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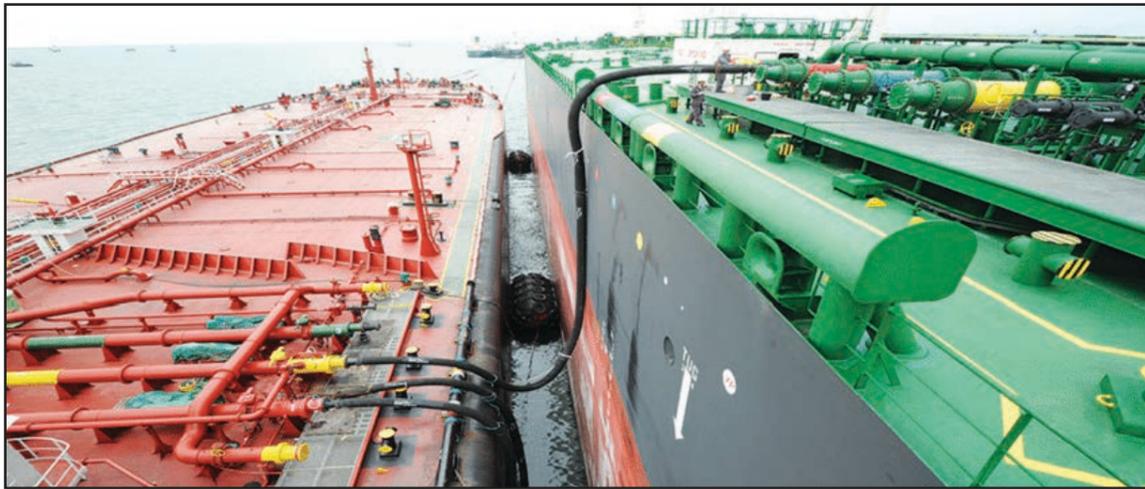
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## Tax 'lacuna' stalls bunkering boom

**T**HE South African Revenue Service (SARS), estimates that the fiscus has lost R7 billion due to offshore bunkering operators' non-compliance with the rules of the Customs and Excise Act. In a case heard in the Eastern Cape High Court before Judge Potgieter in February, one of the three licensed operators estimated the company's monthly loss while the operations are interrupted by SARS' detention and subsequent seizure of vessels, at approximately R300 million per month.

Bunkering operations were described as extensive in scope and the applicants, Heron Mauritius and Heron Marine South Africa indicated that it counted among the biggest of such operations worldwide.

Bunkering - the process of supplying fuel to ships - is potentially a booming business for South Africa due to the country's proximity to heavily trafficked shipping lanes. Offshore bunkering is particularly attractive as it avoids port levies and speeds up turnaround times. The protected waters of Algoa Bay are ideal for the ship-to-ship (STS) transfer of marine fuel. Before SARS' intervention, it was a vessel's



Offshore bunkering speeds up turnaround times and avoids port costs. Image: ResearchGate  
Top right: Location map, Nelson Mandela Bay and anchorages. Source: TNPA Environmental Study - Offshore bunkering and ship-to-ship transfers of liquid bulk in the Nelson Mandela Bay ports (Page III)



only option for offshore bunkering in South African waters.

**Deficient tax law**

The resolution of this legal 'lacuna' is not speedy. SARS halted all operations in September last year and it

looks as though operators will have to wait until amendments make their way through the political channels (possibly distracted by elections in May) before they can start up again.

### Deficient tax law

SARS has published draft amendments to the rules of the Customs and Excise Act which was open

for comment by 12 January 2024. The purpose of these amendments appears to be aimed at coming to terms with novel operations which utilise tankers as floating storage facilities for fuel stocks that are sold to foreign-going vessels and supplied through STS transfers or trans-

shipment within ports.

An article published by the trade law centre, tralac, detailed the unfolding saga. Researcher Emily Pender says the February ruling is not surprising given that SARS laid out its argument months ago. SARS claimed (and still claims) it has acted lawfully and is investigating tax evasion within South African waters.

She notes that Algoa Bay is the largest bunkering location in South Africa. With monthly sales of 50,000-100,000 metric tons, has played a crucial role in global shipping since 2016.

Bunker operations and services are conducted in accordance with bunkering *continued on page two ...*

## World class testing for globally competitive products



The 2,500L corrosion test chamber in the new laboratory is possibly the largest of its kind owned by an independent testing facility

**M**ANDELA Bay University's engagement and innovation institute, eNtsa, in collaboration with the Automotive Industry Development Centre - Eastern Cape (AIDC - EC) and the South African International Maritime Institute (SAIMI), and with support from the provincial government, has launched an expanded world class testing facility at the Ocean Sciences campus.

eNtsa has worked closely with automotive manufacturers and suppliers for the past 20 years and is extending its scope to include the marine industry as a core focus in its new spacious laboratory.

"With its scale and global competi-

tiveness, the automotive industry is a major contributor to our local economy, and we would like to support the marine industry to reach similar levels," says Julien de Klerk, eNtsa engineering engagement director.

De Klerk explains that the expansive new laboratory allowed eNtsa to move some testing equipment from existing facilities which were at over-capacity, and to introduce new equipment. "The 2,500L corrosion test chamber is a game-changer for us. More than twice the capacity of our existing 1,100L chamber, it gives us the scope to test much larger objects."

The facility houses a number of environmental chambers used for

several tests, including corrosion testing and thermal aging. An object, a door panel, for example, is subjected to accelerated cycles of changing temperature, humidity and salt water, to determine how it will respond to long-term wear. Environmental testing can last a few days or continue for as long as two months.

Researchers, student interns, and graduate trainees work on projects and learn how to operate industry-standard equipment in eNtsa's labs. "That is another exciting feature of this new lab," says De Klerk. "It gives us more space to accommodate learning opportunities." He says a mix of technical disciplines work together *continued on page two ...*

**INSIDE**



**Wind power delivers investment and jobs for the Eastern Cape**  
- page 3

**Food & Beverage - page 5**



**Instrumentation, Measurement & Control - page 8**

**Pumps, Valves, Pipes & Fittings - page 10**



**Transport & Logistics - page 12**

**Company & Product News - page 14**



# Biofibre – localising the auto sector to the agri sector and reducing carbon footprints

BY MEIKE WETSCH,  
COEGA DEVELOPMENT CORPORATION  
UNIT HEAD OF CAPITAL RAISING

THE Biofibre Hub Project, established by the Coega Development Corporation with the Council for Scientific and Industrial Research (CSIR) as its research and development partner, is moving closer towards commercial production.

Established in the 9003-hectare Coega Special Economic Zone, the project involves the development of viable industrial applications for two types of plant-based fibres – bast fibre and leaf fibre – to support the global competitiveness of the South African automotive sector, promote the greening of manufacturing chains, and foster the creation of sustainable jobs in rural areas.

In the automotive sector, bast fibres such as flax, hemp and kenaf, are used to manufacture woven and non-woven composites for auto components such as parcel trays and interior door linings. Bast fibre competes well with carbon fibre in terms of mechanical strength and also offers a weight advantage for fuel efficiency. When combined with polymers and bonding matrices, bast fibre can be used to manufacture structural automotive panels.

Leaf fibre, which the project will derive from the pineapples that already come into the Coega SEZ for food manufacturing, as well as the cactus species in the nearby Karoo heartland, will be used to create a plant leather for high-end vehicles.

## An Overview of Market Uptake

The automotive sector has ventured into greening both its manufacturing processes and its products in response to consumer preferences, environmental, social and governance (ESG) financing considerations, carbon taxes, regulatory pressures, end-of-life costs, and the need to reduce the weight of vehicles for fuel efficiency and electric vehicle (EV) application.

Global automotive manufacturers who have already explored the use of biofibre materials, include Mercedes-Benz, Volkswagen, BMW, and Bentley, with the Lotus Corporation having produced the Eco Elise, as the first successful example of structural components made from bast fibre, specifically, hemp.

While the application of bast fibre in woven

and non-woven composites is well established globally, and several examples of plant leather in high-end auto already exist, the sector continues to face a big problem, environmentally speaking.

While the fibres themselves may be plant-based, many of these composites rely on petrochemical bonding matrices and polymers to deliver strength and functionality, diminishing their “green” appeal.

Seat covers in high-end vehicles illustrate this problem perfectly. Traditionally, the automotive sector used nappa leather, which is made from high quality, blemish-free and durable hides. During the manufacturing process, as much as 30% of the leather is lost, due to the irregular shape of the hides. Furthermore, consumers are becoming increasingly demanding of more environmentally friendly options.

Consequently, many automotive manufacturers have sought alternatives to nappa leather, one of which is plant leather. Current plant leather options fall short in two respects. Firstly, they are not as durable as Nappa leather. Secondly, they rely on petrochemically derived bonding matrices and polymers to deliver strength and functionality, challenging their environmentally friendly appeal. The resulting product often feels like vinyl – a far cry from the luxury experience that high-end auto buyers desire.

The solution to this problem is a fully green product that feels and smells like leather, and that breathes like leather.

To achieve this, plant-based polymers and bonding matrices need to be further developed. This is where the Biofibre Hub Project has a lot to offer.

## Coega SEZ Biofibre Hub

The CSIR’s Nanotechnology Innovation Centre and Chemicals Units are far advanced in the development of biopolymers and bonding matrices that exceed the performance of the petrochemically based alternative. By partnering this considerable intellectual property with Coega’s ability to finance, commercialise and industrialise innovation, the Biofibre Hub is well-placed to commercialise existing



Meike Wetsch

bio-based polymers and bonding matrices. The CSIR has developed these bio-based polymers and bonding matrices and now the challenge is to produce it at a price level that will rival petrochemically derived solutions.

While this will unlock the bio-composites market in the automotive sector, and support the rural extension of its value chains, the larger opportunity is the bio-composites market itself. The market for bio-based polymers is anticipated to reach USD 29.8 billion by 2027, expanding at a compounded annual

growth rate (CAGR) of 18.2%. Sustainable polymers known as “bio-based polymers” are created from renewable resources including biomass, starch, and rubber, among others. Bio-based polymers’ starting components originate from plants, animals, enzymes, or microbes. As a result, polylactic acid or polylactide, is compostable and biodegradable.

One of the key factors influencing the market for bio-based polymers is the rise in environmental concerns regarding the disposal and recycling of synthetic polymers. The market expansion for bio-based polymers is also being supported by the increasing acceptance of bio-based materials in the end-use sectors, including packaging, pharmaceutical, construction, and consumer products, among others.

Besides the obvious business case presented by the market outlook, the adoption of biopolymers makes a lot of sense from a sustainability perspective.

## Biopolymers and Sustainability

Global bioplastics output in 2021 was 2.42 million tons, according to figures released by European Bioplastics in partnership with the Nova-Institute – a small fraction of global plastics output, which continues to end up in landfill sites and contribute to environmental pollution. The existing market share of polyhydroxyalkanoates (PHAs), the sustainable alternative, was over 30% in 2021 and is expected to increase significantly.

PHAs safeguard the environment and aquatic life and completely degrade in soil, water, and municipal waste treatment facilities. The

product is used in rigid and flexible packaging across a variety of industries, including food, beverage, and pharmaceutical industries.

To further refine the product and take it to market, the CSIR and Coega have recently partnered with a leading Italian plant-based leather manufacturer that provides products to the leading European auto manufacturers, and leading luxury fashion brands looking for sustainable leather alternatives.

The Project supports the global competitiveness of the South African automotive sector exports by helping to lower carbon footprints, but more importantly, to localise the auto sector value chain into the highly labour-absorptive agricultural sector. By linking these value chains, we will finally have a route towards fully integrating the provincial economic value chain, which in turn and over time, will help us overcome the east-west divide that continues to plague the province.

The project will be developed in phases. Currently, we are in the commercial pilot phase. Four South African manufacturers have already signed cooperation and offtake agreements, which will allow us to go through the final industrial acceptance testing. The pre-commercial capital raise for the pilot phase is complete, and in this first phase, the project will already create a small number of jobs. By phase three, the project will have a capital investment value of just over R1bn – and will have a substantial economic impact.

## A Blueprint for Innovation

By combining the strengths of the CSIR and Coega, the Biofibre Hub Project is creating a template for the commercialisation of South African innovation, and this is how we will move South African manufacturing up the value chain and create economic value.

Moreover, public sector collaboration is acting as a catalyst for private sector investment and growth.

In conclusion, the Biofibre Hub Project represents a bold step forward for the Coega SEZ and the broader South African economy. By harnessing the power of biotechnology and sustainable materials, this initiative has the potential to drive economic growth, foster environmental sustainability, and position the region as a leader in the global green economy.

## Offshore bunkering

... continued from page one

licences granted by Transnet National Ports Authority (TNPA) and approved by the South African Maritime Safety Authority (SAMSA).

### Increased demand

SARS’ timing could not be worse. With most of the major shipping lines re-routing vessels around South Africa to avoid the risk of attack by Houthi rebels in the Red Sea, passing vessels on this longer route burn more fuel as they race to cover the extra distance.

Overall sales of marine fuel in Singapore were 4.9 million tons in January, up about 12%, according to the Maritime & Port Authority. In December, they hit 5.1 million tons, the highest

monthly volume in data going back to 1995, gcaptain.com reports.

Appealing to government to intervene in the issue after the SARS raid in September, Unathi Sonti, chairperson of the Maritime Business Chamber, said that about 30 000 vessels sail along the coast of South Africa each year and approximately 13 000 vessels visit South African ports annually.

Sonti outlined the economic impact, in addition to direct employment, brought by offshore bunkering operations to Algoa Bay, including off-port boat operators, shipping agents, chandlers, diving companies, and activities associated with seafarer transfers.

Sonti remains hopeful that the impasse will be resolved as the MBC promotes the ocean economy.

### Environmental impact

The calm waters of Algoa Bay also attract marine life, such as the endangered African penguin. conservation bodies like the Southern African Foundation for the Conservation of Coastal Birds (SANCOB) are not in favour of offshore bunkering in the bay. An environmental study commissioned by TNPA was published on 29 February 2024.

It investigated the effects of offshore bunkering activities in the bay including underwater noise pollution, oil pollution and increased vessel traffic.

One of the study’s recommendations is that the bunkering activities be reduced to only one of two allocated anchorage sites within the bay.

## World class testing for globally competitive products

... continued from page one

the labs learning from the professional lab staff – from electrical and mechanical engineering, mechatronics, metallurgy, chemistry and physics.

With an increase in automation and robotics, the labs are also drawing on IT and software skills and the new facility includes a collaborative robot test bed.

The product and materials testing facilities fulfil two critical roles for manufacturers supplying global Original Equipment Manufacturers (OEMs). eNtsa’s testing services are South African National Accreditation System (SANAS) approved and ISO 17025 accredited. “This means that if a local manufacturer’s component passes the required tests in our lab, the doors are open for it to supply the OEM locally and to export to overseas plants.”

“The other aspect of our testing is related to research. Whether it’s an issue of high scrap rates, low efficiency, or an unknown source

of a fault – we use our technology to test and understand how materials react to conditions. In these cases, we can provide the testing service and also help the manufacturer to find solutions.”

Another world class technology that the subsidised lab brings within reach of local small, micro and medium-sized enterprises is 3D scanning. “Being able to precisely replicate and inspect an existing structure is particularly useful for designers developing accessories or replacement of legacy parts. These need to fit perfectly and having an accurate 3D model to work with, allows the designer to be more accurate,” says De Klerk.

The new laboratory was officially launched on 15 March and is being developed in phases to allow for the addition of new technologies and equipment, as industry needs change. “Testing hydrogen storage and transportation infrastructure is a developing need in the bulk storage, automotive and marine industries and

we plan to build capacity to support that,” says De Klerk.

As an engagement institute within Mandela University, eNtsa provides a subsidised service to support SMEs. “Having our testing facility here in Gqeberha brings world class support within an SME’s reach. We are here to assist local companies to achieve the international quality standards required to supply automotive and marine manufacturers to further localisation,” says De Klerk.

To promote the development of Eastern Cape based SME suppliers to the automotive sector, the institute is inviting proposals for the Automotive Localisation Testing (ALT) programme 2024/5. Proposals can be submitted online by 15 April 2024 and stand a chance of receiving fully subsidised testing. Companies wanting to access eNtsa’s services can contact the institute to discuss their needs with one of its professional engineers or testing specialists.

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# Wind power delivers investment and jobs for the Eastern Cape

**N**ORDEX Energy South Africa has unveiled plans to locally manufacture concrete tower sections in the Eastern Cape Province, ushering in the creation of up to 300 jobs within the region.

The purpose-built manufacturing facility will be situated in Humansdorp, approximately 1.5 hours from the Port of Ngqura, where the remaining turbine components will land. Operations at the manufacturing plant, responsible for producing the 120m high towers, are set to commence as early as May 2024, supplying a trio of wind farms totalling an installed capacity of 336 MW.

Situated in the Eastern Cape, the cluster of wind farms in the Jeffreys Bay area, close to Impofu Dam, will harness the area's exceptional wind resources, solidifying its position as one of the country's most prominent wind power zones on the renewable energy map, boasting a total of 13 wind farms.

The installation of the first turbines is scheduled for the second

half of 2024, with energy delivery to the grid anticipated in the second half of 2025, contributing to addressing the country's energy deficiency. Furthermore, the green field projects promise to stimulate the local economy, not only during the construction phase but also throughout the operational period, fostering job creation, skills development, and socioeconomic growth.

