent record of strong performance in a highly competitive sector,” says Tony Sinclair, CEO, Capital Equipment Group. “Through our local and overseas CEG companies –

HPE Africa, DISA Equipment (trading as Doosan), ESP, Criterion Equipment, Shamrock Handling Concepts and the latest acquisition of KMP Brand in the UK, which is a specialist supplier of aftermarket engine spares worldwide – we continue our strategy to consolidate our position in construction and spare parts, by working closely with customers to ensure our equipment meets exact requirements.”

CEG companies introduce new machines, accessories and parts on a regular basis to enable customers to keep



Hyundai's new crawler HX220S excavator which was launched locally last year.

QUICK TAKE	
Hyundai's new HX crawler excavators, launched locally last year, have been developed with a robust structure for high power, fuel efficient fast cycle speeds and precision control	
New to DISA Equipment's Doosan range in 2022 is the 22 t DX225LCA-7M excavator series, which offers high performance on every job site	
Criterion Equipment has recently launched the new TCM T5C 2,5 t and 3 t internal combustion forklift trucks in southern Africa	
Shamrock Handling Concepts supplies a range of specialist forklift trucks that includes Agrimac all-terrain 4x4 forklifts	

abreast with the latest global construction trends, in terms of advanced technologies, fuel efficiency, precision operation and enhanced safety on site.

"We ensure our equipment complies with stringent international quality certification, giving the local market

assurance of the finest machine designs and impeccable manufacturing standards for high productivity, environmental protection, minimal maintenance and extended service life," says Sinclair. "Field tests ensure every machine copes efficiently in the toughest operating

conditions, to meet exact requirements.

"In today's challenging conditions, it is important to assist our customers by offering flexible finance and service options. We have recognised a trend for companies to hold onto equipment for longer, rather than to invest regularly in new machines. For this reason, we have enhanced our repair and maintenance facilities around the country and we ensure a full range of spare parts is immediately available."

HX crawler excavators

Hyundai's new HX crawler excavators (the HX300SL, HX220S and HX225SL series) which were launched locally last year, have been developed with a robust structure for high power, fuel efficient fast cycle speeds and precision control. Typical applications include construction; bulk earthworks; road works; materials handling and pipe laying; earth moving; demolition and dredging.

"The value of the new HX series lies in its durability and high productivity," says Ross Collard, MD, HPE Africa. "We are impressed with the structural design of these machines, which enables safe and efficient operation in tough African conditions. These robust machines, which have been subjected to rigorous onsite testing, prove the reinforced durability of the upper and lower frame structure and attachments ensure dependable external shock and heavy workloads and enhance safety when operating on rough terrain and wet sites. The wear resistance of the bucket has been improved, owing to the use of tougher materials, resulting in extended operating hours on your buckets."

DX225LCA-7M excavator series

New to DISA Equipment's Doosan range in 2022 is the 22 t DX225LCA-7M excavator series, which offers high performance on every job site, with advanced features for higher productivity and improved fuel efficiency.

"Doosan's new DX225LC-7M electrically controlled engine (Common Rail) has been proven to reduce fuel efficiency by up to 12%, with the new Smart Power Control (SPC) function that allows smart communication between the engine control unit (ECU) torque and hydraulic pump torque signals," says Darrel Holton, MD, DISA Equipment. "This advanced feature allows the engine to recognise the exact hydraulic load by pump torque and operator control lever, to deliver the precise amount of fuel required to the injectors.

"The DL06 engine also has Smart Engine Speed Control, which is carried out by the ECU picking up the exact amount



An Agrimac all-terrain 4x4 forklift truck from Shamrock Handling Concepts.

of hydraulic load by the hydraulic flow sensors and to communicate the required engine RPM for hydraulic breakout force. Engine RPM will therefore increase with a heavy load and decrease with a lower

load, to ensure a much smoother and fuel-efficient engine operation."

This new machine also offers the DoosanCONNECT service, which provides relevant machine information including

its location, operational conditions and utilisation, to ensure that customers are always connected and up to speed with their machines working on site."

Doosan machines have proven to offer the most cost-efficient and dependable overall performance available – even in tough construction and mining environments, that normally impede a machine's productivity.

TCM forklift trucks

Criterion Equipment – the sole distributor locally of TCM forklift trucks – has recently launched the new TCM T5C 2,5 t and 3 t internal combustion forklift trucks in southern Africa.

TCM T5C forklift trucks are designed to meet demand for reliable machines that deliver high productivity, secure lifting and long service life. These forklifts are supplied with solid tyres as standard and have improved features for easy manoeuvrability, operator comfort, safety on site and low maintenance requirements.

"Watching this machine at work is impressive. The low centre of gravity provides balance and stability, while high torque delivers steady lift speeds, even when carrying heavy loads," says Brenton Kemp, MD of Criterion Equipment.

"The fully hydraulic power steering system enables the operator to navigate freely and to turn easily in confined spaces and an integrated digital display monitor relays critical information clearly to the operator.

"This series has many features that improve safety during operation, including multi-directional visibility for clear front and rear fields of vision and a reinforced overhead safety guard that protects the operator and provides shelter when working outdoors, without obstructing visibility. The mast interlock system locks mast movement whenever the key switch is off and a safety start feature only allows the machine to be started when the control lever is in neutral."

Agrimac all-terrain 4x4 forklift trucks

Shamrock Handling Concepts supplies a range of specialist forklift trucks that includes Agrimac all-terrain 4x4 forklifts. Typical applications are in agriculture and forestry, mining, industrial sites, building and construction, as well as outdoor warehousing and military applications.

"The main advantage of Agrimac off-road forklift trucks is one machine has the capability to move stock in all environments, without the need for the use of other vehicles. For example, one forklift truck is able to move stock from a



"We are impressed with the structural design of the HX series crawler excavators from Hyundai, which enables safe and efficient operation in tough African conditions."

Ross Collard, MD of HPE Africa



"The main advantage of Agrimac off-road forklift trucks is one machine has the capability to move stock in all environments, without the need for the use of other vehicles."