David Moncasi Hortet, Nordex Energy South Africa, head of sales, Africa said, "The wind farm cluster will elevate the share of renewable energy in the country's energy mix, contributing to energy security and a reduction in greenhouse emissions. Additionally, it will enhance our market presence in South Africa, where we currently command over 32% of market share, operating more than 1.1 GW, predominantly in the Eastern Cape."

Having invested in the Eastern Cape since 2013, Nordex Energy South Africa boasts a significant



footprint in the province, including a warehouse in Gqeberha and 573 MW of installed capacity across five wind power plants.

A delegation from the Eastern Cape provincial government previously visited Nordex SE in Germany, emphasizing the province's commitment to attracting renewable energy projects, particularly focusing on component manufacturing and

assembly within the region. The delegation was led by MEC for Finance, Economic Development, Environmental Affairs, and Tourism Mlungisi Mvoko and MEC for the Department of Rural Development and Agrarian Reform Nonkqubela Pieters.

The visit focused on discussing Nordex SE's perspective on the renewable energy sector, identifying areas of support and chiefly looking at possible investments along the value chain focusing especially on component manufacturing and assembling within the province. The province is host to a pipeline of thousands of megawatts of new renewable energy projects at the environmental impact assessment phase or have already received environmental authorisation.

The Eastern Cape has among the best wind energy resources in the world, good quality solar resources, as well as optimal enabling conditions. It was therefore critical for

the province to visit Nordex SE (Germany), considering that Nordex Energy South Africa has five of its nine wind farms in this region.

The delegation further engaged with Nordex Energy South Africa (NESA) to unpack the value and economic opportunities of locally manufactured concrete towers, especially the associated local job opportunities.

One of the constraints that was identified at the time and has since been addressed, is the transport of major components from the Port of Ngqura to wind farms in the Eastern Cape and other areas of the country.

"The province is already an important hub for us, as we have a head office here as well as a warehouse, in addition to the numerous wind farms. We are invested long term and hence we are pleased to have had the chance to discuss constraints with these key stakeholders, who are charged with unlocking the associated benefits for the Eastern Cape," said Moncasi.

## SA needs to harness innovation and collaboration to avert a water crisis

BY POOVANDRAN PILLAY,  
 EXECUTIVE: NEDBANK CSI

**S**OUTH Africa is facing the prospect of a critical water crisis that threatens the nation's social, economic, and environmental wellbeing. The challenges are multifaceted, stemming from a combination of factors such as environmental degradation, climate change, infrastructure decay, financial constraints, and social and political issues. Widespread water contamination and deterioration of numerous water treatment facilities have put a significant proportion of the country's water systems in jeopardy.

A lack of skilled and experienced personnel to properly manage these facilities is exacerbating the problem.

The extent of the problem was highlighted in the 2023 Blue Drop Report by the Department of Water and Sanitation, which revealed that:

- 46% of water supply systems in the country pose acute health risks due to contamination;
- 67,6% of wastewater treatment works are near failure; and
- over 47% of treated potable water is lost through leaks or unaccounted for.

Only 26 of the country's 958 water supply systems met the 95% criteria for Blue Drop certification for the delivery of clean, drinkable water.

To put these percentages in perspective, a 2023 statement on water security in South Africa by the Academy of Science of South Africa (ASSAf) estimated that 3 million people in South Africa do not have access to potable water supply and 14 million lack safe sanitation.

Figures like this highlight the fact that South Africa's water challenges are not just a logistical issue; they are a systemic one, with the potential to have dire public health implications, as seen in recent outbreaks of waterborne diseases, including the tragic cholera outbreak in Hammanskraal that claimed 31 lives in May 2023.

The water challenges disproportionately affect the poor and those living in rural areas and informal settlements. These communities are often forced to depend on insecure water sources like polluted rivers and streams, making them vulnerable to water-related illnesses. The challenges also trigger significant economic impacts, as water scarcity can have the knock-on effect of causing investment reluctance, further impacting local economies and job opportunities.

World Water Day was on 22 March and served to highlight the global water and sanitation crisis. It also puts a spotlight on the fact that addressing South Africa's complex water challenges requires a mul-

ti-faceted and highly collaborative approach. There is an urgent need for holistic responses, including the following:

- Repairing and maintaining infrastructure to minimise leaks and losses.
- Leveraging technology to improve water quality.
- Implementing rigorous water conservation practices.
- Upskilling personnel.
- Raising public awareness.
- Exploring alternative water sources, such as treated wastewater, desalinated water and rainwater.

The good news is that many of these collaborative and innovative responses are already becoming increasingly evident. An example of this is the Fraunhofer Innovation Platform for the Water-Energy-Food Nexus, a collaboration between Stellenbosch University and the Fraunhofer-Gesellschaft research organisation that focuses on developing sustainable solutions for efficient water resource management. Another example is the Strategic Water Partners Network SA, which brings together public and private sectors as well as civil society to find solutions for South Africa's water challenges.

As a bank with a purpose to use its financial expertise to do good, Nedbank is at the forefront of several

water security, access and resource management initiatives. Our long-standing partnership with the World-Wide Fund for Nature South Africa (WWF-SA) has yielded significant results in conservation, particularly in the Eastern Cape's key landscapes such as the uMzimvubu Catchment, the Sundays River Catchment and the Kouga River. This collaboration has catalysed further partnerships, bringing together diverse stakeholders, including NGOs, community organisations, traditional leaders, and the public sector.

Another notable water project that Nedbank supports and is delivering transformative impacts for many water-constrained communities is Kusini Water, a social enterprise that innovates by crafting water purification systems using locally obtained waste macadamia shells. Kusini Water's unique business model facilitates the production and distribution of safe drinking water in villages, informal settlements and townships at an affordable fixed fee, ensuring communitywide access. The initiative has a strong entrepreneurial element, supporting the establishment of small businesses to supply local communities with clean, affordable drinking water while generating an income and creating employment.

Of course, while targeted interventions like these are vital, fixing the



country's water challenges requires much more – starting with promoting and supporting sustainable water management practices at individual and institutional levels, as follows:

- At the individual level, we must raise awareness about the need for water conservation and promote attitude and behaviour change.

- At the institutional level, water management plans are non-negotiable, and so is the investment in water-efficient technologies, lobbying public sector entities, and participating in partnerships and collective efforts that could turn our water fortunes around.

The road ahead is undoubtedly challenging. But with concerted efforts from all stakeholders – government, businesses, NGOs, and communities – we can reroute our country from its current path towards a devastating water crisis, and turn its water challenges into meaningful opportunities for social upliftment and green economic growth.

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# What it takes to stay abreast of global shifts in industrial manufacturing

WITH its industrial manufacturing sector contributing significantly to economic growth and the country's GDP, South Africa is a prime manufacturing hub on the African continent. This is according to PwC's report "Building Avenues for Tomorrow's Industrial Manufacturing Workforce, Today" which also states that around 1.5 million people ply their trade in industrial manufacturing and are witnessing progression at a rapid pace within the sector.

According to Dennis Phillips, national sales manager at abrasive manufacturer, Pferd-South Africa, "The fact that global automaker, Stellantis, well-known for brands such as Fiat, Peugeot, Citroën, Opel, Chrysler and Jeep, will start construction of its automotive manufacturing plant in Gqeberha, Eastern Cape in May of this year, affirms that SA is indeed a popular manufacturing destination".

That said, the manufacturing industry is ever-evolving which includes its factories and the employees who operate them. Top-of-mind

topics include Sustainability, Digital transformation, automation, additive manufacturing and employee reskilling.

## Sustainability

Phillips explains that sustainability in business has evolved from being a mere buzzword to a fundamental strategic imperative. The industry must embrace sustainable business practices to benefit the company and its broader community. Companies need to integrate sustainable practices into their operations to address environmental and social challenges while driving long-term profitability.

"We need to consider all aspects of business to enable a more sustainable future by re-evaluating how we operate. By producing less waste, recycling the waste we do produce and utilising resources more efficiently, we can all commit to limiting our impact on the environment.

Embracing sustainability not only enhances

brand reputation and stakeholder trust but also mitigates risks associated with resource scarcity. It accelerates innovation, prompting businesses to develop eco-friendly products and services that meet the needs of a conscious consumer base", says Phillips.

Pferd products prioritise sustainability through Pferdvalue, a dual strategy aimed at promoting worker wellbeing and resource efficiency. Pferd ergonomics focuses on improving operator health by reducing the amount of noise, vibration and dust by the abrasive consumable, ultimately enhancing comfort and safety. Meanwhile, Pferd efficiency ensures that the company's products use less energy, save time and minimise waste while maintaining optimal performance.

## The industrial IoT

As part of a broader digital transformation strategy, companies have the opportunity to reimagine their utilisation of technology, per-

sonnel and procedures to propel their business into new realms.

The Industrial Internet of Things (IIoT) involves the integration of smart sensors, actuators and RFID tags (among other technologies) to enhance manufacturing and industrial processes. These interconnected devices enable the collection, exchange and analysis of data, thereby optimising operations and improving overall efficiency.

In various industries, companies leverage industrial robots and automation to produce goods. By integrating IIoT solutions, they can proactively maintain their systems and identify issues before they disrupt the manufacturing process.

## Robotics and automation

Robotics and automation have revolutionised the manufacturing industry, driving efficiency, precision and productivity. Through the deployment of robotic systems and automated technologies, manufacturers can streamline production processes, optimise workflows and enhance overall operational performance.

These technologies enable tasks ranging from repetitive assembly tasks to complex machining as well as dangerous tasks to be executed with accuracy and speed while increasing output consistency. Additionally, robotics and automation facilitate the integration of data analytics and artificial intelligence, enabling predictive maintenance and real-time decision-making for improved resource allocation and cost management.

As a result, companies can stay competitive in a rapidly evolving global market, meeting customer demands for quality, customisation and speed while driving innovation and sustainable growth within the industrial manufacturing sector.

Phillips notes that although robotics and automation are nothing new, the adoption rates of this cutting-edge technology are rising. "At Pferd, we've experienced a significant increase in robotic system integrators requesting application-based solutions where their customers are deploying industrial robot cells within their manufacturing facilities". Globally, Pferd's expertise and experienced Application Specialists have successfully optimised numerous robotic applications that subsequently made significant improvements to their customers' operational efficiency.

## Additive manufacturing - exciting opportunities await

The utilisation of additive layer manufacturing, commonly known as 3D printing, presents a significant opportunity for manufacturers in South Africa. This technology offers numerous advantages for large-scale production, including rapid prototyping, cost efficiency, customisation of components and shortened lead times.

According to Phillips, there are currently multiple ongoing 3D printing initiatives, such as a proof-of-concept project aimed at constructing affordable housing. "In the metalworking sector, customers utilise 3D printing to produce medical implants and aviation parts, where after they use our abrasives to achieve the correct surface finish and geometries — a critical requirement given the final product's intended use". Furthermore, manufacturers are leveraging 3D printers to fabricate parts for the automotive and power generation industries, showcasing the versatility and potential of this innovative manufacturing technique.

## Employee reskilling for work of the future

Employee turnover is a big concern for companies because it's time-consuming and expensive; even more so in the context of smart factories — facilities where 4IR technology is deployed—because of the time it takes the new employee to reach the same level of productivity as the person they replaced.

Therefore, companies, as stated in The World Economic Forum's World of Work Report, are prioritising training their employees to use AI, big data as well as developing their analytical and creative thinking skills.

A study by the Manufacturing Institute's Center for Manufacturing Research looked at the factors that affect retention and a key finding among employees under the age of 30 was that they stay with their current employer due to the company's training and reskilling programme that allows them to further their careers.

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## Driving efficiency and sustainability



## FOOD & BEVERAGE

# Energy efficiency and sustainability placed at the top of the menu

**P**RICE increases in food and non-alcoholic beverages contributed to a 4% increase in the Producer Price Index (PPI) in January 2024, putting even more pressure on this sector to tighten its belt rather than push up prices at till points. This is according to Dennis Williams, commercial director of Associated Energy Services (AES), a leading operations and maintenance service provider to the South African steam and boiler sector.

As one of the country's largest thermal energy users, Williams believes food and beverage producers need an energy management ally to reduce input costs while also addressing their specific requirements.

This sector uses thermal energy for a multitude of processes – from spray drying coffee creamers to heating raw materials ahead of processing. One manufacturer may use steam for cooking and canning vegetables – and another, such as the dairy industry, uses it for pasteurising. Steam also assists with temperature control of workspaces and 'clean-in-place' (CIP) processes to meet stringent health and safety standards.

"Thermal energy usage usually exceeds electricity requirements by two or three times. Except during loadshedding, electricity is there whenever needed. Thermal energy must be converted into a usable



format on site which is where AES comes in," Williams explains.

### Serving up solutions

AES is responsible for the whole chain of control, from selection of the right fuel to generating and delivering steam to the processing plant.

Proper planning of a reticulation system is crucial, so design and operational inefficiencies and limitations must be addressed in partnership with clients.

"We do thermal imaging and then discuss whether or not steam traps are functioning correctly. We also make recommendations about other production-related challenges such as reticulation dead-ends. Strategic input includes conducting a high-

level energy audit which can provide very high-level and positive cost impacts," he continues.

AES's success stories in the food and beverage sector include taking over operations at one site for a large fast-moving consumer goods (FMCG) - which was struggling with overall energy efficiency due to a lack of technical expertise - specifically as a pilot case study.

"We guaranteed an improvement in the operating efficiency in the boiler house and a reduction in the use of heavy furnace oil. We put one of our own boilers on the site to bolster their capacity, installed further capacity to support their production, took over management of and trained their staff and implemented AES's operating practices and man-

agement systems," Williams recalls.

The end result was a 21% drop in fuel consumption and a significant reduction in the facility's carbon footprint.

AES also operated a second - and larger - site for the same company. "There, we delivered a 35% reduction in the cost of fuel. Over the years, that has enabled us to expand our footprint within the company to five sites where we have reconfigured steam generation facilities, introduced changes to fuel and ash handling systems, addressed health and safety issues and improved general reliability," says Williams.

### 'Greening' the food industry

Cost is not the only pressure on the food sector. Sustainability is now as important as price - and consumers tend to support brands that are prepared to reduce their energy usage and carbon footprints.

Sustainability is also increasingly important for food and beverage companies - particularly multinationals operating locally. Priorities include the reduction of emissions and waste, selecting environmentally friendly or 'green' fuels like biomass or natural gas and water-saving.

Presented with the challenge by a multi-national frozen foods manufacturer, which had committed to reducing the carbon footprint at its South African facilities, AES assisted with

the conversion planning for one plant to more eco-friendly natural gas.

"Our involvement extended from specification of a suitable boiler for the gas burner systems, site location and reticulation of the gas pipeline to engaging with gas vendors regarding price and availability of fuel," Williams says.

An ongoing project at a much larger sister plant included identifying a sustainable and cost-effective biomass solution. The AES team travelled to Europe and South America, reviewing over 15 fuel and technology options before delivering risk and fuel supply assessments and creating a preliminary roll-out plan.

Saving water is another 'greener' option for food processors. Williams points out that managing condensate, an inevitable by-product, is "the low hanging fruit". This can be added to any make-up water returned to the boilers, ultimately reducing water, fuel and chemical consumption for treatment purposes.

These improvements apply to both high-tech plants and older facilities which require a new approach.

"AES's role is to help optimise expansions and improvements to existing food and beverage production processes. We look forward to developing synergistic partnerships where we can assist food and beverage sector companies to be more energy- and cost-efficient, competitive and environmentally friendly".

## Selecting pumps in an evolving dairy industry

**G**ENTLENESS and a pump's ability to avoid shearing in fluids are important when choosing a dairy pump. Dairy producers take these elements seriously when selecting the right pump, according to AxFlow AQS Liquid Transfer. Gentleness plays an important role, as it avoids fluid emulsification and shearing.

To mitigate shear-related issues, pump manufacturers pay careful attention to fluid flow dynamics. To minimise shear effects dairy producers pay careful attention when selecting the right pumps and correct pump type. When selecting a dairy pump, maintaining product quality is always key.

Cheesemakers need pumps that provide low flow and are gentle enough to avoid fines produced during curd transference. When making some soft cheeses, the leftover bits in the whey are called "fines". These fines still have valuable elements and

producers can collect and use them in other dairy products or processes.

Avoiding shear in a pump is important because it changes the properties of fluids. Shear could reduce the size of products and certain products like cheese and yoghurt with high viscosity are shear sensitive.

Shear in a dairy pump refers to the mechanical force that moves the fluid at different speeds. Opposing forces and velocities cause this effect in fluids.

Dairy producers mainly use positive displacement pumps in this sector. A positive displacement pump may be ideal for pumping fluids like milk or for cleaning processes. A positive displacement pump works even better for processing viscous products like cheese curds, yoghurt, or cottage cheese in a dairy.

Positive displacement pumps are efficient, reliable, and easy to maintain.

Progressive cavity displacement

pumps are the most common type of positive displacement pump used in the dairy industry. These pumps incorporate a helical rotor that turns within a resilient stator, producing a gentle displacement (pumping) along the axis.

The speed of the rotating helical rotor is kept low in general to prevent agitation and also helps with longevity of the pump.

Applications of positive displacement in the dairy industry:

- The dairy industry uses progressive cavity pumps to transfer raw milk to storage tanks and from farms to processing plants.
- They use progressive cavity pumps for effective cleaning in CIP (Clean-In-Place) systems. It is vital to keep dairy equipment and processing lines pristinely clean to maintain high standards of hygiene.
- Progressive cavity pumps assist with the heating and circulation of the milk during the pasteurisation

process.

- Pumps used in the dairy industry should be easy to clean, have compatible materials, and be hygienic.
- Regular maintenance and cleaning of the pumps are essential to prevent bacterial contamination. Dairy production demands strict hygiene and safety standards.

Positive displacement pumps play a valuable role in the dairy industry. They help maintain the efficacy, integrity and quality of dairy processing from raw materials to the final product.

Due to their unique capabilities and design, they are especially suitable for tackling sensitive products without compromising quality.

## Pallet-free bulk handling solution saves all round

**A**S health and safety regulations in the food and beverage sector become stricter around the world, it is increasingly important for the logistics sector to develop solutions to protect product integrity and improve handling, stacking and storage systems.

Conceptainer – local specialists in the design and local manufacture of labelling, packaging, transport and storage solutions – supplies an extensive range of products, suitable for the food and beverage sector. These systems include Tellap pallet-free bulk bags, collapsible thrift bins, stillage boxes, label holders, polypropylene repair bag tape and anti-static polypropylene corrugated board.

"Our flexible systems are suitable for customers who either need to ship produce great dis-

tances or deliver locally. In the food sector, it is critical that food-stuff remains fresh and is easy to identify and locate down the supply chain.

All goods must be correctly stored and securely packaged for safe transporting," explains Ken Mouritzen, Conceptainer. "Tellap pallet-free bulk bags are a cost-effective and dependable alternative to a normal bulk bag and pallet and are ideally suited to specific requirements in the safe handling of all food and beverage commodities, including canned and bottled goods.

"This patented system has two plastic sleeves integrated into the base of the bulk bag. A standard forklift simply raises the Tellap from the base - there is no need for the bag to be strapped to a pallet to prevent it from falling off.



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# Are rotating tank cleaning nozzles better than static spray balls?

**R**OTATING tank cleaning nozzles and static spray balls are both commonly used for cleaning tanks and vessels in various industries. While both options serve the purpose of removing residues and maintaining cleanliness, there are distinct benefits associated with rotating tank cleaning nozzles. Spray technology specialists, Monitor Engineering, says it's worth considering the advantages of rotating tank cleaning nozzles over static spray balls in greater detail, focusing on key aspects such as cleaning efficiency, versatility, reduced cleaning time, and maintenance considerations.

**Cleaning Efficiency:** Rotating tank cleaning nozzles offer superior cleaning efficiency compared to static spray balls. The rotating

motion of the nozzles ensures comprehensive coverage of the tank's inner surfaces, reaching areas that may be difficult to access with a fixed spray pattern. The high-impact jets produced by the rotating nozzles effectively remove stubborn residues, including tough deposits, coatings, and adhered materials. This enhanced cleaning power is particularly beneficial in industries where thorough cleaning is critical, such as food and beverage processing, pharmaceuticals, and chemical manufacturing.

**Versatility:** Rotating tank cleaning nozzles provide greater versatility compared to static spray balls. They are available in various designs, offering different spray patterns, flow rates, and pressures. This flexibility allows for

customization based on specific tank sizes, shapes, and cleaning requirements. Rotating nozzles can be adjusted to deliver spray angles ranging from narrow streams to wide coverage, ensuring optimal cleaning performance for diverse applications. Additionally, some rotating nozzles offer adjustable rotation speeds, allowing users to adapt the cleaning process to different types of residues or cleaning protocols.

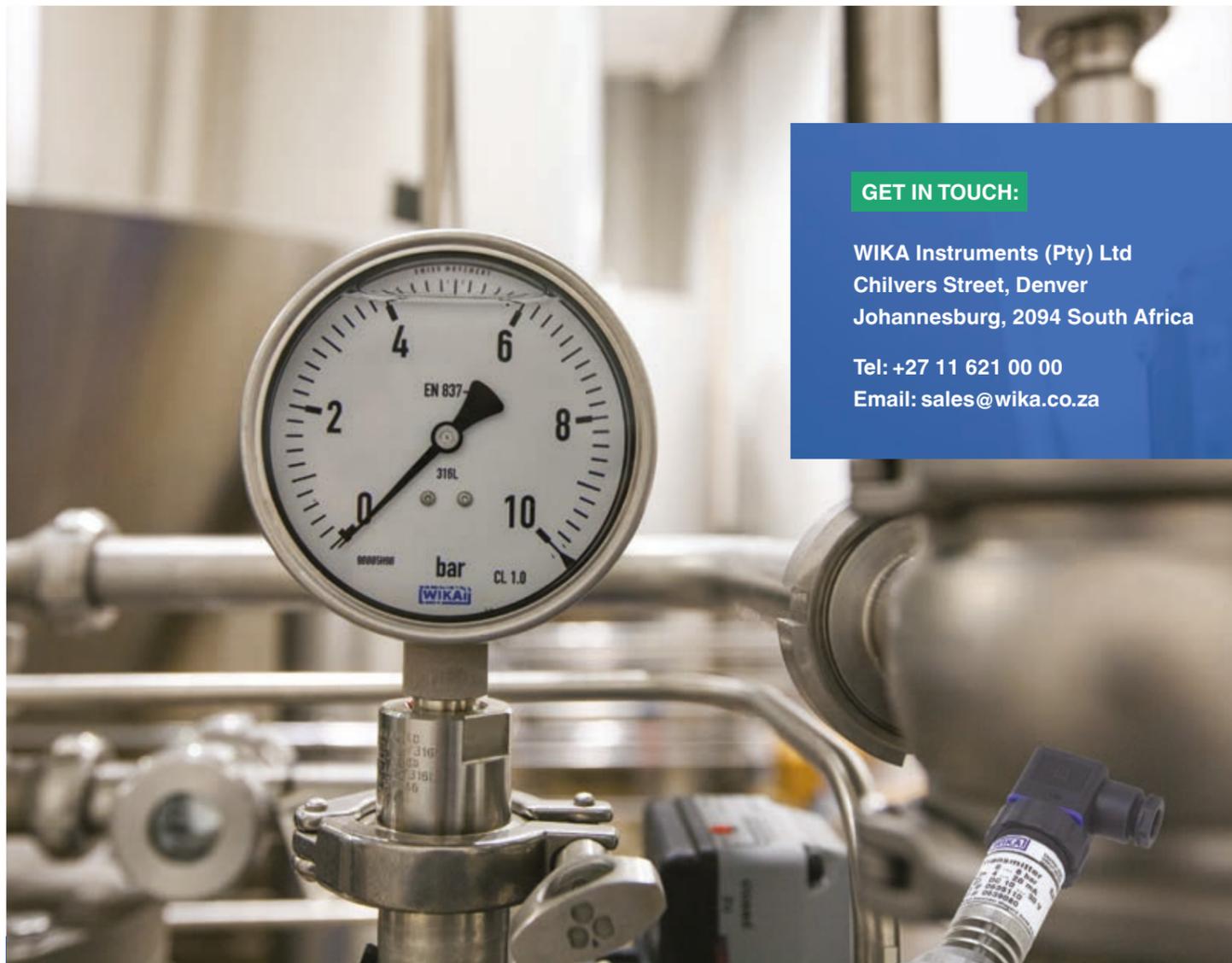
**Reduced Cleaning Time:** Rotating tank cleaning nozzles significantly reduce cleaning time compared to static spray balls. The combination of high-impact jets and rotational motion enables faster and more efficient cleaning. The dynamic action of rotating nozzles ensures that the cleaning fluid is distributed evenly across

the tank's surfaces, maximizing contact and facilitating the removal of residues.

Consequently, this reduces downtime, increases productivity, and optimizes overall operational efficiency in industries where frequent tank cleaning is necessary.

**Maintenance Considerations:** While both rotating tank cleaning nozzles and static spray balls require maintenance, rotating nozzles offer certain advantages in terms of ease of maintenance. Static spray balls are more prone to clogging due to their fixed spray pattern, which can result in reduced cleaning efficiency. Rotating nozzles are less prone to clogging as the rotating action helps prevent debris buildup. If cleaning or maintenance is necessary, most rotating nozzles can be easily accessed and cleaned without requiring extensive disassembly. This results in reduced maintenance time, lower maintenance costs, and increased system uptime.

**Cleaning Validation and Documentation:** In industries with stringent quality control requirements, such as pharmaceuticals and food processing, rotating tank cleaning nozzles offer advantages in terms of cleaning validation and documentation. The comprehensive coverage provided by rotating nozzles ensures more consistent and reliable cleaning results, which can be crucial for compliance with regulatory standards. The ability to document and demonstrate effective cleaning is facilitated by the consistent and repeatable performance of rotating nozzles, allowing for traceability and audit purposes.



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## Hygienic Measurement Instrumentation in the Food and Beverage Sector

## Innovative screening kits cut product testing time

**H**YGIENA, a global leader in rapid microbial detection, monitoring, and identification solutions has announced that its Innovate RapiScreen dairy and beverage kits are the first methods to be awarded the prestigious AOAC RI Performance Tested Methods (PTM) certification for the product testing workflow. According to the company, this symbolises a new pinnacle of excellence and reliability in rapid microbial screening solutions for the food and beverage industry.

The RapiScreen beverage kit is a high-performance, ultra-rapid microbial screening solution specifically designed for low pH beverages, including fruit juices, teas, energy drinks, UHT pasteurised products, smoothie mixes and condiments. The system enables quality control results in less than 30 minutes following a preliminary incubation period, reducing product hold time from 4-10 days to 1-2 days. This swift performance is crucial for manufacturers, allowing quicker release of products to the market, improved inventory turnover, and enhanced cash flow.

The Innovate System, underpinning the RapiScreen Kit, detects microbial contamination far quicker than conventional culture methods, allowing the analysis of up to 96 samples simultaneously. The simplified three-step process, coupled with RapiScreen ATP bioluminescence technology, has become the industry's gold standard for screening low pH beverages and high temperature liquid fill products, eliminating lengthy plate incubation periods and shortening production times.

### RapiScreen dairy kit

Given the forecasted surge in the global aseptic food and beverage packaging market, Hygiena's RapiScreen dairy kit comes as a timely innovation, addressing the challenges posed by traditional processing methods in dairy products. This kit allows swift testing on diverse product matrices, ranging from UHT milks and creams to sauces, soups, broths, juices, and beverages, yielding results in less than 30 minutes. The Innovate System's ability to detect low levels of contamination at 24 hours offers significant cost savings, a reduction in safety stock and warehouse space costs, brand protection, and prevention of recall costs.

"Hygiena has been at the forefront of delivering pioneering solutions for more than two decades, committed to shielding consumer brands and products from microbial contamination," says Steven Nason, CEO of Hygiena. "The ever-expanding beverage industry demands rapid quality management and early preventative controls. The automation and high throughput of our system enable the running of multiple products on a single microtiter plate every half hour."



Smart in sensing

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# Global F&B giant turns to solar power in SA

**A** LEADING provider of customised rooftop solar photovoltaic (PV) solutions in southern Africa, SolarSaver, has completed several significant solar installations for global food and beverage giant, PepsiCo. These installations represent significant progress in PepsiCo's drive towards 100% renewable electricity. The use of solar energy not only reduces the company's carbon footprint but also results in considerable cost savings over time.

The latest installation, completed at PepsiCo's Simba manufacturing facility in Spartan, Kempton Park, provides 700.32 kW. SolarSaver also completed three grid-tied installations at various plants during 2022. The first, at PepsiCo's Breakfast Cereals facility, boasts a capacity of 1302.00 kW, providing a substantial contribution to the facility's

energy needs. The next grid-tied system was installed at PepsiCo's SAD Upington location and has a capacity of 393.75 kW, followed by a grid-tied solar solution at PepsiCo's Weetbix facility with a capacity of 1110.60 kW.

The power requirements for food processing and manufacturing facilities are substantial, with extensive demands for heating, cooling, and operational machinery. The transition to renewable energy, particularly solar, presents a sustainable alternative, allowing food processing units to both reduce operational costs and lessen environmental impacts, says Stu Batchelor of SolarSaver. "Solar systems help reduce the amount of electricity drawn from the grid (Eskom) and assist with reducing peak demand – without impacting the operation of sensitive machinery."

These projects were executed

as outright sales with maintenance agreements, demonstrating the company's commitment to not only install but also maintain and monitor the performance of these systems. SolarSaver's work with PepsiCo is a testament to its expertise in providing effective, tailor-made solar solutions that meet the unique needs of each client.

"Working with a forward-thinking organisation like PepsiCo has been very rewarding," says Batchelor. "Our custom solar solutions are designed to align with PepsiCo's sustainability goals, providing not just immediate energy cost savings but also setting a standard for environmental stewardship in the industry."

The SolarSaver group offers a unique solar solution to its clients in southern Africa without the need for capital outlay. This concept has proven to be very popular among busi-



nesses and as a result SolarSaver now runs the largest fleet of self-financed C&I solar installations across the region. The SolarSaver portfolio includes over 650 systems

operated by the company under long-term rent-to-own and PPA contracts in South Africa, Namibia, and Botswana.

## Faster, safer filling and packaging processes developed

**E**CONOMIC success calls for maximum efficiency and availability in all filling and packaging processes. "We provide innovative and resource-saving systems and solutions that fully satisfy all aspects of this demand," says Tobias Wetzel, CSO of KHS. The most recent example of this is the new rotary InnoPET BloFill ACF-R aseptic block that combines the energy-efficient InnoPET Blomax Series V stretch blow moulder with the rotary Innofill PET ACF-R filler for the very first time.

Linear fillers can process up to 14,000 bottles per hour. In contrast, the rotary aseptic block has a capacity of up to 36,000 1.0L bottles per hour and will be available in the future with a top output of 48,000 500ml bottles an hour. The new plant engineering achieves a sterility

of log 6 inside the bottles – which is equivalent to a reduction in germs of 99.9999%. "Our linear aseptic fillers, also blocked, have long proved themselves in practice in the filling of sensitive beverages into PET bottles, where maximum safety is of the essence. The newly developed rotary aseptic filler in the higher capacity range is thus the next logical step. With this, we also want to set standards regarding the machine's hygienic properties," Wetzel says.

### Effective protection

KHS focuses on bottle sterilisation that – unlike preform sterilisation – can also be combined with the KHS FreshSafe PET coating system and thus offers additional barrier protection for sensitive beverages. In this variant, all potential



germs are removed from the containers directly prior to filling. This process gives bottlers more flexibility and greater availability during format changeovers than preform sterilisation, as here changing the stretch blow moulds disturbs the sterile state of the block.

Regarding barrier protection, KHS has developed a new generation of Plasmax coating technology. With

this pioneering technique, a wafer-thin layer of chemically pure glass is applied to the insides of PET bottles, with bottle recyclability nevertheless fully retained. This protects sensitive products such as fruit juice, wine, beer, soft drinks, ketchup, sauces and other liquid foods from oxidation and loss of CO<sub>2</sub>, meaning that they keep for considerably

longer.

### Consistent expansion

In addition, the turnkey supplier's range of digital services is now supplemented by KHS ConnectApp which provides two major extra benefits:

Data-based transparency regard-

ing the key line performance indicators and helps with decision-making processes.

### Support with system operation

The first KHS ConnectApp function is the Guide module that with its interactive work instructions and powerful notification management system helps to ensure trouble-free workflows during inspection and maintenance or when training new employees, for instance. Moreover, all work steps can be documented with the app.

"By expanding our digital service portfolio, and especially thanks to the introduction of KHS ConnectApp, we're laying the foundations for further optimisation and efficient organisation of the entire system operation and management," explains Wetzel.

## Separator innovations enhance dairy production efficiency

**T**HE dairy industry faces huge challenges: surging energy costs, the climate crisis, consumer trends and a shortage of skilled labour. Integrated solutions are critical to overcoming these hurdles. In view of this, the innovative solutions presented by GEA at the Anuga FoodTec 2024 trade show will centre on the water and energy consumed by a key technology for dairies – separators.

"Sustainability, connectivity, digitalisation – we are stepping up to the plate, addressing these issues with tailor-made solutions," confirms Christian Becker, product manager separation dairy at GEA. "Our customers need centrifuges that not only deliver maximum efficiency using minimal resources but are also able to function regardless of

the operators' skill level. Centrifuges have to become intelligent to work more sustainably and, going forward, autonomously." The GEA separator innovations presented at the Anuga FoodTec trade show are helping dairies move in this direction.

### Bacteria removal

Equipped with the latest drive generation, the GEA ecoclear i bacteria removal separator is ideally suited to small to medium-sized dairies. These businesses require cost-effective, service-friendly solutions that enhance dairy product quality and extend shelf life. Removing bacteria and spores from milk and whey is crucial for minimising production losses and reducing waste, contributing to a more sustainable and prof-

itable industry. The key innovation is the integrated direct drive. It transmits the drive power directly to the bowl, considerably reducing energy consumption. Nor does it require any transmission, belt or coupling, which might reduce efficiency and be subject to wear and tear. Both spindle and engine are mounted in a drive cartridge and, as a modular exchange unit, can be easily maintained on site. The new integrated direct drive is now also available for the GEA ecocream i skimming and GEA ecoclean i clarifying separators.