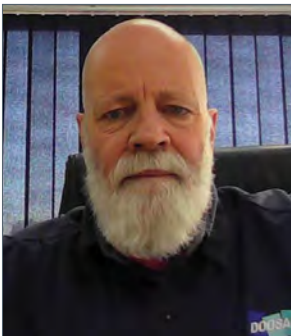
Brenton Kemp, MD of Criterion Equipment and Shamrock Handling Concepts



Criterion Equipment has recently launched the new TCM T5C 2,5 t and 3 t internal combustion forklift trucks in southern Africa.



A Moffett M8 truck mounted forklift.



"Doosan's new DX225LC-7M electrically controlled engine (Common Rail) has been proven to reduce fuel efficiency by up to 12%, with the new Smart Power Control function."

Darrel Holton, MD, Doosan Equipment Company



"Despite challenging economic conditions, global supply issues and escalating costs, we are pleased that CEG has maintained its consistent record of strong performance in a highly competitive sector."

Tony Sinclair, CEO, Capital Equipment Group

yard or field, safely to a warehouse," says Brenton Kemp, MD, Shamrock Handling Concepts. "Our Agrimac range is able to drive on rough, unpaved surfaces, where conventional vehicles are unable to travel."

These 4x4 forklifts are fitted with large heavy-duty pneumatic tyres, which add stability and traction when operating in wet conditions and on uneven terrain. Another advantage of 4x4 forklift trucks over conventional forklifts for outdoor operation, is that they have a high axle centre, ensuring good ground clearance, without damaging the undercarriage. Because minimal electronics are used, the likelihood of electronic malfunctions is reduced, operation is easier and there are fewer replacement components.

Optional features – including various lift masts and attachment accessories – enable users to meet specific handling tasks in all industries efficiently.

Moffett M8 truck-mounted forklift

New Moffett M8 truck-mounted forklifts have been designed with improvements for higher productivity, greater safety and comfort, as well as easier maintenance.

These versatile machines, with a lift capacity of up to 2,5 t, can transfer heavy loads quickly and safely, even across challenging terrain. An impressive feature is the convenience of being able to easily transport these compact, lightweight machines on almost any truck or trailer. The 4-way steering enables the operator to negotiate tight access areas with long loads.

Moffett M8 machines provide reduced cost of ownership, faster and quieter operation, efficient fuel consumption and lower carbon dioxide emissions. The newly designed hood, split rear doors and relocated battery compartment enable easy access for daily checks and reduced maintenance time. A single combined hydraulic assembly, with fewer components, ensures improved reliability. A standard feature is easier access to the GroundStart control button for improved safety.

Another highlight over the last year includes the launch of HPE Africa's Hyundai HG190 motor graders, which are available in southern Africa for the first time.

Hyundai wheeled motor graders – designed for high productivity, precision control and fuel-efficiency – offer users many benefits, including safety on site, easy mobility, fast and efficient performance and manoeuvrability in tight spaces.

The CEG team offers its extensive customer base a technical advisory, repair, maintenance and spare parts service, through a national network of branches and carefully selected distributors. 🌟

DHL and Volvo Trucks kick-off new zero emission cooperation

Volvo Trucks and Deutsche Post DHL Group have signed a cooperation agreement to accelerate the shift to zero exhaust emission vehicles. DHL intends to intensify its transition to heavy electric trucks by deploying a total of 44 new electric Volvo trucks on routes in Europe.

The intended order includes 40 electric trucks of the model Volvo FE and Volvo FL, to be used for package deliveries in urban transports. Electric trucks for longer routes are also part of the scope and DHL has decided to begin using Volvo trucks for regional hauling, starting with four Volvo FM Electric trucks in the UK.

The first trucks have been ordered already, six by DHL Parcel UK and two by DHL Freight. This will result in annual savings of nearly 600 tons of CO₂ and nearly 225 000 liters of diesel fuel for Deutsche Post DHL Group.

"We are committed to meet growing customer demand for green and sustainable solutions and achieve our long-term goal of net zero emissions by 2050. As a logistics service provider, the conversion of our vehicle fleet is an important lever to help us avoid CO₂ emissions on the road as well. Several of our divisions will thus benefit from this agreement with Volvo Trucks," says Pablo Ciano, executive VP for Corporate Development at Deutsche Post DHL Group.



An important factor in DHL's decision to ramp up the transition to zero emission vehicles is due to the positive experience it has with using an electric Volvo truck in London since November 2020 – making last mile deliveries into the West End shopping district. The vehicle was the very first fully electric commercial heavy truck used for urban logistics in the UK.

"DHL is an important global logistics provider, committed to reduce its impact on climate change. Together we can make a difference for the better and I'm proud that we will work in the spirit of partnership, aiming to reach our science-based targets to reduce our climate impacts," says Roger Alm, president at Volvo Trucks.

The cooperation involves adoption of new Volvo technologies and joint development activities within the field of electrification. The agreement also includes analysis by Volvo Trucks of DHL's transport operations, with the goal to ensure successful deployment of tailor-made electrical transport solutions.

Volvo Trucks is leading the market for heavy all-electric trucks in Europe, with a market share of 42% in 2021. Already in 2019, Volvo Trucks started serial production of electric trucks, as one of the very first truck brands in the world to do so. The company has delivered electric trucks to a wide range of customers in Europe, North America and Australia. 🌱

New handling record at Port of Maputo points to positive market recovery

In 2021, the Port of Maputo achieved a new handling record of 22,2-million tonnes, representing 21% year-on-year growth compared to the previous year's handling volume of 18,3-million tonnes.

A reflection of a post-Covid market recovery, Mozambique's Maputo Port Development Company (MPDC) CEO Osório Lucas says this growth can also be attributed to a more efficient usage of several of the port's rehabilitated berths, as well as an expanded ferro slab footprint and dedicated rail siding.

"Investment in automation solutions within the port were carried out throughout last year, as part of a strategic expansion plan prepared by the MPDC to address the bottlenecks within the Maputo Corridor and therefore improve the efficiency of cross-border cargo flow in Sub-Saharan Africa," says Lucas.