### Reduced energy consumption

When weighing up capital expenditure against operating costs, high electricity and water prices are tipping the balance toward the lat-

ter. The sustainable line of GEA's MSI skimming separators with GEA EngySpeed is catalysing a paradigm shift in separator design. In place of smaller yet higher-speed centrifuges, which are still standard in many places, larger bowl volumes are now coming to the fore. For dairies, this means the same clarification area at lower speeds and using less power. Maintenance intervals are likewise extended – particularly for the drive assemblies – because the lower mechanical load causes significantly less wear on the drive. The EngySpeed system reduces the energy consumption of GEA's MSI series milk skimmers by up to 40 percent. Rule of thumb: 10 percent lower speeds translate to 20 percent lower energy consumption. Becker cites the example of a

medium-sized dairy from one of the target markets in Poland: "If we go one machine size up for standardising 25,000 litres of milk per hour, we require around 39 percent less energy. At approximately 6,000 operating hours per year, EngySpeed would save the dairy some 65,000 kWh per separator and, subject to the energy mix on site, reduce CO<sub>2</sub> emissions by up to 43 tons. Depending on electricity prices, the larger centrifuge would pay for itself within two to four years."

### Digital process control

Digitalisation – from real-time monitoring and service assistance to self-learning, AI-based plant optimisation – is also spurring more sustainable production processes.

## Canola seed byproduct repurposed into nutrient-rich animal feed

**S**OUTHERN Oil, Africa's largest producer of canola oil, has taken an innovative approach to waste reduction by utilising the byproduct from canola oil production to create a nutrient-rich animal feed.

"The efficiency of our operations ensures that all of the canola seed is utilised – primarily for the canola oil used in our B-well range of products, with the remaining material repurposed into valuable animal feed," says Pieter Louw, Southern Oil (SOILL) key account manager: protein.

There are two forms of canola seed byproducts used as animal feed. Firstly, when the locally-grown, 100% GMO-free canola seeds arrive at the SOILL extraction plant, they undergo a cleaning process with sieves to separate the seeds from any plant parts. This sieved plant material is then collected and sold to farmers, who use it as roughage in animal feed

for ruminant animals such as cows, sheep, and goats.

The canola seeds are then crushed and extruded to remove the oil, resulting in a residual material called oil cake, rich in protein and fibre. The oil cake is subsequently milled into meal to ensure a fine texture and later blended with other raw materials such as maize, barley, vitamins, minerals, and roughage. The resulting feed formulations cater to a wide range of livestock including sheep, cattle, poultry, and pigs.

"Because the energy part (the oil) is pressed out of the seed, the meal that remains is very high in protein, with a minimum value of 34%," says Louw. "Protein is a valuable and expensive raw material in animal feeds, thus canola meal is ideal for supplying a significant amount of good-quality protein to the animals' diets."

Not only is the feed rich in protein,

but it also contains two limiting amino acids in its protein spectrum – namely lysine and methionine. These amino acids aid in milk production as well as milk solids production in dairy animals.

"Customer feedback on the benefits of canola meal has been overwhelmingly positive," says Louw. "Farmers appreciate its palatability, ease of use, and most importantly, its significant contribution to the health and productivity of their livestock. They've also reported enhanced milk production and improved milk solids, ultimately translating to better quality dairy products and higher profits."

With its commitment to innovation and sustainability, SOILL is not only ensuring that the nutritional benefits of canola are shared with the agricultural industry, but also significantly reducing waste.

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# INSTRUMENTATION, MEASUREMENT & CONTROL

## Single unit provides comprehensive solar PV module testing

ONE of Asia's leading clean energy specialists, Solarvest Holdings Berhad, uses the latest electrical safety test equipment to ensure the solar photovoltaic (PV) installations it services and maintains operate at peak performance levels.

The ongoing work Solarvest undertakes for customers involves pre-commissioning checking, and testing PV installations, specifically measuring the relationship between module current and voltage with the simultaneous display of irradiance value while analysing the current vs voltage (I-V) curve. Insulation tests without disconnecting the PV module are also undertaken.

To ensure this is carried out quickly, accurately and to the highest technical standards at dozens of installations across Malaysia, Solarvest's regional teams in Selangor, Penang and Johor rely on portable multifunction PV200 solar PV testers from Seaward.

These are used to interrogate the health of individual modules using I-V curve analysis, perform string cable insulation tests, and measure short circuit current (ISC) and open circuit

voltage (VOC) during pre-commissioning tests. In this way, the accurate visual comparison of curve shapes can be used to immediately identify common problems such as shading, defective cells, or poor electrical connections, helping to rectify any issues quickly.

Using simple push button operation, the PV200 also carries out all the electrical tests required by IEC 62446, including maximum power point voltage, current and power, and insulation resistance.

Solarvest has used the tester frequently on PV string voltage design for its industrial and large-scale solar projects below 1000V in Malaysia to perform PV module output measurements. Muhammad Mahadzir Bin Abdul Halim, operations and maintenance engineer at Solarvest, said the PV200 is a highly efficient tester that allows engineers to complete checks regardless of the location of modules.

He added, "We strive to provide our clients with the highest quality and value-added turn-key solar energy solutions. The tester is an essential part of our on-site tool kit to enhance the efficiency of our service. The multifunction



PV200 unit eliminates the need for engineers to carry separate meters for different tasks. The ability to take one combined measure-

ment instead of many separate ones greatly improves operator efficiency and accuracy, helping to identify possible faults from the modules and getting them verified and replaced quickly and safely - which is the key requirement of our maintenance work."

Solarvest is committed to the vision of creating a world generated by renewable energy. The company provides a range of solar PV engineering, procurement, construction and commissioning services for several large-scale solar, residential, commercial and industrial projects in Malaysia. Through its dedicated operations and maintenance (O&M) subsidiary, PowerTrack, the company actively maintains and monitors over 90 national projects.

The combination of advanced remote monitoring capabilities with the latest in on-site solar PV test instrumentation enables Solarvest to ensure that the expanding infrastructure of PV installations it's responsible for maintaining continues to perform at maximum performance levels. They form part of a comprehensive range of Seaward solar PV testing equipment.

## High-precision data loggers for wire and thermocouple probes

SENSECA, formerly the GHM Group, has launched its PRO 111 and PRO 115 handheld meter/data logger with enhanced features and a re-design for Pt100 4-wire probes. It also launched its PRO 131/PRO 135 data logger for thermocouple probes.

"Both of these devices now give a higher quality LED screen making the data more visible due to the backlit dot matrix/clear text display, as well as a data logging storage capacity of up to one million data. These high-precision instruments are suitable for temperature meas-

urement across all industries. They are robust, reliable and ergonomically designed for both one-handed and bench-top use," says Jan Grobler, managing director of Senseca South Africa.

The PRO 111/PRO 115 data loggers are high-class professional handheld meters for 4-wire Pt100 probes. Any four-wire Pt 100 standard probe can be connected provided it is equipped with an M12 connector. It has a high-precision temperature-compensated analogue front-end meter that does not add any sig-

nificant error in the measurement chain which also allows life chart viewing. The device incorporates a sophisticated polynomial sensor linearisation to ensure the best performance and to provide all relevant possibilities for calibration and adjustments.

The LED display offers a 'hold' feature which allows freezing of the measurement on display, while the 'rel' feature shows the measurement against the measured value.

The PRO 115 is easily connected via the USB C port for viewing or downloading files stored in the internal memory of the instrument for connection to the application software Proxware.

Both models are dual channel professional handheld meters for thermocouple probes. Any K, J, T, N, R, S, B and E standard thermocouple probe can be connected. They

offer configurable surface correction factors and can be set for use in combination with Senseca contact probes for enhanced measuring accuracy. The PRO 135 also has a data logging capability.

They also offer 'hold' and 'rel' options. In addition, if two probes are connected, the instrument will calculate and show the difference between the measurement of the two channels.

Both the four-wire ropes and thermocouple instruments offer acoustic alarms with high thresholds and optional hysteresis, statistical functions of Min, Avg and Max, IP67 waterproofed with long battery life, external power via USB along with quick access to most used operations are some of the functional features on the device.

Grobler commented that the redesign of the devices has enabled Senseca to improve functionality, accuracy and reliability while still offering pinpoint precision data loggers that have been manufactured to the highest European standards.



### Photoelectric sensor measures distances in the $\mu\text{m}$ range

- Detects tiny objects with highest precision
- High switching frequencies for dynamic applications
- 3 Operating modes and a robust, compact design enable a wide range of applications
- Versatile and future-proof connectivity thanks to analogue outputs and IO-Link

Thanks to its compact and robust design as well as its analogue output, the highly precise OMH will also convince you in retrofit applications. IO-Link ensures easy parameter setting and data use in fully automated processes.



## Updated precision acoustic imagers identify potential failures early

TO help users identify and localise 'mechanical areas of interest' within short timeframes, Comtest, a local representative of Fluke - a global technology leader in the manufacture of compact, professional electronic test and measurement tools and software - has added a unique new feature to the ii910 precision acoustic imagers. The Firmware 5.0 update brings a MecQ facility to the ii910, which helps minimise unplanned downtime and cut repair costs by enabling early identification of potential mechanical problems. Energy savings are also achieved by carrying out repairs early and reducing faults.

The update was developed following extensive research involving Fluke customers worldwide. Maintenance specialists and technicians said their crucial focus was identifying issues on the potential failure curve as early as possible.

Looking at various types of conveyor systems, the research showed that non-driven bearings are often the root cause of many mechanical faults. Because these systems are integral to the overall production process, lengthy downtime could significantly impact the factory and cause significant issues along the supply chain. This applies in food and beverage production as much as it does in the logistics, electronics, automotive and mining/raw materials sectors.

### Never inspected

Despite a line going down representing a

huge concern (and costing anything up to R2,430,000 an hour), Fluke found that around 59% of conveyor belt systems are never inspected. In comparison, another 11% are checked manually. The research showed that human sensing was the least effective way of detecting a problem, followed by contact temperature and thermography. Testing using contact vibration or airborne ultrasound also represented a challenge - with ease of use being a significant issue with the latter - but acoustic imaging offered the most effective method.

Not only did customers say that the ability to localise issues was vital if substantial cost savings were to be achieved, but they also needed a scalable solution that could help those with lengthy conveyor systems (a significant warehouse could operate up to 80 km of conveyor belts) or where accessibility was an issue (perhaps because of conveyor guards).

Using the Fluke ii910 acoustic imager with MecQ, the process of carrying out non-contact inspection on conveyor systems is simplified considerably, with the unit immediately identifying the locality of a mechanical area of interest through sound pattern comparison. Once the issue is displayed on-screen, the maintenance professional can note it, share it with their team and address it on their maintenance schedule.

MecQ was developed to bring an extra layer of detection to the ii910 in addition to taking a picture, taking a video, carrying out leak detection with LeakQ, and detecting partial discharge in PDQ mode.

# New warehouse a testament to adaptability and commitment

**A** NEW Johannesburg facility for ifm will enhance the company's capacity to serve customers and clients more effectively and meet the growing demand for its products and services, according to ifm South Africa's managing director, Alwyn Skelton. Addressing guests at the opening of the new warehouse, Skelton expressed gratitude to the ifm team for their hard work and dedication in bringing the project to fruition.

Guests from the company's headquarters in Germany, including Kevin Duda, senior director regional sales management and Daniela Hamm, director human resources, attended the ribbon-cutting event.

Hosted in the new warehouse, ifm staff and guests gathered to celebrate not only the launch of a new facility, but also the spirit of innovation, teamwork and shared success that define ifm South Africa's journey.

The event served as a reminder of ifm's resilience and adaptability in the face of challenges, instilling confidence in the organisation's ability to navigate future endeavours with grace and success.

*ifm's Kevin Duda, senior director regional sales management and South Africa's managing director, Alwyn Skelton*



## Cylinder sensors keep both end positions in view

**T**HIS IO-Link sensor from igus has two configurable hardware outputs that will upgrade a machine in no time. The outputs can be configured to a user's application requirements. A high-resolution process value with a detection range of 50 mm enables continuous monitoring as well as digital transmission via IO-Link. Thanks to the teach function and the Bluetooth adapter, the installed sensor can be easily adjusted from outside the machine.



### Integrated diagnostic functions

Combined functions, such as the stroke counter (switching cycle counter), time monitoring between both end positions or device temperature provide servicing assistance and enable maintenance to be carried out as required.

One sensor instead of two: On short-stroke cylinders, one IO-Link cylinder sensor (upper groove) is now sufficient to detect both end positions instead of two conventional sensors (lower groove) as was previously the case.

Cylinder sensors are used for position detection of pistons in pneumatic cylinders. They are directly mounted onto the cylinder. The ring magnet attached to the piston is sensed through the housing wall of non-magnetisable material (e.g. aluminium, brass or stainless steel). They can be fixed to almost any T-slot, C-slot, clean-line, tie rod, integrated profile or trapezoidal slot cylinder.

## Intelligent solder station kits launched

**R**S South Africa, a trading brand of RS Group plc, a global provider of product and service solutions for industrial customers, announced the full availability of Weller's new WXsmart kits.

Following the successful launch of the all-in-one intelligent WXsmart platform in 2022, the five kits are tailored to meet soldering and rework needs, from delicate work on miniaturised equipment to heavy-duty industrial applications.

The WXsmart platform is aimed at design engineers in industries requiring connectivity, security, and traceability, such as the electronics, medical, automotive, aerospace, defence, and solar technology sectors. The kits come with a WXsmart station, and all the necessary tools for their specific application, including relevant intelligent tips, irons, and a cartridge tip holder. One of the sets also comes with a WXAir station plus accompanying accessories for repair. They are available from RS at a lower price than if each item were purchased separately.

The launch follows the recent introductions of other Weller innovations to the RS offering, like the Weller Erem precision tools for use on the workbench. In addition, the new WXMTS Micro Tweezers are smart desoldering tools that provide the perfect solution for fast and precise SMD rework of SOPs and chip components from small-to-medium sizes. An added benefit for engineers is that these tweezers can be used under the microscope.

According to Kevin Shield, vice president - tools & consumables, test & measurement at RS, this latest introduction to the RS range results from the ongoing close collaboration with Weller Tools.

# New FMLB connectors ensure safety and reliability for medical devices

**F**ISCHER Connectors has released new First Mate Last Break connectors in its low-voltage multipole Fischer Core Series, to offer outstanding levels of electrical safety, mechanical reliability and ease of use for operators of medical devices in compliance with IEC 60601-1.

Fischer Connectors' new First Mate Last Break connectors are available in two sizes ('size 104' with a 15 mm diameter plug, and 'size 1031' with a 13 mm diameter plug) and three mixed low-voltage configurations (one with 12 contacts, two with 14 contacts).

As its name denotes, First Mate Last Break (FMLB) ensures the permanent ground presence of an electrical system through a longer pin in the plug that "mates first and breaks last" with the system's receptacle to avoid risky electrical safety conditions. For example, it protects from electrostatic discharge (ESD), allowing any stray voltage to be routed to a safe ground to prevent harm to the operator and voltage-sensitive equipment.

The new Fischer Core FMLB connectors are available in two sizes and three mixed low-voltage configurations. Fischer Core 104 A 130 and Fischer Core 1031 A 105 feature 14 pins: 3x 0.9 mm power contacts for a maximum current of 9.5 A for size 104 / 8.1 A for size 1031, and 11x 0.5 mm data contacts (incl. a longer FMLB contact for ground) for 5 Gbit/s Ethernet. As for the Fischer Core 104 A 131 connector, it features 12x power and data contacts of 0.5 mm (incl. the ground/FMLB longer contact) for 4.2 A and 5 Gbit/s Ethernet.

The new connectors and associated cable assemblies are extremely robust and durable, not only mechanically but also in terms of design. They are IP68 sealed, resist autoclave

a connector is used to connect a handpiece or a control console."

This is precisely the case of the Power-Liposuction (PAL) System from MicroAire Surgical Instruments, which uses four Fischer Core First Mate Last Break connectors and a 12-foot silicone overmolded cable assembly resisting autoclave.

The system's handpiece uses a connector with a push-pull locking mechanism, whereas the console uses a connector with a friction fit on the same cable assembly to accommodate its end-users' various needs. In the dedicated case study available on Fischer Connectors' website, MicroAire's design engineer explains why they opted for FMLB connectivity: "We

want the ground of the cable to be always on, to mate first, so the system is within a ground presence all the time, and to break last, for signal integrity and electrical safety reasons. Without the presence of ground, we have floating signals which, from a signal integrity point of view, might cause numerous electrical artefacts that are impossible to predict (crosstalk, capacitive coupling, EMI problems, etc.), in addition to risky electrical safety conditions".

The console of MicroAire's PAL System features two Fischer Core 104 A 130 receptacles mating first and breaking last with the handpiece cable plug's longer pin. The Fischer Core A 131 FMLB receptacle of the pedal is installed between the two instrument receptacles.



sterilization and corrosion (1,000 hours of salt mist, 5% salt solution, 35 °C), offer long lasting lifecycles with 10,000 mating cycles, and their rugged keying and locking systems ensure safe connections at all times.

"In addition to its robustness, our flagship Fischer Core Series is well-known for its versatility", explains Alexandra Monchatre, markets and products manager at Fischer Connectors. "Not only in terms of contact configurations, body sizes and materials, but also in terms of locking systems, i.e., push-pull, tamperproof, quick-release and friction fit. This facilitates design engineers' lives, particularly when it comes to addressing the various needs of medical device users."

A single device may use two different types of locking mechanisms depending on whether

## We bring colour into view!

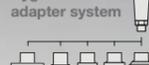
Compact pressure sensors and switches with 360° custom-colour status display



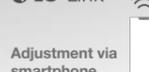
Compact design



Hygienic adapter system



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- Process malfunction

Looking Forward

**VEGA**

# PUMPS, VALVES, PIPES & FITTINGS

## Lifecycle approach with OEM parts supports pumping solutions

**C**APITAL equipment like pumps operate only as well as their components and wear parts allow, so it makes little sense to risk this performance by installing a replicated part.

"Mining and other industrial applications rely heavily on continuous operations to reach the productivity levels that make them profitable," says Marnus Koorts, general manager pumps at Weir Minerals Africa. "This productivity is in turn the result of decades of partnership with original equipment manufacturers (OEMs) like Weir Minerals, who provide much of the technological foundation underpinning a mining operation."

Koorts emphasises that the lifecycle cost of key equipment like pumps is many orders of magnitude higher than its upfront capital cost – as they all need a high standard of maintenance that matches the quality of their initial manufacture.

As long as the equipment performs to expectation, it will contribute to the mine's success.

"What is often not fully understood, however, is that OEM spare parts are as carefully designed and manufactured as the core equipment itself," he explains. "As an OEM with over 150 years of field experience, we have deep insights into how our parts perform – and can confidently provide our customers with performance predictions and service intervals."

These promises that an OEM makes become the basis of its long-term partnerships with customers, he says, and allow the mining industry to effectively mitigate operational risk so that mines succeed. By contrast, a replicated part is a reverse-engineered product that tries to look the same as the original, and must simply fit in the appropriate space.

"This is where the similarity with the OEM part ends," argues Koorts. "The performance and longevity of the replicated part can seldom be guaranteed, and this undermines the principles of risk mitigation and productivity that the mine is trying to achieve."

Weir Minerals' original spares form an essential part of the journey that it walks with customers toward sustainability and commercial success, he explains. While the efficiency and robustness of the parts reduce mines' energy consumption and carbon footprint, the sustainability efforts of Weir Minerals also contribute to improving customers' Scope 3 emissions.

"Having a parts supplier with a concerted sustainability commitment – including the use of renewable energy in many of our facilities – further assists our customers in reaching their strategic corporate objectives," he concludes.



Weir Minerals invests heavily in ongoing engineering to offer customers better results

## Dependable pumping on 'robust' dewatering sites



**B**ECKER Mining's Pumpor Vertical Spindle (PVS) pumps are hard at work on many mines throughout Africa, with multiple units installed recently in the Carletonville area, west of Johannesburg.

"Our PVS 80 pump units - with 37 kW motors, a 57 m head, 20 l/s capacity, 75 mm suction and discharge flanges and a 213 mm impeller – have been designed for efficient operation in tough conditions, including hard rock mining conditions," says Rick Jacobs, senior general manager (SGM) for consumables, Becker Mining South Africa. "These robust pumps, which

are used mostly for dewatering mine haulages, cope efficiently with dirty water containing large abrasive solids and fibrous materials, that many pumps are unable to cope with.

"Becker Mining's PVS pumps have a recessed, non-clog impeller design that prevents binding and clogging problems. Since the impeller is clear of the pump casing, any solids and fibrous materials that enter the suction inlet are expelled through the pump discharge, without damaging the impeller. These pumps have a sleeve stuffing box clearance that minimises blowback of materials being pumped around the shaft sleeve, without requiring sealing contact. A high-strength pipe column maintains alignment between the bearing frame and its casing."

PVS pumps, with a durable 28% chrome

iron casing, are able to cope efficiently with all types of solids and fibrous materials, ensuring extended service life in arduous conditions. PVS pumps are available in stainless steel for severely corrosive applications, including processing plants.

There are no submerged bearings on the cantilevered shaft. Bearings have been selected for a minimum service life of 24,000 hours when operating at any point on the hydraulic coverage curve with 1.0 S.G. Grease lubrication is standard. A locknut that fastens the impeller to the shaft, prevents the impeller from turning off if the motor is started in the incorrect direction of rotation.

The PVS range comprises models in two sizes – a 65 mm unit and an 80 mm pump – with a spindle length of 0,7 m. These robust

pumps can handle solids up to 76 mm and S.Gs to 1,5, achieving 87 m heads at speeds up to 2 950 rpm.

Another advantage of Becker's pump design is that spares are completely interchangeable. This reduces inventory management costs and simplifies on-site repairs. Because all components are locally manufactured, these pumps are readily available and a large stock holding of spares and raw materials ensures swift delivery throughout the country.

Becker Mining South Africa employs a fully integrated ISO quality management system as part of its dedicated design, manufacturing, testing and repair facility. The company is also able to adjust its extensive range of pumps to suit specific customer requirements.

## High-performance sealing compounds

**I**NCLUDED in BMG's range of oils, additives and care products are silicone sealing compounds, which have been developed by Liqui Moly to seal various materials in diverse industries, across the industrial, construction, mining, marine, agricultural and automotive sectors.

Liqui Moly silicone sealing compounds – available in transparent and black – are heat-resistant, single-component sealants that vulcanise under the influence of air humidity and cure quickly to form a permanently elastic mass.

"Our advanced silicone sealing compounds are used to effectively seal materials like metal, plastic, glass, porcelain and painted wood surfaces. This liquid product is conveniently packaged in aerosol form for easy sealing housings on engines, transmissions, differentials,

end covers, oil pans, valve covers and water pumps, as well as battery boxes and headlights," says Carlo Beukes, business development manager, agricultural, automotive and lubrication divisions, BMG. "These sealants are also highly effective for use on heating, ventilation and air conditioning (HVAC) systems, engines, transmissions, containers and vehicles."

Notable properties of Liqui Moly sealing compounds include good adhesion to vertical surfaces, excellent chemical resistance, outstanding thermal stability and resistance to stresses and vibrations. These components are free of solvents and formaldehyde and can withstand temperatures from - 40 °C to + 250 °C and for short periods up to + 300 °C.

Other advantages are easy, single-hand application, without mess or waste. Liqui Moly

sealing compounds cure in approximately eight minutes and have an 18-month shelf life in the original re-sealable packaging once opened.

BMG specialists also recommend using Liqui Moly sealant remover (Part number 3626 LM) to effortlessly dissolve burnt-on and hardened sealing compounds or adhesives from valve covers, cylinder heads, water pumps, oil sumps, flange seals and vehicle, engine, exhaust and mechanical parts. This fast-acting sealant remover offers substantial savings in time and effort, making a cleaning task that was previously laborious and costly, totally painless.

Liqui Moly chemicals, which have been developed in Germany to the highest quality standards, reduce operational and maintenance costs and also enhance environmental protection.



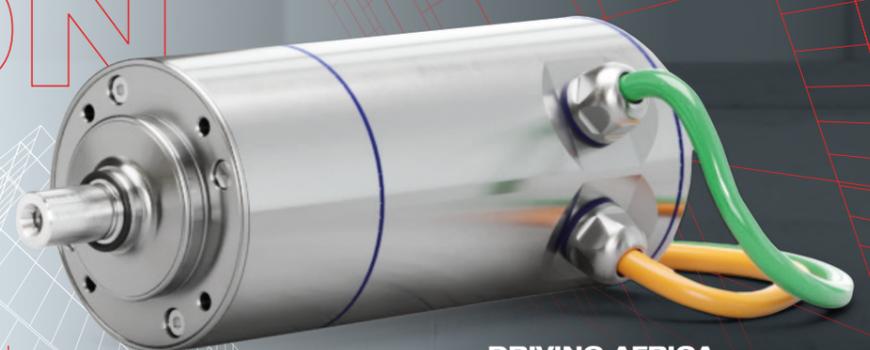
Included in BMG's range of oils, additives and care products are silicone sealing compounds, which have been developed by Liqui Moly to seal various materials in diverse industries

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# Powerful slurry pump overcomes silt problems

NOT only does IPR's SlurrySucker dredging system effectively clean process water ponds, return water dams or other water storage areas, but it has also become recognised as an ideal solution for cleaning water capture areas where silt is an issue, or where water retention and water holding capacity is being threatened. Some of these areas are environmentally sensitive and must be protected from causing any pollution.

Taking this innovative locally manufactured product to the next step, IPR recently launched its new generation unit - the SlurrySucker MK III. This powerful dredging system now incorporates the world renowned Toyo heavy duty slurry pump, making it the most efficient and cost effective electrically powered floating dredging system available on the market.

This is according to IPR managing director, Lee Vine, who says that the benefits of the SlurrySucker extend well beyond improving mines' environmental footprints. "Bodies of water such as ponds, lagoons, dams and canals should be considered valuable plant assets and must be maintained to maximise their operational efficiency and contribution to optimised operational performance," he explains.

"This is where the SlurrySucker has continued to deliver without fail, assisting our customers with some of their pressing issues including the need to increase water storage capacities, the recovery of minerals and improving process water quality," he continues. Equipped with Toyo heavy duty slurry pumps,



the SlurrySucker MK III boasts enhanced solids handling capabilities. The pumps are fitted with robust cutter fans or agitators, facilitating the management of larger particles. Moreover, they can effectively handle slurries with a high specific gravity (SG).

Commenting on the effectiveness of the SlurrySucker MK III, Vine says the unit can be sized to meet an individual plant's slurry removal requirements in terms of particle size, aggregation, distribution, cohesiveness, flow characteristics, sedimentation rates and specific gravity.

He is quick, however, to point out that while desilting or cleaning settlement ponds may seem like a simple task, it is not always

as straightforward as it would initially appear. Cleaning these facilities can become an onerous task, as it involves the pumping of high solids materials from the facility being desilted and should an incorrect system or equipment that is not fit for the task be specified this could cause issues including environmental harm.

"Historically many operations have used manual excavation methods for desilting and cleaning, but our established track record has proved that this is not only inefficient, but it often fails to remove the required volume of sediment," Vine says.

There are several ways to accomplish effective desilting, but it has to be done effectively and cost efficiently, and this is where IPR's skilled and experienced team comes into play. The best option, according to Vine, is a site visit to assess the application requirements and conditions.

"In some instances, it is possible to pump the high solids material to another nearby dam or reservoir. However, this is sometimes not possible and in this type of scenario we implement an alternate solution such as capturing and storing the content in specialised geotextile

bags while the water is separated from the solid material," he explains.

Once the actual condition of the dam or pond has been assessed the decision can be made as to how to proceed. The SlurrySucker itself needs a sufficient volume of water on which it can be floated, and should there be areas where this is not possible, then a hydro-mining solution is applied to these drier areas.

"What is also important is that we can effectively ensure mine and industrial water contaminated sites do not negatively affect surrounding areas and being equipped with remote controlled height adjustment of the primary slurry pump and dredge head assembly allows the SlurrySucker to operate without causing damage to plastic liners in dams and settlement ponds.

Vine highlights two product options - the Maxi SlurrySucker which is capable of moving 250 m<sup>3</sup> an hour at 20% to 30% by volume - equivalent of approximately 70 dry tons per hour. The Mini SlurrySucker operates at 100 m<sup>3</sup> an hour, again at 20% to 30% by volume for roughly 30 dry tons every hour.

The SlurrySucker comes standard with a galvanised frame structure and IPR's flexible design provides the option for stainless steel with polyethylene and UV-stabilised pontoons.

In conclusion, Vine says that opting for the SlurrySucker option is also far safer as the barge itself can be operated remotely from a defined distance away from the dam or pond edge. This is much safer than having equipment and personnel on the dam.



## New metering and dosing pump can handle high flow rates accurately

WATSON-Marlow Fluid Technology Solutions (WMFTS) has launched the Qdos H-FLO chemical metering and dosing pump, designed specifically for higher flow rates up to 600 L/h.

Qdos H-FLO delivers the same outstanding accuracy and reliability as other Qdos pumps but for higher flow rates with a variety of pumpheads and a range of different tube material to ensure chemical compatibility with the process fluid.

The Qdos H-FLO high-precision pump offers flexibility to be scalable with a customer's process, whether it is in water and wastewater treatment, mining and mineral processing, chemical applications in food and beverage or pulp and paper.

The release of Qdos H-FLO enhances the range of Qdos pumps by offering flow rates up to 600 L/h and pressure capability up to 7 bar (102 psi).

Like the rest of the Qdos range of peristaltic pumps, Qdos H-FLO cuts costs through higher precision chemical metering, with an accuracy of ±1% and repeatability of ±0.5% in dosing.

Qdos H-FLO will bring benefits to applications including disinfectants. Coagulants, flocculants, acids/alkalis, mining reagents and surfactants.

Adeel Hassan, product manager at WMFTS, said: "At Watson-Marlow Fluid Technology Solutions, we believe in engineering innovation to solve complex customer problems by providing simple-to-use solutions. The high accuracy and repeatability of our pumps helps to achieve cost savings in chemical usage which also assists our customers in their journey towards net-zero targets. While the pump has inherited unique features from the current Qdos range, it also brings several new-to-market features to make chemical dosing simpler, safer and cost-effective.

"Customer feedback has been a fundamental driver in developing Qdos for higher flow rate applications. Qdos H-FLO aims to make chemical dosing simpler and efficient for operations, maintenance and EHS teams. It offers several onboard communication options for SCADA and PLC integration to achieve process optimisation."

## Actuator pressure switch combines control and alarm

HYDRAULIC valve actuators require pressure switches for safe operation. In control cabinets, usually, two of these measuring instruments are installed.

One switch is used to control the pump for the hydraulic pressure, while the second triggers an alarm if the pressure falls below a minimum level. However, there is also the possibility of combining both functions in one switch.

A manufacturer of ball valves for gas pipelines has realised such a solution with the model BA mechanical pressure switch by WIKA. As a result, they save the purchase costs for a second instrument and reduce the installation effort in instrumentation. Since then, they have also been able to make the control cabinets more compact. To fulfil its task, WIKA has configured the pressure switch for the valve actuators with three switch points. The instrument switches off the pump for the hydraulic pressure at a value of 190 bar and switches it on again when the pressure drops to 150 bar. If the pressure drops to 90 bar, for example, due to leakage or a pump fault, the pressure switch sends



Safety for valve actuators: The model BA pressure switch controls the hydraulic pump and can also trigger an alarm

out an alarm. The operator of the pipeline can thus intervene in time and prevent a valve failure.

Pressure switches for valve actuators operate with two different switch contacts. The type B pressure switch can be configured with three switching points for a dual function.

The configuration of the model BA pressure

switches for the valve actuators is based on the integration of two different switch contacts. The contact for controlling the pump has an adjustable dead band (hysteresis) depending on the task, whereas the contact for the alarm has a fixed dead band. This pressure switch version is generally designed for applications with a setting range of ≥ 16 bar. In addition, there must be a difference of at least 10 percent of the respective setting range between the switch/reset point of the adjustable dead band and the switch point of the fixed dead band. This is necessary to exclude mechanical effects of one contact on the other. The accuracy of the pressure switch remains unaffected by this.

The model BA pressure switch can switch high powers up to AC 250 V, 20 A, depending on the version, very accurately. The repeatability of the set-point is ≤ 0.5 % of span. The robust and versatile instrument is designed for pressures up to 1,000 bar and the ignition protection type Ex d (explosionproof enclosure). It works perfectly, even at temperatures down to -60 °C. For safety applications, model BA is also available in a SIL 2 or SIL 3 version.

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## TRANSPORT & LOGISTICS

# Ten years of growth for warehousing equipment supplier's EL branch

**G**OSCOR Lift Trucks (GLT), a key player in the industrial warehousing equipment sector, proudly commemorates a decade of success in East London. Ten years ago, Goscor Lift Trucks' East London branch opened its doors with a team of just five employees. Today, the branch has grown substantially, with a dedicated staff of 44.

The establishment of the branch was prompted by the acquisition of 39 machines through outright purchase, coupled with maintenance contracts for the motor logistics industry. Additionally, the branch introduced a complete battery bay solution, encompassing on-site maintenance and battery replacements. During the same period, the branch pioneered an in-house concept for constructing battery bays tailored for the motor logistics industry.

The branch's customer base has

experienced significant growth in the beverage, retail, and motor logistics industries, with the latter playing a major role. This growth is directly attributed to the dedicated support and service implemented in East London.

The Service department has received various accolades and awards over the past decade. In 2022, the branch received recognition for the Service Branch of the Year and was awarded the Branch of the Year in 2018. The company implemented ISO 9001 standards in 2017.

The East London branch operates independently, maintaining its own parts inventory and short-term rental fleet. It provides new and pre-owned sales along with a vast service network to support East London and its surrounding areas.

Since opening, the branch has

expanded its facility three times to accommodate more staff. The recent rebranding of the building brought several structural changes, resulting in a larger parts department and increased stock capacity.

Being the first to introduce DEC Tow Motors nationally, the East London branch played a pivotal role in providing logistics for the substantial growth in the motor industry. Mark Rennie, the general manager of the branch, expresses gratitude for the past decade, acknowledging the achievements and growth experienced. He attributes the branch's success to the customers, community, and dedicated team, acknowledging their role in bringing the branch to its current position.

Founded in 1984, GLT has consistently led the way in providing best practice solutions for industrial warehousing equipment. Renowned



for its expansive range of electric and diesel-powered forklifts, as well as its exceptional aftersales service, GLT has firmly established itself as a dynamic forklift company offering

comprehensive warehousing solutions with the lowest total cost of ownership. Today, GLT stands as a leading supplier in the South African materials handling industry.