Work carried out included the completion and activation of the Vessel Arrival Notification (VAN) system and the Rail Arrival Notification (RAN) system, the automation of all

port weighbridges and the promotion and establishment of the integration between customs, single electronic window systems and port systems.

Lucas adds that the recent upgrades and investment in port and rail infrastructure provide huge potential for future growth and play an important role in creating long-term solutions to facilitate cross-border trade through the Maputo Development Corridor.

At this year's Transport Evolution Mozambique Forum & Showcase hosted by the MPDC which took place from 11 to 12 May 2022 at the Port of Maputo, solutions for achieving regional integration through effective trade corridors was one of the key topics explored in a collaborative round table discussion led by leading public and private stakeholders in the transport industry.

In addition to a showcase of the latest future-proofed transport solutions for optimised port efficiency and sustainable rail and corridor expansion from leading suppliers across the globe, this year's

event included several regional industry roundtables that offered transport professionals a unique networking opportunity as they tackled topics such as the efficiency around cross border requirements along the Maputo Corridor to facilitate faster trade into the region.

The African Continental Free Trade Area (AfCFTA) Secretariat and Mozambique's Ministry of Industry & Trade also addressed a panel discussion on AfCFTA implementation, looking at how effectively Southern African Development Countries (SADCs) are implementing AfCFTA and exploring the ways in which transport infrastructure can evolve to close the gaps and provide transport solutions that support the expansion of inter-African trade.

"Transport Evolution Mozambique Forum & Showcase is the premier event of its kind, uniting southern African port, rail and road professionals with a collective goal of driving the growth and development of the region's transport sector," says Leann Hare, portfolio director at dmg events. 🌱

Philippi-Hagenbuch engineers new rear eject bodies for world's largest articulated haul truck

Philippi-Hagenbuch, Inc., a global leader in off-highway truck customisation, has expanded its rear eject engineering capabilities to include the largest articulated haul truck on the market, the Volvo A60H.

In partnership with G.W. Van Keppel, a dealership based in Kansas City, USA, Philippi-Hagenbuch shipped its first two rear eject bodies for Volvo A60H trucks to a mine in Oklahoma. Each of these rear ejects features an interior width of 156 inches and a loading height of 148 inches and is built exclusively from high-strength, abrasion-resistant Hardox® 450 steel for exceptional life and to handle the extremes they are put under within mining environments.

"Philippi-Hagenbuch is committed to detail in design, professionally engineering their products, understanding the applications and using only the best steel. This makes them a great partner to provide strong and durable haul truck solutions that help our customers maximise their efficiency," says Taylor Killion, general sales manager, G.W. Van Keppel.

Philippi-Hagenbuch has custom-engineered hundreds of rear eject bodies for a variety of makes and models of off-highway

haul trucks to increase productivity, safety and stability for many operations. With Philippi-Hagenbuch rear eject bodies, operators can effectively and safely discharge material without having to stop and raise the truck bed, even when the truck is out of position, driving up a hill or under overhead barriers with low clearance. Operators control the ejector blade to push material out of the body while the tailgate mechanically lowers. Rear ejects dump even the stickiest material, further improving hauling efficiency by reducing carryback.

"We have complete trust in our engineering and manufacturing capabilities, which gives us confidence to take on projects that other companies may shy away from," says Josh Swank, Philippi-Hagenbuch VP of sales and marketing. "In the past, we have engineered even larger rear eject bodies and trailers, so we are no strangers to projects of this size. The PHIL team works closely with each client to understand their application and specific needs, while simultaneously working with the

dealer to achieve their priorities and the OEM to interface our equipment with their haul truck seamlessly. For this new entry to the haul truck market, we have created a new standardised solution for the Volvo A60H that can be easily implemented for other clients in varying industries."

Philippi-Hagenbuch recently updated its rear eject technology to include a newly engineered single, three-stage, double acting hydraulic cylinder that is robust enough to keep its rear ejects operating in extreme cold or in equatorial warm-weather locations. This cylinder was specifically designed for horizontal movement so it will not buckle or bind when it is fully extended while operating in a variety of dynamic environments. ☼



Volvo Trucks' faster-shifting I-Shift gearbox coming to SA in 2023

Volvo Trucks South Africa will introduce a faster I-Shift gearbox to South Africa in 2023, increasing shifting speed by up to 30%. The intelligent and automated I-Shift gearbox will see quicker response times, and subsequently provide improved drivability and smoothness to the driving of both the company's diesel, LNG, and electric extra heavy trucks.

This technological advancement is currently being introduced in Europe.

The significant drivability improvement, which has been added to drivelines at all emission levels, is achieved by the new way in which the I-Shift gearbox interacts with the engine. The update includes faster clutch activation that results in a shorter torque interruption. It also makes the gear shifting smoother, for a more harmonious driving experience.

"Faster gear shifting makes it possible to optimise the gear selection more efficiently. And the more shifting events that the road and terrain require, the more the improvements will be experienced by the driver. With up to 30% faster gear changing now possible using I-Shift, drivers will certainly experience a very positive difference," said Eric Parry, senior manager of sustainability

at Volvo Trucks South Africa.

The high-speed shifting is achieved based on several key improvements. First, updated sensors now provide data with higher accuracy to the control unit, which features new software and a faster microprocessor, for much quicker calculation times. Second, an added disc in the gearbox brake makes it react faster before a gear shift, so it can be done earlier. Finally, the air volume has also been reduced in different actuation systems, for example the shift forks, the clutch, and the gearbox brake, to further enable a faster gear shift.

When I-Shift was introduced in 2001, it was the first-ever automated transmission designed for heavy duty trucks. It has the ability to work with the entire powertrain, since this transmission system is tailored to the engine and vehicle components already from the development phase, contributing to lower fuel consumption – and thereby reduced environmental impact. It also promotes increased safety and other important benefits including reduced noise, vibration, and physical strain on the driver.

These latest advances to gain 30% faster gear changes are further evidence of Volvo Trucks' continuous improvement actions to provide better all-around driveability.



Eric Parry, senior manager of sustainability at Volvo Trucks South Africa.