## Material handling operation benefits from 5G network

**E**RICSSON is collaborating with STEP to enhance Toyota Material Handling's operations with private 5G and coverage extension solutions. The extended carrier coverage is optimising worker communications, IoT-based predictive maintenance, fleet management, and telematics.

In Indiana in the US, Toyota Material Handling's major production complex in Columbus is enjoying increased productivity, faster deliveries to customers and boosted employee morale since the operational launch of a private 5G network at the facility, designed and installed by Ericsson and channel partner, STEP.

Toyota Material Handling management reported the benefits following the decision to replace on-site Wi-Fi solutions with Ericsson private 5G products and solutions, including the indoor-connectivity-focused Radio Dot System. Business-critical operations at the almost 200,000 square

feet warehouse are now run exclusively over the on-site 5G private network, leveraging CBRS spectrum, with no disruptions or connectivity loss reported since its operational launch in November 2023.

Daniel Schumacher, vice president of IT technology, Toyota Material Handling North America, says: "This partnership is a great example of a core Toyota principle – 'Genchi Genbutsu' – which roughly translates to 'go and see with your own eyes.' When we started discussions with STEP, they voluntarily came to our campus and spent several days to truly understand our operations before recommending solutions. Ericsson was able to accomplish in two-to-three months what would have taken us nine-to-twelve months working directly with telecom providers. Their private 5G solutions helped us stay focused on our top priority – our customers. This project is just one example of Toyota's ongoing strategic



efforts to advance and modernize the infrastructure supporting our operations in Columbus."

Ericsson and STEP worked closely with three major U.S. carriers on design, deployment, and rebroadcast agreements to ensure adequate

coverage extension across Toyota Material Handling facilities. The integration of Ericsson Private 5G and the Ericsson Radio Dot System boosted network reliability and security, while extending public cellular coverage into its facilities.

Ed Walton, CEO, STEP, says: "Industry 4.0 strategies require scalability and flexibility to address diverse needs. With the help of STEP, the deployment of Ericsson Private 5G and Radio Dot System enables Toyota Material Handling to increase operational efficiencies and secure data on-site, while addressing diverse user needs and driving real business outcomes."

Toyota Material Handling plans to continue its Industry 4.0 transformation with private 5G by evaluating automation (including automated vehicles) across other operational facilities.

Manish Tiwari, head of private cellular networks, Ericsson Business Area Enterprise Wireless Solution says: "The early benefits already being highlighted by Toyota Material Handling show the immediate impact a private 5G network can have on operations, employees and customers."

## Subscription vehicles gain traction in SA

**I**n recent years, South Africa has witnessed a notable shift in how people approach mobility. The emergence of subscription vehicles has presented a compelling alternative to traditional ownership models. While several companies are venturing into this space, one notable player leading the local charge is Kinto One – a subsidiary of Toyota.

According to GM of sales and marketing at Kinto One South Africa, Slade Thompson, the rise of subscription vehicles speaks to broader industry trends and changing consumer behaviour.

"Our journey in South Africa mirrors the growing demand for flexible and hassle-free mobility solutions. With consumers and businesses alike seeking accessibility, affordability, and convenience, subscription vehicles have swiftly gained momentum."

Thompson says this trend underscores a fundamental shift in mobility financing, as more people opt for subscription-based models that offer greater flexibility and control over their transportation needs.

"This model disrupted the traditional ownership model by offering a comprehensive package that included the vehicle, insurance, maintenance, and roadside assistance, all bundled into a single, transparent monthly payment," says Thompson.

Already, he says there are over

2,000 Kinto One vehicles on South African roads, with that number rising quickly as the market catches onto the subscription concept. With a focus on agility and scalability, he says 90% of Kinto One subscriptions in South Africa are B2B deals with a heavy focus on SMEs.

"We want subscription to be the driving force behind SME growth in South Africa," Thompson remarks. "Where capital investment in vehicles may be prohibitive, we want businesses to turn to subscription-based solutions. When you can't buy, you can subscribe. This is bound to have a broad economic and societal impact – hopefully levelling the playing field for all sectors in our economy."

As Kinto One continues to carve its path in South Africa, Thompson says the company remains focused on adapting to evolving market dynamics.

"Flex means consumers will be able to subscribe to a smaller vehicle for everyday use and when they need to go on holiday, can temporarily upgrade the vehicle to an SUV. This will make subscription a truly adaptable mobility solution."



This adaptability not only enhances the user experience but also positions subscription vehicles as a viable solution for a wide range of consumers and businesses.

Beyond convenience, Thompson firmly believes subscription vehicles will play a crucial role in promoting the adoption of electric vehicles. "The shift towards electrification is gaining massive traction globally, but South African consumers are hesitant to invest in the exorbitant costs associated with this new technology."

He says subscription models provide an avenue for consumers and businesses to explore alternative fuel options, mitigating their environmental impact while enjoying the benefits of modern mobility at an affordable cost.

As subscription vehicles gain traction in South Africa, led by innovators like Kinto One, Thompson says the future of mobility looks promising. "With a focus on flexibility, sustainability, and customer-centricity, subscription vehicles are redefining the way we think about transportation. Expect big things to come."

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# Centre of Excellence launched to enhance African supply chain solutions

**O**PERATING cost efficiencies and safety, for both drivers and vehicles, are primary considerations for any logistics or freight company and Unitrans, a forward-thinking company dedicated to providing value-added supply chain solutions across the continent, moves this to a new level with the launch of its newly upgraded Centre of Excellence (COE).

"The launch of our upgraded COE marks a significant milestone for Unitrans and the industry as a whole," says Jacques Greeff, executive of solutions at Unitrans. "We are thrilled to unveil this state-of-the-art facility that will drive value creation and operational excellence for our clients across Africa."

The modern supply chain is driven by 'big data' with information coming directly from trucks on the road, fleet management systems and other services. The COE collects, analyses this data and provides real-time solutions and information to all relevant departments, as well as to drivers on the road – for example, instant route changes to avoid traffic jams and the like.

By harnessing the power of technology through the COE, Unitrans is

able to process large-scale data into actionable business intelligence.

"Our focus is on empowering our clients with real-time insights and predictive analytics that drive informed decision-making and enhance overall operational performance," remarks Greeff. "Through our centralised platform and data-driven approach, we are unlocking new possibilities for supply chain optimisation and cost efficiency."

Unitrans is committed to developing bespoke solutions to provide optimal results for its customers. The company's commitment to excellence extends beyond technology and data analytics. Its team of industry experts brings a wealth of experience and knowledge to the table, ensuring clients receive best-in-class solutions tailored to their specific needs.

"We believe that the future of supply chain management lies in the integration of data-driven insights and advanced technology," says Greeff. "Our COE is designed to be a game-changer, offering our clients a competitive edge in a rapidly evolving marketplace."

Greeff describes the COE as an enabling tool that serves to opti-

mise operations, mitigate risks and enhance safety and security measures – ultimately contributing to the increased efficiencies of our customers' supply chains. Some of the tangible benefits of the COE include fleet optimisation, reduced standing times and an overall boost in vehicle efficiency. Whilst none of these concepts are new, the Unitrans COE uniquely balances risk mitigation imperatives and efficiency targets with sustainability objectives.

## Predictive analytics

Predictive analytics means leveraging historical and real-time data to forecast future outcomes. By analysing large-scale data sets, businesses can gain valuable insights into patterns, trends and potential risks, allowing them to make informed decisions and mitigate operational challenges effectively.

In the context of a logistics business, predictive analytics can revolutionise risk management practices by identifying potential issues before they escalate, reducing operational risks and improving operational cost efficiency significantly.

Through the continuous analysis



Unitrans' focus is on empowering clients with real-time insights and predictive analytics that drive informed decision-making and enhance overall operational performance

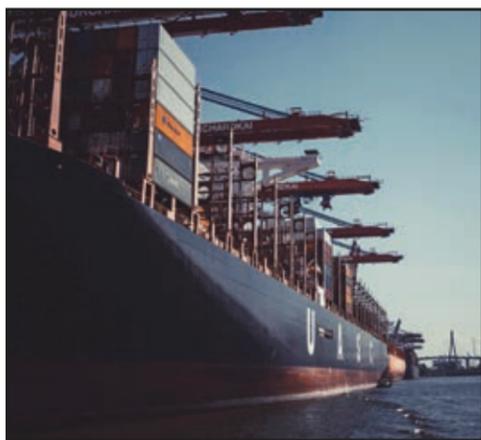
of data related to factors such as weather conditions, traffic patterns, equipment maintenance and driver behaviour, transport and logistics companies can proactively address potential problems and optimise their operations for efficiency, safety and sustainability.

"Ultimately, with the integration of advanced predictive analytics tools and large-scale data analysis, it is

conceivable the supply chain industry could not only reduce operational risks, but potentially eradicate them altogether," says Greeff.

This transformative approach has the power to improve the way supply chain businesses operate, ensuring smoother operations, enhanced safety standards, and ultimately, a more sustainable and reliable supply chain ecosystem.

## Reforms take shape in the logistics sector



**A**FTER increasing somewhat in December 2023, the Ctrack Transport and Freight Index (Ctrack TFI) declined notably in January to an index level of 119.3, a drop of 2.1% compared to December's level of 121.9.

Commenting on trends in the logistics sector, Ctrack says that, although born out of a crisis, some progress has been made towards the end of 2023 to address the sector's challenges and urgent focus is needed to take these reforms to fruition.

According to the latest report from Operation Vulindlela (Q3/Q4 2023), progress has been made in

the following areas:

- Approval of the Freight Logistics Roadmap. Working alongside government and Transnet, the Freight Logistics Roadmap was finalised and approved by Cabinet, providing a clear reform path towards resolving immediate operational challenges driving the decline of rail and ports. It also outlines interventions required to fundamentally restructure the logistics sector through policy and legislative interventions.
- The Minister of Public Enterprises announced the appointment of a permanent

board for Transnet National Ports Authority (TNPA). This will replace the current interim board and complete the process of corporatizing the TNPA. The new board will provide critical direction and oversight of the entity as the entire logistics sector undergoes reform.

- The National Logistics Crisis Committee (NLCC) has been formally constituted with participation from relevant government departments, Transnet and business. The NLCC's objectives are to improve the operational performance of freight rail and ports; restruc-

ture Transnet to ensure its future sustainability; implement reforms to modernise the freight transport system and restore its efficiency and competitiveness.

- The Economic Regulation of Transport (ERT) Bill has been passed by the National Council of Provinces and public consultation has been concluded. It will now be submitted to the President for assent. Establishing the Transport Economic Regulator is a critical step in the reform of the logistics system.

## New generation forklift launches in SA

**M**ASSLIFT Africa, the exclusive distributor of Mitsubishi Forklifts in southern Africa, launched the upgraded new generation Mitsubishi Grendia forklift series to the interior region's dealers, agents and suppliers. Units and parts were sold at the event held in Johannesburg. The various stakeholders gathered to witness the unveiling of the latest iteration of the acclaimed Grendia series, marking a significant leap forward in excellence and innovation within the material handling sector.

"After much anticipation, we are thrilled to officially launch the upgraded new generation Mitsubishi Grendia forklift in southern Africa," said Marco Caverni, CEO of Masslift Africa. "This new truck, while retaining all the key strengths of its predecessor, introduces subtle yet impactful upgrades, symbolising our dedication to delivering cutting-edge solutions and advancing the industry. The journey with the Grendia series has been remarkable, and we are excited to watch this new generation continue to dominate as its predecessor did."

### Continuing the tradition of excellence

The new generation Mitsubishi Grendia forklift series represents efficiency, sustainability, and reliability, aligning with Masslift Africa's mission to redefine the material handling landscape in southern Africa. With enhancements built upon the robust

foundation of its predecessor, the Grendia series remains poised to meet and exceed the evolving needs of a wide range of customers and their applications.

Elevated performance and reliability: The upgraded Grendia series offers enhanced performance and reliability, ensuring uninterrupted operations in the most demanding environments.

Advanced technology and operator comfort: Integrated with cutting-edge technology and ergonomic design, the new Grendia series prioritises operator comfort and safety, enhancing productivity and reducing fatigue. The new Grendia also boasts an upgraded dashboard, starter motor protection, a low-noise engine, enhanced soundproofing, and floor-level noise reduction. The starter motor protection should add incredible value in the South African market and reduce customers' repair costs over the life of the forklift.

Eco-friendly design and low fuel consumption: The innovative engine system demonstrates exceptional fuel efficiency, setting new benchmarks in the industry. Mitsubishi internal combustion forklifts prioritise sustainability with eco-friendly enhancements, minimising emissions and contributing to a greener environment. This leads to a fuel saving of 0.5 - 1.3 litres an hour (R1000-2000 p/m).

Prolonged service intervals: Mitsubishi Grendia forklifts boast extended service intervals of 500 hours compared to the industry



standard of 250 hours. The extended lead times reduce maintenance costs and the downtime required to service the forklift.

Extended warranty: The Grendia series, supported by Mitsubishi's dedication to quality, offers the longest warranty in its class: a 3-year / 5,000-hour powertrain warranty. Coupled with this, Masslift extends the powertrain warranty to an industry-leading 8-year / 12,000-hour if the customer takes a full maintenance agreement for the period.

Integrated presence system (IPS): The series's IPS proactively identifies hazards before accidents, prioritising operator safety during vehicle operation and mitigating non-seated errors, serving as a robust shield for operators and workplaces against potential risks.

Lowest total cost of ownership: The Mitsubishi Grendia is one of the easiest and most effective forklifts to service. The extended service intervals coupled with the fuel efficiencies and the incredible 50% buyback offer from Masslift after 5 years / 5,000 hours means the new diesel Grendia offers the lowest total cost of ownership in the market.

## Indian automaker brings new smart truck range to SA

**T**ATA Motors, India's leading multinational auto manufacturer, along with its authorised distributor, Tata Africa Holdings Limited, launched its range of multipurpose heavy-duty trucks – Ultra T.9 and Ultra T.14, in South Africa. Designed to fulfil the rising need for safer, smarter and greener cargo mobility, the Ultra is perfectly suited for a wide variety of conventional and specialist logistics applications including bakery, FMCG, white goods, agriculture and construction. The Ultra range is engineered to deliver high productivity with best-in-class power & torque and fuel efficiency with lower total cost of ownership (TCO).

The robustly built Ultra features a walk-through cabin, power steering, dashboard-mounted gear lever, booster assisted clutch and mechanically suspended seat for safe and fatigue-free driving. Powered by Tata Motors' globally proven turbocharged diesel engines with best-in-class power and torque output, the Ultra T.9 (powered with a 3.3L engine) and Ultra T.14 (powered with a 5.0L engine) provide a reliable solution to comfortably carry heavy loads over long distances and rough terrains. The trucks come equipped with parabolic suspension for rug-

ged and uninterrupted operations. The trucks are offered with Tata Motors' flagship connected vehicle system, the Fleet Edge, for efficient fleet management that helps further increase fleet productivity.

Launching the new Ultra range, Anurag Mehrotra, head – international business, Tata Motors commercial vehicles, said,

"Over the last three decades, Tata commercial vehicles have earned a rich reputation with their exceptional functionality, high productivity, unmatched comfort, advanced connectivity and unparalleled performance. We have consistently set new benchmarks by introducing smarter and future-ready products across various vehicle segments. The launch of the latest Ultra range in South Africa marks a new landmark in freight transportation in the country. Built on the internationally recognised Ultra platform, these trucks are engineered to cater to a diverse set of applications, deliver higher performance, vehicle utilisation, uptime and more revenue. We are committed to enabling our customers in South Africa succeed and the launch of this Ultra range is a significant step forward in fulfilling this commitment."



# COMPANY & PRODUCT NEWS

## Chinese motor plant at Coega starts production of family SUV

THE Beijing Auto Industrial Corporation (BAIC) plant at Coega Industrial Development Zone has started operations, according to a news update posted on the company's website on 7 March.

"The X55 production has been fully launched, with sufficient spare parts and guaranteed market demand," the company said. "As a brand-new red X55 vehicle drove off the final inspection line, BAIC SA's new year production got into full swing."

"In the production process of the X55, BAIC SA pays special attention to preparing spare parts and continued inventory management. BAIC SA is well aware of the importance of aftersales service to consumers, so it ensures sufficient spare parts inventory and delivers a continuous supply of spare parts to dealers in a timely manner to respond to consumer repair and maintenance needs.

"BAIC SA was established in 2016 as a joint venture between China's BAIC Group and South Africa's Industrial Development Corporation (IDC). In June 2023, the construction of the BAIC SA factory was fully completed, and the three significant processes of welding, painting, and final assembly were fully integrated, genuinely possessing CKD production capacity.



Vice Governor Dr. Lu Shan from Zhejiang Province, China and Premier Oscar Mabuyane

"Starting from the first working day of the new year, BAIC SA fully launched the production of the X55 model. Every employee is diligent and responsible, carefully selecting and

assembling every component to ensure every car meets BAIC's high-quality standards.

"The X55, launched as a family SUV, is mainly aimed at the South African market. This car won the honour of "Best South African Compact Family SUV of the Year" in 2023 and the "2023 Reader's Choice Award" from Top Gear. Furthermore, this vehicle was appointed the officially designated service vehicle for the 2023 BRICS Summit, along with another product from BAIC SA, the B40 Plus.