"With all the improvements and new variants over the years, I-Shift has had an outstanding ability to solve more and more advanced tasks in efficient ways. This means not only delivering high performance and fuel efficiency but also outstanding driveability and comfort for the drivers," says Parry.

Today, all extra heavy Volvo trucks are built with I-Shift as standard. Since its introduction, more than one million trucks have been sold globally with Volvo Trucks' unique I-Shift technology. ☼

Bridgestone enters South African agricultural tyres market

Bridgestone has launched its range of ultra-high-performance tyres designed for South Africa's demanding agricultural sector. Willie Stander, agriculture manager at Bridgestone South Africa, says that the new agriculture range is in line with Bridgestone's emphasis on providing solutions for targeted industry sectors.

"Bridgestone entered the agricultural sector in Europe in 2013. Backed up by Bridgestone's usual high-quality research and development (R&D), the Bridgestone agriculture range has gained a significant share of the market serving the larger, most powerful agricultural vehicles and equipment," he says. "South African farmers receive substantially less protection and financial support than in many competitor countries, so their success is due to their ability to use technology to overcome the challenges of farming."

Bridgestone's Firestone brand has been active in the agricultural sector for a number of years. The introduction of the brand widens the company's solution offering to take in the top end of the market. Bridgestone

agriculture tyres will be supported locally by the established support team, with a full range of training, product clinics and on-site product analysis as needed by customers.

Bridgestone is renowned for its commitment to R&D. In 2019, it announced the creation of Bridgestone Innovation Park in Japan, which aims to expand the company's existing R&D capabilities. The new agriculture tyre range benefits enormously from this R&D.

The company's launch offering in South Africa comprises the VT-combine, VT-Tractor, and VX-Tractor.

The flagship of Bridgestone's agriculture range, the VT-Tractor radial tyre, is designed for the most advanced, heavy, and sophisticated machines. It contributes to lower fuel consumption due to its ability to work at lower pressures, even when operating under higher loads. The VF technology (Very High Flexion) in this product also supports lower pressures, which leads to improved traction and an increased footprint, reducing soil compaction.

Its sister product, the VT-Combine radial

tyre, also consists of VF and IF technology. It is designed to offer greater productivity during the harvest period. It can carry heavier loads and has a larger footprint for lower soil compaction and outstanding traction.

The VX-Tractor tyre offers increased longevity due to its robust casing, greater lug volume, and higher wear resistant compound.

Over time, the company will expand the range on offer in line with market demand. 🌱



Liebherr presents new multi-tine grab

Liebherr presents its new multi-tine grab GMM 50-5. The intelligently designed five-tine grab was not only developed for customers, but also developed together with them. The new grab combines decades of Liebherr expertise in the area of the development and manufacture of high-performance, robust attachments with a wealth of experience from the users themselves.

Recycling and scrap handling are some of the toughest applications in industrial goods handling. Robustness, reliability and efficiency are required. Therefore, choosing the right attachment for the job is key for efficient goods handling.

With the five-tine grab GMM 50-5 Liebherr has developed a new attachment that fully meets these special operational requirements. A comprehensive portfolio of buckets and a wide selection of optional equipment means that diverse materials can be handled efficiently in recycling and scrap handling. The GMM 50-5 is available for material handlers with an operating weight from 35 to 55 t.

The consistent use of high-quality materials guarantees extreme stability and resistance for the toughest applications and material handling scenarios. The special shape of the tine support and the buckets was developed based on calculation and simulation software.

In the design phase, special attention was paid to maximum service life: in order to

split the high torque, the slewing drive, for example, was equipped as standard with two motors. This increases the service life and minimises wear considerably. Both rotary transmission and the reinforced slewing drive are sealed multiple times to give maximum protection against external factors such as dust and water.

Large and flow-optimised oil ducts ensure fast work speeds and efficient machine operation. The sealed, anti-twist piston rod protection for hydraulic cylinders is also included with the grab as standard. The latter come with new cylinder kinematics, which also guarantee a long-lasting closing mechanism when the tines become worn.

A new wear back on the tines also extends the service life. Long-lasting precise penetration in diverse scrap and recycling materials is due to the special shape and alignment of the tine tips.

As the lubrication points are arranged ergonomically and logically, the GMM 50-5 is lubricated in a very short space of time. Perfect tolerances and generously dimensioned bearing surfaces lead to gentle interplay of the individual components.

Thanks to the optional motor and hose protection, damage to rotary motors and hydraulic lines is minimised. An optional central lubrication system assumes regular, automatic lubrication of all central points. The



GMM 50-5 can be equipped with shackles to protect magnetic plates. To protect the edges of the often highly stressed internal sheet of the grab against wear and tear, the tines can be equipped with a reinforcement set of wear-resistant sheets.

The GMM 50-5 is designed for optimal grabbing of mixed and shredder waste as well as chippings or shavings with content of up to 1,1 m³. The arrangement and shape of the tines are optimised for perfect penetration and holding of bulky and loose material. There is a choice of three different tines for handling diverse materials: the version with open tines is perfect for handling large-sized and bulky scrap objects. The version with semi-closed tines is ideal for medium-sized, mixed materials and shredding waste. Small, fine materials and chippings or shavings can be handled most effectively with the closed, heart-shaped tines. 🌱

Modern equipment enhances efficiencies in logistics

BLT WORLD has recently delivered a new Meclift ML1812R multi-purpose forklift truck to freight management and logistics specialists Intermodal Connections.

This multi-purpose reach truck, with a lift height of 6 m, is the only machine in the lifting capacity range of 18 tonnes (t), that can be operated inside containers, for easy loading and unloading of cargo.

"Reliable handling equipment plays a critical role enabling Intermodal Connections to provide the highest standard of service in an extremely demanding, time-sensitive environment. Many of our customers are exporters and importers in competitive markets and require absolute reliability in every part of the supply chain, to ensure cargo reaches its destination safely, in the most efficient and cost-effective manner," says Jo-Ann Mouritzen, MD, Intermodal Connections. "Our first capital equipment investment in 2014 was a 45 t container handler that has since been enhanced by advanced materials handling machines, including variable reach trucks and forklifts.

"The investment in our new Meclift ML1812R variable reach truck has made it possible for us to handle a broader range of project cargo, steel plates and coils, increasing our flexibility and improving



overall productivity. These compact and robust reach trucks have been designed to move safely and swiftly in confined spaces. Specialised lifting attachments enable one machine to handle paper reels, automotive coils, steel plates and project cargoes safely and efficiently. By combining the strength of robust handling attachments and the extended reaching ability of our latest Meclift reach truck, cargo handling operations are safer, faster and more cost efficient."

BLT WORLD, which supplies a range of specialist materials handling equipment to diverse industries throughout Africa, provided operator training to the Intermodal

Connections team, to ensure high efficiencies and to enhance safety on site. The company also offers a technical advisory, spare parts and support service.

Intermodal Connections efficiently handles all aspects of logistics and shipments, to ensure optimum efficiency of domestic and international trade.

The company's cargo handling services include the handling of unitised commodities and breakbulk cargoes, unpacking and repacking of containers and cross docking. A dependable freight, stock and document management completes its supply chain service to and from any destination in the world. 🌐

Wacker Neuson cultivates new AFGRI Equipment dealership

Wacker Neuson has announced the appointment of its new dealership, AFGRI Equipment, a move that sees the light and compact equipment specialist expanding its agricultural and construction footprint across southern Africa.

Dennis Vietze, MD for Wacker Neuson Sub-Saharan Africa, explains how the new dealership agreement was cultivated: "AFGRI Equipment will complement its product range with Wacker Neuson excavators, wheel loaders and telehandlers. Their strong presence and expansive footprint in the agricultural, and recently acquired John Deere Construction & Forestry space were among the numerous factors that encouraged us to enter into this dealer partnership."

"AFGRI Equipment is excited to be a part of the Wacker Neuson distributorship," says MD Patrick Roux. "This agreement allows us to sell and support world-class products that have built a following in South Africa over the last 40 years. Wacker Neuson's product offering also aligns very well with AFGRI Equipment's current portfolio to specifically focus on compact construction equipment."

Roux also points to Wacker Neuson's

engineering design and manufacturing that leads to ultra-reliable equipment. "As can be expected from a company that has long been involved in the South African market, substantial investments have been made in parts distribution, technical training facilities and personnel development."

The dealership agreement will see the rollout of Wacker Neuson equipment to AFGRI in two phases. "During the first phase we will be focusing on Wacker Neuson telehandlers, wheeled loaders, and excavators," says Roux.

He notes that the wheeled loader, coupled with all-wheel steering, will adapt well in the market and is suitable for a wide variety of industries. He says the compact excavator finds particular favour with plant hire and urban development businesses as it is easy to transport at lower costs and easy to manoeuvre. "The telehandler is popular in all segments of the construction industry, as well as in numerous agricultural applications," says Roux.

AFGRI is responsible for the full service of all Wacker Neuson equipment, including after-market support. Roux says AFGRI Equipment has already embarked on a full



training schedule for parts and service professionals to service the market. He says the wide footprint of their current branch network straddling over 23 locations across South Africa, along with their 175 fully qualified technicians and 93 apprentices, will play a critical role in upholding the exceptional service that AFGRI customers have become accustomed to. 🌐

Next Generation Cat 906, 907 and 908 compact wheel loaders

Building on the success of the Cat® M-Series compact wheel loaders, the new Next Generation Cat 906, 907, and 908 wheel loaders boast a reengineered operator's station, leveraging exclusive Cat technologies to improve operator experience and provide larger wheel loader model comfort on a smaller platform. Featuring the new Cat C2.8 engine, the upgraded drive and powertrain deliver faster roading speeds and drive train performance. The new sealed and pressurised cab improves the operator experience while keeping previous design functional aspects like raised floor pedals and two doors to make cab cleaning easier. Optimum visibility is achieved with larger standard side mirrors, optional parabolic lens electric and heated mirrors, and front and rear camera options.

Seat mounted controls improve operating ergonomics of the new loaders. A multifunction joystick controls travel direction and speed, proportional auxiliary flow, differential lock, and constant hydraulic flow without operators removing their hand from the joystick.

A first for this class size, new in-cab-programmable kickouts with high-definition rotary sensors mounted to the loader arms better protect operators from unwanted shock and vibration due to buckets striking the ground and/or hitting dump stops at max height. Proper kickout operation also saves up to 20% of bucket cutting edge life. Rather than leaving the cab for setting, the operator remains inside the cab while setting upper, lower and attachment kickout positions at the touch of a button.

The heart of the new cab design is the Next Generation control monitor, which offers a range of real-time machine oper-



ating information. It allows the operator to configure hydrostatic transmission response, auto engine idle shutdown and a utility powertrain mode that provides operators with a more intuitive means of controlling ground and engine speed. Specifically designed for Cat products, the new Cat C2.8 engine delivers the same 55,7 kW (74 hp) gross power as the previous engine with 13% more torque, resulting in roading performance and tractive effort improvements. The Cat C2.8 meets EU Stage V and US EPA Tier 4 Final emission standards with alternative emissions packages available. Its shift-on-the-go transmission offers increased roading speeds of 40 km/h, and larger fuel tank capacities of 30% for the 906 and 12% for the 907 and 908 deliver extended work cycles.

When working in dusty environments, the new reversing-fan option assists in keeping cooling cores clean for more efficient temperature control. Through an in-cab soft-touch button, the system can be turned off, set to operate in an automatic mode or momentarily activated by the operator. Automatic mode uses the factory-setting to reverse direction for 10 seconds every 10 minutes. Frequency and duration of auto-

matic reversing can be changed easily by the operator via the new control monitor.

To meet demand for increased multifunctionality with lift and tilt while powering hydromechanical tools, these Next Generation wheel loaders feature a new standard pressure compensated valve, allowing operators to simultaneously control implements and operate hydromechanical attachments seamlessly.