"In the future, BAIC SA will continue to pay attention to market demand and consumer feedback, continuously optimise production and aftersales service to meet the growing demand of the South African and African markets, and make positive contributions to the pursuit of a better life for the people," the company said.

Last week the Eastern Cape premier's office said it had welcomed a delegation led by the vice governor Dr Lu Shan from Zhejiang Province, China, to Gqeberha. According to the premier's office, the delegation was on a "productive working visit... as both provinces explore opportunities for collaboration, aiming to strengthen bilateral relations and engage key stakeholders in the Eastern Cape's thriving economy".

## Large-scale wind farm project breaks ground

ENEL Green Power South Africa has started construction of three new wind farms in the Eastern Cape - Impofu East, Impofu West, and Impofu North. The wind farms will provide energy to Air Liquide and Sasol and are expected to be operational in 2026.

The projects will consist of 57 turbines, eight high-voltage substations, as well as 120 km of 132 kV high-voltage overhead electricity lines and will provide up to 330 MW of renewable energy via a wheeling framework agreement with Eskom to Sasol's Secunda site in the Mpumalanga province where Air Liquide operates the world's largest oxygen production facility. The projects will complement the existing platform of over 1.2 GW of renewable energy that Enel Green Power (EGP) South Africa already has in operation.

Speaking at the sod-turning ceremony, Manuele Battisti, country manager at Enel Green Power (EGP) South Africa, said that the projects align seamlessly with the Enel Group's strategic vision for 2024 to 2026.

"In line with our commitment to the global transition to a low-carbon future, the construction of these wind farms marks significant progress as we see our vision of driving the future of sustainable energy in South Africa come to life. Through strategic partnerships, EGP South Africa is proud to spearhead these transformative wind farm projects, marking a significant leap forward in our mission to power the country's sustainable future," stated Battisti.

"As we forge ahead with our strategic vision for a sustainable future together, we remain dedicated to not only providing

innovative, clean energy solutions in South Africa, but also creating shared value for our partners, communities and clients while enabling progress with sustainable energy, environmentally, socially and financially".

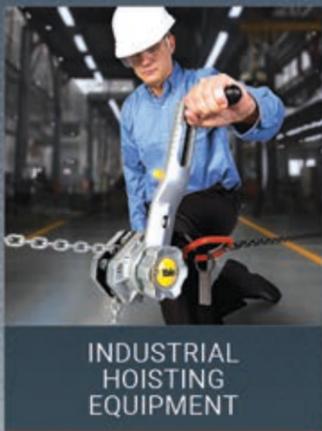
The new transmission lines from the wind farms will not only improve South Africa's grid capacity, but will also lean on Enel Green Power's commitment to creating shared value (CSV) in the communities in which it operates.

While coordinating with up to 60 different landowners within the vicinity of the projects presents its challenges, the social and economic benefits for local communities will be substantial. These include a series of community upliftment initiatives and job creation opportunities that will take place during the construction and operational phases.

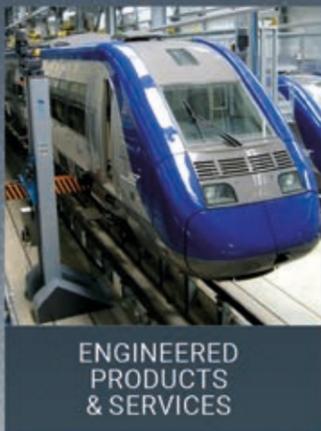


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## Kouga Municipality invests R10m in wastewater infrastructure

THE pipeline from the La-Mer sewer pump station in Diaz Road, Jeffreys Bay to the sewer pump station 4A in Koraal Street is set to undergo a significant multimillion-rand upgrade to enhance its operational efficiency and overall performance.

This will, furthermore, drastically reduce pipe breakages and sewer spillages.

Phase one of the project, which is budgeted at R9.7 million, is scheduled to commence at the end of March 2024 and is expected to be completed by the end of June 2024.

"The upgrade will involve the installation of a new 350mm diameter Class 12 uPVC sewer rising main," said Kouga executive mayor, Hattigh Bornman. "This sewer main will connect the La Mer pump station to pump station 4A – which will later be connected to pump station 4B, and ultimately to the Jeffreys Bay Waste Water Treatment Works.

"The 1 040m long pipeline — to run along Duine, Pell, Prospect, and Koraal Streets — will be laid within the left-hand edge of the roadway, necessitating the saw cutting and excavation of existing asphalt and layer works."

According to Bornman, approximately 10% of the project's scope will be allocated to local Small, Medium, and Micro Enterprises (SMMEs) to support the economy.

Upon completion of the pipeline installation, the road surfaces of Duine, Pell, and Prospect Streets will be resurfaced and marked accordingly.



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# Two major shopping malls in the EC sold in multi-billion rand property deal

**T**WO of the Eastern Cape's largest shopping centres - Baywest Mall in Nelson Mandela Bay and Hemingways Mall in Buffalo City have changed hands.

The iconic super-regional malls, which have been in business rescue since 2022, were sold to South African property company, Hangar 18, for R1.3-billion each in September 2023 and have now transferred to their new owners.

"We are very excited about the acquisition of Baywest and Hemingways and have enjoyed our interactions with our centre management teams, tenants and shoppers. First and foremost, we, as a business, look to form close working relationships with our tenants," said Hangar 18 co-founder and joint CEO Marc Edwards.

The 90,000 sqm Baywest Mall opened its doors in May 2015 and the 74,000 sqm Hemingways Mall opened in 2009. Both are firm favourites for shoppers living in and visiting

the two metros of the Eastern Cape.

"We are excited to take ownership of these landmark properties and look forward to bringing fresh new energy and ideas which we hope will translate into an enhanced customer experience. We have clear plans for each of the malls and look forward to rolling out our strategy with our shoppers, tenants, and staff. We are encouraged by the development of the residential node surrounding Baywest and believe that this will continue, bringing more shoppers to the mall. Hemingways is well established in its community, and we plan to enhance its look and feel over time," said Edwards.

The new owners have a long history in the property industry in both listed and unlisted properties in South Africa and abroad.

"We have excellent relationships with banks, capital providers, national tenants and listed real estate investment trusts. We will be using this network of contacts and the

company's expertise to manage the properties in a very hands-on way," said Edwards.

Hangar 18's shareholders include the Ubuntu Football Trust and Jade Capital Partners. The beneficiaries of the Ubuntu Football Trust are South African youth in their not-for-profit football academy.

"The team at Hangar 18, with the support of centre management staff, intends to be actively involved in the local community, including forming close relationships with local schools where the malls will become an integral part of the surrounding communities," said Edwards.

He stressed that the focus for now will be on "doing the basics right" and offering a shopping experience deserving of the local and visiting shopper at both Hemingways Mall and Baywest Mall.

The acquisition of the malls along with Hangar 18's acquisition (also out of business rescue) of the Gauteng-based malls - Forest Hill



Baywest Mall

City, Bloed Street Mall and Sunny Park Shopping Centre - saved more than 50 jobs, as well as hundreds more indirect jobs of the tenants and service providers who work at the malls.



## ERA Bill will remake the energy landscape in SA - Ramokgopa

**T**HE recent passing of the Electricity Regulation Amendment (ERA) Bill in the National Assembly is of "tectonic proportions" to South Africa's electricity sector, says Minister in the Presidency for Electricity, Dr Kgosientsho Ramokgopa (pictured).

"This is significant because it's beginning to reshape the South African energy landscape. One of the primary interventions that it introduces is making it easier to produce and sell electricity in South Africa.

"In order to do this, the bill establishes what it refers to as the Transmission System Operator,

which is managed by the National Transmission Company South Africa, wholly-owned by Eskom and by extension, wholly-owned by the South African public," Ramokgopa said on Monday.

He was addressing media on the implementation of the Energy Action Plan, which is aimed at stabilising power supply.

Ramokgopa explained that the ERA Bill opens up the market for more players in the electricity sector.

"It ensures that all electricity producers are treated equally and fairly, and are allowed access to the national grid on a non-discriminatory basis. It enables a market platform through which electricity can be bought and sold by multiple players.

"In addition to a non-discriminatory

approach, it democratises the space so that we are able to ensure that there are multiple sources that generate, there are multiple buyers and they are going to go through this platform to be able to procure that electricity," he said.

The minister said the benefits to the public and economy are numerous, with the country "moving away from a monopoly" on electricity.

An upside to the ERA Bill is the improvement in reliability of electricity supply and consumers will have more choice on who supplies their electricity.

"Whenever we announce the improvement in the stages of load-shedding, the improvement in supply, the focus is primarily on Eskom and a few of the renewable energy

players.

"With the introduction of the reforms... the more players we have on the map means that there is more generation capacity and it's able to stabilise the supply so there's increased reliability.

"The other upside is that it offers choice to consumers. They can choose [what they are getting from Eskom... from utility providers and multiple providers. We are introducing choice in how you are going to procure this new generation," he said.

Ramokgopa said this new path will also pave the way to increased investment and innovation.

"With this democratisation of the space or non-discriminatory nature that you can access the transmission

grid... it simply means that it is possible to have additional players on the generation side. The more additional players you have, the more you can increase investment in the energy generation space.

"It's also going to increase innovation and introduce efficiency. For you to survive... as a new source of energy, you have to come at a price point that is better than the existing players. For that to happen, it means that there has to be a drive in relation to the adoption of new technologies, there must be a degree of innovation.

"This is the remaking of the energy landscape in the country. It's of tectonic proportions and is something fundamentally profound that has been introduced," he said.

## Truck body builder looks to second half of the year for business improvement

**W**ITH the first six months of this year expected to be challenging for business in South Africa, truck body and trailer building company Serco is concentrating on optimising its vehicles for better payload, reduced running costs and improved durability.

All three areas offer cost savings which are so critical for transporters in today's tough market conditions, says Serco CEO, Clinton Holcroft.

"We are engaging with our customers to identify ways in which we can assist with cost savings and improved transport-orientated objectives.

"Over the last six months our focus has been on diversifying our product range to grow our dry freight offerings and we've seen positive growth there but the refrigerated trailer side is definitely feeling the pinch of the stagnant economy.

"I am relatively confident however that there will be an improvement in the second half of this year based on interactions with a number of perishable goods transporters."

Holcroft said Serco's business was down 18% for December 2023 to February this year compared to the same period in 2022/23, with the trend looking likely to continue into March. This drop largely reflected the lower than expected refrigerated trailer sales.

On the positive side, there had been a huge comparative increase in the number of quotes Serco had



been asked to generate in January this year compared to last year - more than double over the same period.

"Whether all that materialises into new business we don't know but it does bode well for the year ahead."

Holcroft agreed with the assessment that among the biggest factors restricting economic growth in South Africa were corruption, loadshedding, crime and weak leadership, which are contributing to excessive unemployment.

"Without doubt, there is an urgent need for an injection of government investment into infrastructure generally as well as into maintenance. We really need to see honest and competent people in government after the elections in May."

He said a key issue raised by clients was the need for their trucks and trailers to last longer. "With this

in mind we have worked with our technical team and key global suppliers to develop innovative solutions to improve durability and performance of our truck and trailer bodies," he said.

"This has included improving payload with the introduction of our Protec Lite trailer which is 700kg lighter than the standard offering, and the introduction last year of the premium panel technology Protec Plus refrigerated trailer - both are receiving positive feedback for durability and payload.

"With inquiries picking up, and our product offering broadening through innovation and diversification, we are geared to move into the second half of this year on the up and running," said Holcroft.

Serco's head office is in Durban, with branches in Johannesburg, Cape Town and Gqeberha.



## Vietnam market opens to SA oranges

**A** NEW bilateral protocol has been established, opening the Vietnamese market to South African oranges, the Department of Agriculture, Land Reform and Rural Development (DALRRD) and the Citrus Growers' Association of Southern Africa (CGA) announced. This is good news ahead of the 2024 citrus export season, which is due to start ramping up in April.

The opening of this market offers an export potential of 15,000 tons of oranges. This will translate into more job opportunities and revenue generation.

This historic protocol comes almost a decade after a change in Vietnamese import regulations necessitated a new protocol. DALRRD and the CGA have in that time worked together to make sure local citrus growers will benefit from increased market access. Their collaborative efforts were underpinned by extensive technical work provided by Citrus Research International, a subsidiary of the CGA.

Opening new export opportunities to drive export-led inclusive growth of the agricultural sector is part of

the department's strategy and commitment to support farmers. Minister Thoko Didiza reaffirmed this position in 2023 when she addressed the CGA's Citrus Summit, encouraging the industry players to work with the department to expedite greater market access for citrus in the East.

Phytosanitary necessities have since been agreed on by Vietnam and South Africa. A recent final adjustment was the removal of two pests from the official pest list. A new cold treatment protocol was set out in the phytosanitary import requirements document by the Plant Protection Department of the Ministry of Agriculture and Rural Development of Vietnam.

The opening of the Vietnam market is a major win for the citrus industry, especially considering that the South African citrus industry has the potential to increase its exports from 165 million to 260 million cartons (1 carton is equivalent to 15 kilograms) in the next eight years if all role-players work together as envisioned in the Agriculture and Agro-processing Master Plan (AAMP).

DALRRD and the CGA are grateful to the Ministry of Agriculture and Rural Development of Vietnam. A supply of our local oranges to Vietnam is in the interest of both the Vietnamese consumer and the South African citrus grower.

# Oil analysis laboratory reopened

**D**UE to an increase in demand, Hytec Fluid Technology (HFT) reopened its oil analysis laboratory in Kempton Park in January with a bolstered service offering.

The state-of-the-art laboratory caters to a range of industries where the reliability and performance of hydraulic fluids, glycols, and related substances are crucial for manufacturing and industrial facilities, power generation plants and chemical processing plants. To further enhance the laboratory's service offerings, it now features new technologies. These technologies include the CIX system, which assesses particle level contamination in hydraulic fluids, assisting clients in achieving industry-required ISO 4406 levels of cleanliness in their oil. Another

new technology includes the X-ray fluorescence (XRF) machine, which identifies various elements and provides detailed chemical breakdowns of materials.

"The reopening of the laboratory marks an impressive milestone for HFT and Bosch Rexroth Africa. It is equipped to assist clients in achieving optimal performance through advanced analysis techniques. The reopening reflects a continued commitment to resuming full-scale operations and contributes to meeting the industry's demands for analysis of hydraulic fluids," said Abigail Nel, laboratory analyst, HFT.

A sample bottle with a minimum volume of 100 ml is required for accurate analysis, testing, and reporting. This ensures that crucial

information is relayed to the client to protect their equipment, boosting production and profitability.

Services offered:

- ISO cleanliness analysis (CIX)
- XRF technology for elemental analysis
- Crackle tests
- Karl Fischer moisture content analysis
- Total Acid Number (TAN) analysis
- Wear metals analysis
- Viscosity measurement
- Refractometer for water to ethylene mix (Brix ratio)
- Membrane patch colourimetry tests for varnish potential analysis

HFT provides total fluid management solutions to the industrial and



mobile equipment markets, helping companies extend service intervals, maximise uptime and reduce the total cost of ownership of their hydraulic

machinery. Hytec Fluid Technology is a Bosch Rexroth Africa Group company.

## Sustainable product alternatives now verified

**R**S South Africa, a trading brand of RS Group plc, has announced its Better World Claims Based Framework, enabling customers to select verified sustainable product alternatives. This provides suppliers with a standardised framework to accelerate the development and manufacture of more sustainable and responsible products, providing a committed partner in RS.

As part of the new framework, the Group is extending its Better World product range by 10,000 products and 50 suppliers, increasing the total to c. 30,000 products from over 90 suppliers. More than 1,000 of the new products support energy and carbon reduction or renewable energy generation across customer facilities.

The company launched the Better World product range in March 2023 to enable the world's engineers, innovators and problem solvers to make more sustainable and responsible product choices where each product is supported by robust evidence and verifications.

It comes in response to an increasing need from customers within the process industry and manufacturing to purchase greener products that help improve operational efficiency and drive ambitious sustainability goals. The CIPS and RS Indirect Procurement Report 2024 showed 'sustainable and ethical procurement' as a top business pressure for UK procurement professionals, with 71% considering Environmental Social and Governance (ESG) as important when selecting products



or services and 80% saying they would pay a premium for sustainable products.

With customers finding sustainable purchasing confusing and limited, the new Better World product framework

was developed with and verified by external sustainability consultants. It ensures clear and robust categorisation of product sustainability claims, aligned to developing green claims legislation, including adhering to the industry-standard ISO 14021. The framework covers the key areas of the product lifecycle and claims are now classed into three main categories:

**Made more sustainably** – products produced using more sustainable materials or manufacturing processes.

**Sustainable solution** – products that help customers run their business more sustainably; from reducing energy and emissions to protecting health and safety.

**Supports circularity** – products with an increased lifespan, or that

can be reused, repaired or recycled to reduce waste.

Danny Hobson, head of product & supplier sustainability at RS Group says: "Our customers want to buy greener products to support their sustainability goals, but they find it difficult when there is such a limited selection. This framework has been developed to not only provide more simplicity and transparency for purchasing decisions, but also to ensure peace of mind that our green claims are genuine, comply with the latest regulatory guidelines and are backed by evidence. We have an important role to play across the value chain to encourage customers and suppliers to adopt greener choices, and the announcement ensures we are working collaboratively to design and build as sustainably as possible."