Modifications to the optional skid steer coupler improve visibility through the coupler when setting fork tines. In conjunction, realignment of the compact wheel loader fork carriage improves forward visibility.

New for this class size, an optional Cat 908 high-lift configuration is available, perfect for customers operating in agricultural, industrial and waste markets. When combined with the reversing fan option, the high-lift configuration offers farmers increased operating efficiency and reliability. Available solid tyres and the high lift configuration make the new 908 loader ideal for industrial and waste applications.

Efficient, high-illumination LED lights options are now available for both working/roading and under-hood-service lights to better illuminate work areas. ☼

MyLiebherr homepage: design and features enhance user experience

With the MyLiebherr online portal, Liebherr customers have access to information and services at any time of the day. It is available for products ranging from construction machines, mining equipment, mobile and crawler cranes, material handling technology and components to maritime cranes. The redesign of the MyLiebherr homepage marks the start of a new phase in the further development of the portal.

In the course of the development of the new design special attention was paid to the user-friendliness of the MyLiebherr homepage. The key areas are now combined and clearly structured. This means that users see all their products at a glance and can skip directly to the areas "Personal data" and "Business relationships". In addition, all

licence managers and company administrators are now displayed to the user with their respective contact details. The previous navigation was replaced with the "Apps" area and offers easy and quick access to the key portal applications. Whether they need the shop, the spare parts catalogue or product documents, users can now enter applications by clicking on the new large tiles. With the new pop-up windows, users also receive feedback on error messages or information about the status of requests.

The profile management was optimised and even better tailored to the needs of users. In the "Address book" section, company administrators can now create and manage addresses that are available either to themselves or all users of their company. For orders, the appropriate delivery address

can be selected directly without having to enter it again each time. In the "Products" section, company administrators or product managers have the option to store keywords for each machine. Products can therefore be assigned to corresponding topic clusters, enabling them to be found more quickly. These keywords are then visible to all users of a company.

The changeover to the new user interface is automatic. When visiting the website www.myliebherr.com the MyLiebherr portal automatically appears in the new design without users having to make any additional settings. The login data also has unlimited validity. In the coming months, numerous new features for MyLiebherr will be rolled out gradually. ☼

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Accessible on multiple platforms

ELB Equipment launches new range of Powerscreen mobile conveyors

Efficiency, productivity and increased stockpile capacity are just some of the benefits available from ELB Equipment's latest offering of Powerscreen mobile conveyors.

The latest range offers reduced crushing and screening costs with the use of mobile conveyor loading solutions and can replace more costly loading equipment in many applications. The manufacturer has one of the largest ranges of off-the-shelf mobile conveyor systems globally.

Wakefield Harding, ELB Equipment national sales manager for mining, says "the range has tracked conveyor mobile machines ranging from 21 to 30 m and from 500 to 1000 tons per hour (tph). The tracked radial mobile conveyors range from 20 to 24 m and 500 to 1000 tph with stockpile capacities of up to 7500 cubic meters at 180 degrees.

"The fully mobile tracked hopper feeder ranges from 15 to 23 m with hopper capacity from four cubes to 10 cubes with a low-level feeder option that can be fed via loader or excavator directly and has a capacity of 7 m³. We also have lattice frame and telescopic conveyors up to 50 m," says Wakefield.



"All the mobile conveyors can be run on automated programme as an optional extra. The advantage of this range is that they prevent degradation and segregation of materials, meaning that it does not separate fines and heavy materials during the stockpiling process and prevents degradation of material as it is stockpiled.

"This is a key feature in ensuring the improvement of material quality. The pin-less deployment feature allows the operator to adjust the stockpile angle 'on the fly' which, in turn, reduces downtime and the chances of blockages at the head drum. This also results in the machine having a faster set-up

time. The mobile conveyors also help in the reduction of site traffic, labour and because of their robust design, maintenance costs."

ELB Equipment's supply of Powerscreen mobile conveyors means that any company looking to maximise productivity and efficiency would naturally opt to add these conveyors to their fleet.

ELB Equipment has a large fleet of field service vehicles to ensure its equipment performs at optimal levels with maximum availability. It has a large footprint across South Africa including major cities as well as across other SADC countries (Namibia, Eswatini, Zambia, DRC and Zimbabwe). 🌐

Epiroc releases upgrade for topammer drill rigs – SmartROC T35 and T40

An upgrade is now released for the Epiroc surface drill rigs, SmartROC T35 and T40. The update includes a number of new features and options, making these topammer models better equipped than ever. With Smart technology and enhanced automation, the models deliver more sustainable and user-friendly solutions.

The new SmartROC T35 and T40 are equipped with an enhanced engine RPM control. The new level of intelligence makes the updated models even more fuel efficient — by up to 5%. This is one of all the new, smart features, strengthening the models' class-leading positions.

"This product update will provide customers with many valuable features and options, enabling more uptime and higher productivity. With the operator in focus, we have made sure that these models offer valuable new technology that is easy to use," says Ulf Gyllander, global product manager at Epiroc.

Smart technology and enhanced automation

The new SmartROC T35 and T40 models offer many smart features, providing a range of automated solutions. The enhanced automation helps to achieve new levels of

consistency and output.

Both models feature ingenious self-diagnostic capabilities. As a result, downtime is kept to a minimum. Another smart solution is the automated adding of rods when the rig drills down. Once the hole is complete, rods are extracted with significantly reduced input from the operator.

User-friendly systems and devices

A new 15-inch touch screen with an intuitive graphic user interface (GUI) is now fitted. This provides quick and easy adjustment of drilling parameters. Both cameras, rear and support leg, are now integrated into the display which removes the need for an additional screen.

Real-time data while drilling

While using the SmartROC T35 and T40 the operator can get drilling logs live during drilling, when using the Measure While Drilling (MWD) option. The log file is exported to ROC Manager via Certiq, USB or Wi-Fi, creating a report that can be analysed before making blasting decisions.

"We also have numerous new options available for this update, such as a new pressure-washer, extra lighting, and Measure While Drilling live — making it



possible to log drilling parameters during drilling," says Gyllander.

Higher productivity

The models are also fitted with a new 12% larger pulley wheel, which reduces wear on the feed cable due to reduced cable-bend. The feed cable and the wheel will last longer, delivering higher productivity compared to previous models. 🌐

Make connections that matter at Electra Mining Africa 2022

After two years of restrictions, exhibitions and events are now successfully re-opening globally and good news for local industry is that Electra Mining Africa will be going ahead as a live, in-person event this year. Several other exhibitions have taken place over the last months with excellent results being reported by all involved.

The exhibition and its line-up of conferences and free-to-attend seminars will be taking place from 5 – 9 September at the Expo Centre, Nasrec, in Johannesburg.

With over 75% of exhibition floor space already sold, exhibitors are eager to get back to the face-to-face environment and to take advantage of trade opportunities that Electra Mining Africa offers. For the past five decades, Electra Mining Africa has built a strong reputation for its ability to connect people and industries, buyers and sellers.

Hundreds of exhibitors are ready to showcase their latest innovations, technology, products and services at southern Africa's biggest mining, electrical, automation, manufacturing, power and transport trade exhibition.

"We are excited and we are ready. We have been working hard behind the scenes to deliver a show in 2022 like no other," says Charlene Hefer, portfolio director at Specialised Exhibitions, a division of Montgomery Group. "For the past year we have been connecting with our partners, integrating latest exhibition trends and technologies, and planning



exciting new features to mark the show's 50th anniversary.

"When it comes to invigorating the South African economy following the effects of the global pandemic, facilitating the right connections will be key," Hefer says. "Electra Mining Africa is a trade show that provides the ideal platform for buyers and sellers to connect, for industries to come together and, ultimately, for our country's growth and development to receive the boost it needs."

Face-to-face interaction has been greatly missed in the exhibitions and events industry. Although online events and vir-

tual exhibitions filled the void and created an environment where buyers and sellers could engage remotely, these fell short of the in-person, face-to-face experience.

"Exhibitions in the modern world remain incredibly relevant," says Hefer. "Even with the growth of the digital age, human beings are gregarious and social by nature, they need personal contact. Face-to-face interaction facilitates the building of relationships and trust; live demonstrations engage the senses and networking and collaboration between industry professionals can take place." 🌟

Why transfer chutes should be a primary consideration in plant designs

The significance of correct chute designs to ensure efficient transfer of material in processing plants without blockages, spillage and with minimum wear cannot be emphasised enough. Yet, Engineering, Procurement and Construction Management (EPCM) contractors rarely collaborate with an experienced chute manufacturer early on in their plant design processes to ensure correct configuration of transfer points.

This is according to Mark Baller, MD of Weba Chute Systems, who warns that the consequences of insufficient attention to transfer chutes in plant designs can be dire, as optimum material transfer is seldom achieved at plant start-up.

"The role of transfer chutes in a plant is traditionally underestimated. Based on our decades of experience, a significant portion of plant downtime is generally attributable to transfer chutes, be it through blockages, spillage or high chute wear,"

explains Baller. "That's why chutes should never be considered an after-thought in plant designs. An experienced chute manufacturer should therefore be part of the design process from the very start."

Weba Chute Systems has over the years forged strong relationships with several leading EPCMs, and Baller notes that there is an apparent change in attitude towards the role of chutes in plant designs. Many EPCMs, he says, have seen the importance of getting a chute supplier involved at an early stage of the design process.

"Involving us in the early stages of plant designs eliminates the need for time con-



suming and costly modifications, which is often the case when a chute supplier is only consulted at a later stage of the process. Correct transfer chute designs eliminate unplanned plant stoppages and production losses down the line, so boosting revenues for the mine," concludes Baller. 🌟

THE CLEANER ALTERNATIVES FOR AFRICA'S ENERGY MIX

The drive to move to renewable energy has gained significant traction following COP26. Ahead of Enlit Africa 2022, Dinesh Buldoo, MD: Power, WSP Africa and Martin Mkhabela, director: Power, WSP in Africa, discuss the opportunities this presents for a cleaner energy mix in Africa.

According to the World Economic Forum, only 9% of all the energy generated in Africa came from renewable sources in 2020. Progress is being made, however, with solar and wind capacity increasing by 13% and 11% respectively, and hydropower soaring by 25% – all in 2019 to 2020 alone.

"We have seen several projects, in different regions, coming through the planning pipeline over the past several years – with evidence of significant investor and developer interest in renewable energy projects," says Dinesh Buldoo, MD: Power, WSP Africa. "Private sector interest in investing in renewable power assets across Africa has been growing steadily, as the continent as a whole offers diverse renewable energy sources ranging from solar and wind to green hydrogen."

The commitment to invest in renewable energy projects in Africa, made by Germany, France, the United Kingdom, the USA and the European Union at COP26 last year, has added much-needed impetus to moving planned projects forward.

"Most recently, for example, Sasol and the South African Industrial Development Corporation announced they will use the country's solar and wind resources to produce and export green hydrogen at a massive scale, with support from the German government," says Buldoo.

"The Democratic Republic of Congo (DRC) is also well positioned to take advantage of this growing global demand for green hydrogen," says Martin Mkhabela, director: Power, WSP in Africa. "The Inga Falls, situated on the Congo River in the DRC, is the world's largest hydropower site with 44 GW of potential generating capacity. There are a number of global companies that are pursuing the Grand Inga Project for the production and export of green hydrogen (or clean-H₂) to the European markets."

Green hydrogen presents one of the most viable alternatives for Africa to realise its renewable energy ambitions, but there is much work to be done before its potential can be realised. "In order to leverage hydrogen, two critical components are required," Mkhabela says. "The first is an abundant and reliable source of water and the second is access to a cheap source of electricity from renewable energy sources in close proximity to consumption or export nodes."

South Africa certainly has world leading and abundant solar and wind resource potential, which is integral to the production of green hydrogen and to compete in the global green hydrogen economy. However, the challenge to South Africa realising this potential in the short-term is two-fold. The country does not have any excess electricity from renewables or Hydro, with local power utility Eskom currently using all available electricity generated from renewable resources. South Africa is also a naturally water-scarce country and the 30th driest in the world.

"We believe that as more renewable power generation plants are built as a result of recent changes in the Electricity Regulations Act, South Africa will experience intermittent excess energy in the electricity grid paving the way for more widespread adoption of hydrogen production. This will, however, by no means be a walk in the park and significant innovation will be required to unlock water resources for the production of green hydrogen, at competitive prices, in South Africa," says Mkhabela. "But we are already seeing numerous pilot projects in development in the country."

WSP have successfully delivered solar and wind projects through the four rounds of the Renewable Energy Independent Power Producer Programme (REIPPPP) and are looking forward to an additional 5200

MW of solar PV and wind projects in round 5 and the upcoming round 6.

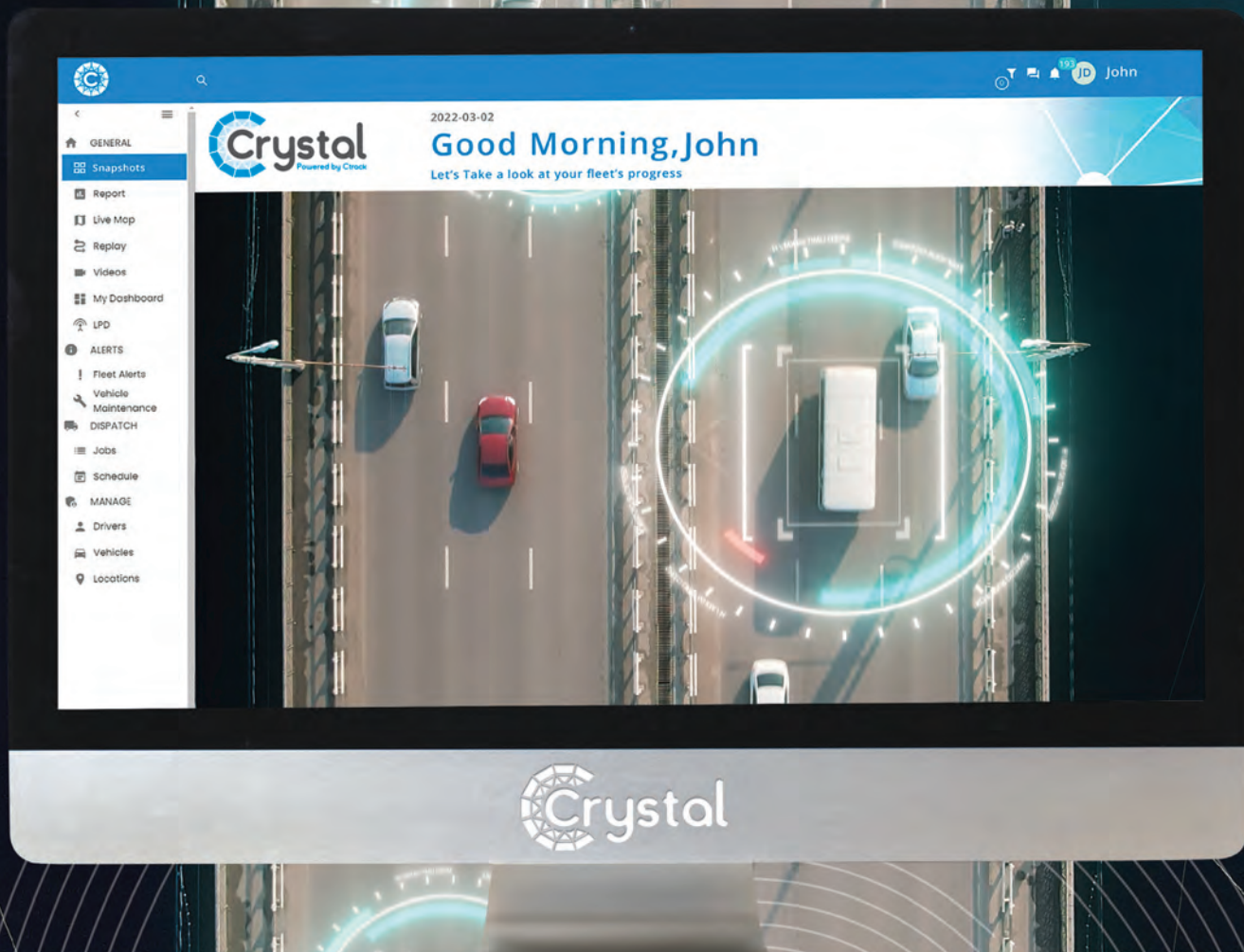
Several significant renewable energy projects were also launched elsewhere in Africa in 2021, including a 5 GW green hydrogen project in Namibia, a 600 MW hydroelectric power station in Congo and Cameroon, a 200 MW solar project in DRC and a further 100 MW of solar power each in Botswana and Ghana.

"All indications are that, by successfully leveraging renewable energy sources like these as well as hydrogen technology, Africa can benefit greatly from the global drive to achieve certain decarbonisation targets by 2030 and become carbon neutral by 2050. Critically, these benefits will not only be from an environmental point of view, but from an economic and social one as well," says Mkhabela.

"At WSP we see the discussions around green hydrogen mirroring those held about solar power and batteries five years ago. The argument against it – that it is too expensive – will likely follow the same patterns, with prices dropping rapidly and the economics of using the technology changing drastically for the better," says Buldoo.

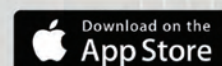
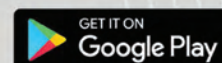
The reality is that African states most likely require a hybrid approach to renewables, in which gas and green hydrogen play a significant role, while complementing solar PV and wind power plants in combination with energy storage solutions.

"However, to capitalise on the momentum we're seeing in terms of appetite for investment, we need regulations that enable renewable power generation plants to be built. We also need legislation and policies that support the growth of the alternative energy sector as a whole and enable it to overcome upfront capital costs on individual projects in favour of long-term gains," says Buldoo. ☀













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* Some product functions not immediately available in Africa. Image for illustration purposes only.



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