## Maximising the efficiency, longevity and safety of crushers with preventative maintenance

**T**HE optimal performance and longevity of critical equipment like jaw crushers and cone crushers, as well as the safety of personnel, often hinges on a crucial yet increasingly overlooked factor: preventative maintenance.

In today's tough economic climate, there is always a drive to reduce costs, but cutting back on preventative maintenance comes with a high price, including workers' safety, production and business losses, long-term reputational

damage, and secondary failures, cautions Stefan Bekker, aftermarket business line manager at Astec Industries' Johannesburg manufacturing facility. He says that his department has noticed an increase in breakdowns. "Preventative maintenance is designed to identify and address potential problems before they escalate into more significant issues. It enables parts requirements to be anticipated and planned for," Bekker stresses.

He says that maintenance practices will dictate equipment's performance and durability in the long term. Astec Industries' unrivalled "Rock To Road" range of equipment includes durable jaw and cone crushers that have made their mark in the most arduous operating conditions around the world. However, even durable equipment requires preventative maintenance. Neglecting it can lead to a cascade of adverse consequences. These include avoiding failure on cru-

cial components, leading to diminished productivity, higher operating costs and more frequent, expensive repairs.

Unforeseen breakdowns can result in costly downtime and disrupted project timelines. Neglecting routine or preventative maintenance may compromise equipment's structural integrity, which poses serious safety risks to personnel operating and working in proximity to the crushers.

Preventative maintenance can be split into three different categories: time-based, usage-based and condition-based maintenance. Time-based maintenance is scheduled at specific intervals, for example, every three months or annually. Usage-based maintenance is performed after a certain number of operating hours or tons produced.

Condition-based maintenance is triggered by the actual condition of the equipment, as assessed through monitoring or inspections, including



technical assessments offered by Astec Industries.

Preventative maintenance requirements will vary from one type of equipment to another and are mostly based on the material specification of the product being processed. Bekker says that with Astec jaw crushers and cone crushers being utilised in various applications from aggregate to chrome slag, the replacement of wear components could differ from annually to weekly. "With more abrasive materials, more frequent assessments and interventions are needed due to the short period of time needed to critically damage equipment."

Planning, including aligning parts availability for maintenance days, is crucial when it comes to preventative maintenance, Bekker contends.

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## Hired compressors provide an emergency solution

**W**EDNESDAY 24 January 2024 was a usual busy day at Rand Air with machine hires going in and out of the yard in Jet Park, Johannesburg, when a frantic call came in from a prominent platinum mine near Rustenburg in the North West Province, urgently requesting 12,000cfm (cubic feet per minute) of compressed air to keep their underground mining operations going.

The mine, which shares a proud long-standing business relationship with Rand Air, had experienced a breakdown of its air compressor, subsequently halting production. The compressor supplies critical air to power pneumatic equipment underground.

Understanding that every hour of downtime incurs significant losses for the mine, the proficient Rand Air team, coordinated by Yolande Schmidt, internal sales, immediately

flew into action. Sixteen high pressure oil-injected diesel compressors of varying sizes allocated to the project were inspected by the service team and transported to site where they were connected to the mine's main air supply line by a Rand Air service technician. Within 24 hours the units were fully operational, constricting the amount of downtime.

Tshepo Mashaba, external sales at Rand Air, points out that the air has to travel a great distance from the surface to reach the underground equipment so it is absolutely critical to correctly spec the compressors to eliminate potential pressure drops and loss in airflow. "Hence we provided a combination of 800cfm, 1,000cfm and 1,200cfm machines to meet these requirements. Our service technician also visited the mine site daily to ensure that all sixteen compressors were running smoothly."

Four days later, having suffered yet another breakdown, the mine reached out to Rand Air, requesting a further 14,000 cfm in order to maintain production.

"Undeterred by the fact that it was a Sunday, the well-oiled Rand Air team did not miss a beat," says Schmidt. "It so happened that we had just recently received a consignment of brand new PTS916 air compressors. We got nine of these fresh-off-the-container 1600cfm units to site and operational for our mine customer within a 24-hour turnaround time. Furthermore, our team educated customers on correct machine operation to boost uptime."

The 25 hire compressors operated seamlessly on the mine site for 17 days with only one unit requiring some attention from Rand Air's technician who was stationed nearby for the full duration of the hire.

# Modular substations power SA's data centre boom

**D**ATA centres are experiencing significant growth in South Africa as the digital revolution continues to gain momentum. To keep up with demand, these facilities must have the flexibility to expand rapidly when needed, as must the substations that provide them with power.

David Claassen, managing director of Trafo Power Solutions, says that modular substations have emerged as a perfect solution for accommodating the expansion of data centres over time. "Typically, data centres start with large structures that are only partially equipped with servers and related equipment, usually about 30% to 40%. The strategy is often to set up a cost-effective facility to serve the initial customer base and expand the infrastructure as this base grows," he says.

"Modular substations offer the advantage of scalability, allowing data centres to start with the required number of substations and add

more as demand increases."

Data centres operate around the clock, demanding reliable and uninterrupted power. They employ backup systems like diesel generators and uninterruptible power supplies (UPS) to ensure continuous operation. These backup systems can also be scaled up by adding additional units as needed.

Claassen says speed is of the essence in planning, constructing and expanding data centres since earlier operation means quicker revenue generation. "Modular substations are the preferred choice due to their quick design and construction capabilities, with the repetitive nature of manufacturing facilitating rapid production, and economies of scale in material requirements."

Dry-type transformers and medium voltage switchgear are typically provided in data centre substation solutions provided by Trafo Power Solutions. These units step down incoming

medium voltage power for low voltage servers and ancillary equipment on racks with the substations designed to seamlessly interface with other aspects of the data centre including low voltage distribution, medium voltage switchgear, UPS systems, and the overall control and monitoring system.

Efficiency is crucial for data centre success, as these facilities consume substantial electrical power. Trafo Power Solutions contributes to efficiency by designing and manufacturing energy-efficient dry-type transformers with some of the lowest losses globally. These air-cooled transformers require minimal maintenance compared to conventional oil-filled transformers, reducing operational costs and minimising downtime.

Trafo Power Solutions has been involved in various data centre projects, ranging from 1 MW to 60 MW, supplying up to 20 modules for each project. It has also been involved in a



data centre project in the Netherlands, where it is supplying three 22,5 MVA, 50 kV/13.8 kV dry-type transformers being used in the intake substation, demonstrating the company's expertise in delivering customised solutions to meet unique project requirements.

# Genuine parts are better in the long run

**I**N the debate around whether to fit original equipment manufacturer parts or generic non-genuine parts to your material handling equipment, CFAO Equipment SA asserts that using anything other than approved genuine parts is pricier in the long run. Using non-genuine parts may have repercussions on company performance and productivity in the long term.

National parts manager of Toyota Material Handling division under CFAO Equipment SA, Sara Scherl says: "Original equipment manufactured parts are of the highest quality that companies can purchase for their equipment. They are designed to increase the operational

life of equipment, quite simply because the replacement part is designed exactly the same as the original."

Genuine parts are commissioned by manufacturers and made to their original specifications by a third party. Non-genuine parts are manufactured as close to the original specifications as possible, but cannot match genuine parts for quality, strength or durability.



The inferiority of their performance is often due to the use of lower-quality materials, as manufacturers try to reduce costs, affecting both the safety and operation of equipment. Non-genuine parts will also wear faster, resulting in the need for repeat repairs sooner than expected, adding further downtime and additional labour costs.

"Fitting equipment with non-genuine parts can impair a machine's capacity to perform optimally," says Scherl.

Scherl also states that genuine parts are backed by a manufacturer warranty but warns that any genuine part failure as a result of mixing and matching with non-genuine parts can result in the cancellation of this warranty.

"Sourcing genuine parts through the Toyota Material Handling division under CFAO Equipment SA – which is recognised as the partner of choice in the material handling market – is seamless and will also safeguard the manufacturer warranties on equipment. Our wide range and stock availability of genuine parts for all models make it easy to find the right part for any piece of equipment," says Scherl.

# Company builds on solving conveyor belt misalignment

**W**ITH belt misalignment remaining the biggest headache for conveyor system operators across a variety of bulk material handling industries, Tru-Trac has evolved from this valuable niche into a full-service conveyor solutions business.

Having patented and commercialised its belt tracker back in 1996, Tru-Trac has leveraged its engineering expertise and market knowledge into a comprehensive range of conveyor solutions – with a global sales and installation network. There remains, however, a 'magic' at the core of the business which continues to surprise and delight customers: the company's deep understanding and expertise in belt misalignment solutions - belt trackers.

Shaun Blumberg, COO of Tru-Trac Rollers, highlights the serious disruption that belt misalignment on a conveyor can cause. The impact includes spillage, belt edge damage, structural harm, increased power consumption and increased labour costs. Ultimately, this leads to lost production, higher operating costs and even safety hazards.

From its world-class local manufacturing base in South Africa, Tru-Trac has grown to serve markets nationwide and abroad – including some of the most sizeable equipment in operation. One of the world's largest stacker reclaimers, which serves the coal sec-



Tru-Trac has evolved into a full-service conveyor solutions business, and the company offers valuable support to customers

tor in Germany, also experienced a Tru-Trac moment, according to Jonathan Rogoff, CEO of Tru-Trac.

"They were having significant challenges with belt misalignment – and told us they never had a belt tracker last more than a week," explains Rogoff. "When we presented our proposed solution, they were sceptical – thinking we were either over-confident or naive."

Leveraging decades of application data and

its in-house engineering expertise, Tru-Trac enhanced its heavy-duty dual-return tracker into an extra heavy-duty (EXHD) model specifically tailored for this customer's needs.

"This was a demanding application with the 2,300 mm wide belt running at 9,6 metres per second – close to the speed of some of the fastest belts in the world," he says. "A year later, our product was still working well, leading the customer to standardise on this Tru-Trac solution."

Closer to home, a mining company in Rustenburg recently had their production halted for two days after successive failures of numerous belt tracking products. After a site visit to assess the situation, Tru-Trac returned the following day with two of its belt trackers – to replace the five installed competitor products.

"Within 20 seconds, the belt centralised and the problem was solved," says Rogoff. "Initially, our customer could not believe what he was seeing and was convinced the old problem would return when material was loaded. However, the belt remained true under full load, as we had predicted."

Blumberg points out that there has been significant growth in the business over recent years, and the company has expanded its local manufacturing to punch above its weight on

the global stage. In fact, within the industry, the brand has become synonymous with its product, to the extent that professionals often refer to any conveyor belt trackers as 'Tru-Trackers'.

After the worldwide success of its tracking solutions, it made sense to leverage its trusted brand and expertise by diversifying into complementary conveyor solutions. Through its existing partnerships with international conveyor distributors, Tru-Trac began importing well recognised brands to augment its range. This includes belt scrapers and skirting rubbers as well as impact beds.

"This led to us building our own service teams to provide installation and maintenance support for customers, as we were now dealing with equipment that needed servicing," says Rogoff. "The beauty of our belt trackers is that they are essentially 'fit and forget' solutions that need very little attention during their lifecycle."

Today, there are about 50 Tru-Trac service teams working across South Africa and into the rest of Africa, to support customers. With this growth came an expansion of in-house sales teams, who work from branches in the main mining regions in South Africa and Africa.

"This gave us more control over our own destiny allowing us to develop skilled customer-centric teams," he says.

# Eco-friendly transformers offer new standards for energy efficiency and environmental sustainability

**L**EGRAND keeps abreast with constantly changing global demand in electrical and digital building infrastructures through the ongoing development of new products and systems that encompass the latest technology and advanced materials.

The company has developed a range of environmentally-friendly cast resin transformers – the Legrand 50 Hz GreenT series – that leads the way in reliability, energy efficiency and environmental responsibility during energy distribution.

Legrand GreenT cast resin transformers - which efficiently transfer electrical power between two different voltage systems, at the same frequency – have significant advantages over other units on the market. Benefits include a reduction in

energy consumption, minimal energy waste and improved safety, as well as lower CO2 emissions and greater economic savings.

GreenT cast resin transformers comply with stringent quality, safety and environmental specifications, including the IEC 60076-11:2018 standard. This classification is based on no-load loss (PO) and load loss (Pk) with an average reduction in losses of 15% compared with previous Legrand ranges. The average load factor for this range is considered 30% for continuous use.

These eco-friendly transformers



have a partial discharge value <math>< 5 \text{ pC}</math> that is significantly lower than 10 pC, which is the maximum value indicated by the product Standard IEC 60076-11:2018. This translates to higher efficiencies, greater resistance to work stresses and extended service life of the system.

The 60076-11:2018 standard also endorses these transformers for safe usage, storage and transportation in extreme environmental conditions. GreenT transformers, which incorporate the use of high-quality epoxy resins, comply with environ-

mental class E3, climate class C2 and fire behaviour class F1 categories. These units operate safely at ambient room temperature between -25 and +40°C and can withstand a maximum relative humidity level of 95%.

Standard configuration GreenT transformers offer seismic resistance up to 0.2g, with the ability to be fixed to the ground to prevent overturning.

GreenT transformers incorporate advanced technologies and the latest technologies in the design to guarantee high-performance, easy installation and low maintenance requirements. Notable features of the magnetic core include HV (high voltage) and LV (low voltage) terminals, that have been modified to facilitate easy connection. The height of the LV terminals has been

reduced for easier positioning of the connections for installers, while HV windings have BIL LIST 2 reinforced insulation in critical points of the unit for enhanced safety.

Legrand offers customised solutions based on specific requirements. As such, GreenT transformers are available with the enclosure either mounted or dismantled, to be assembled on-site. There are nine enclosure sizes in this range, with the selection of two types of ventilation grills for each.

Typical installations for GreenT transformers include data centres, shopping malls, hospitals and residential buildings. CRTs are also suitable for photovoltaic (PV) installations and wind power, as well as offshore applications, the railways, shipping and airport facilities.

# Premium brand boosts industrial solutions

THE strategic alliance between Bearings International (BI) and I-MAK initiated in February 2019 signalled a new chapter in BI's mission to augment its selection of premium brand offerings in a bid to deliver top-tier strategic solutions to Africa's sub-Saharan region.

Robert Sillis, general manager, BI Product Management, says: "Our partnership with I-MAK presents the cornerstone of BI's strategy to provide high-quality, reliable solutions tailored to meet the diverse needs of a raft of industrial applications. All the products have a very high South African added value which, coupled with I-MAK's dedication to innovation, quality and precision, aligns perfectly with our mission to enhance production uptime and efficiency, delivering our value proposition of keeping customers 'in motion'."

Kobus Groenewald, business unit leader Industrial Geared Units at BI, unpacks the unparalleled advantages that the I-MAK range offers customers. "These are world-class quality, affordable, two-year-warrant-

ty products that are backed by specialist local and international support."

I-MAK boasts a solid footprint in sub-Saharan Africa through its partnership with BI, alongside extensive leading brand presence on the rest of the continent, up to North Africa. This expansive reach is testament to I-MAK's well-established reputation and extensive experience spanning over 50 years.

The I-MAK product portfolio focuses on essentially all industrial segments, with utilities, automotive and sugar identified as key sectors while particular emphasis is placed on manufacturing, mining, FMCG (Fast-Moving Consumer Goods) and water treatment due to their high growth potential.

I-MAK's products, which are available exclusively for the sub-Saharan region via BI, are comprehensive and include a wide range of gearboxes and drive solutions designed to address the most pressing challenges currently faced by the gearbox market that are driving the need for



better technologies, higher efficiencies and ultra-durability to maximise uptime and optimise operations.

From planetary, worm and aerator Units to flagship products – inline helical, parallel shaft, helical bevel and monoblock IGU, I-MAK provides over one million product references, ensuring a solution for every specific industrial need.

Supporting the extensive I-MAK product range is BI's exceptional customer service, which includes 24-hour breakdown support, a fully equipped factory and engineering

facility fit for all customer- and application-specific design alterations and additions to standard equipment. This is all supported by national coverage through the organisation's 42 branches, essentially providing customers with access to immediate and effective support whenever and wherever they need it.

"I-MAK is also doing its part by focusing on establishing a close partnership with local companies to support their growth and engineering development," adds Groenewald. "Because I-MAK listens to the customers' requirements, they are able to provide bespoke solutions outside their standard range of products."

I-MAK differentiates itself by not just meeting but exceeding market expectations for technology, efficiency, and durability through constantly improving its facilities, widening its network, and upgrading its equipment to align its product and services with dynamic market expectations. In Q4 2023, I-MAK further solidified

its commitment to the South African market with the deployment of a countrywide roadshow to showcase and unveil its cutting-edge products across BI's extensive local branch network.

This initiative, which was hosted at various BI branches, also served to strengthen BI's market presence and equipped sellers with the knowledge and tools needed to effectively present I-MAK's value proposition to customers. "This was an outstanding demonstration of our shared dedication to providing bespoke solutions and enhancing production uptime," notes Sillis.

Through the strategic partnership with I-MAK and initiatives like the countrywide roadshow, Bearings International continues to lead the way in offering premium, innovative solutions that meet the evolving needs of the industrial sector across sub-Saharan Africa. The shared synergies between BI and I-MAK make this a win-win partnership that emphasises BI's dedication to expanding its portfolio.

## Synthetic lubricants well-suited to HVAC applications

A RANGE of synthetic lubricants for use in Heating, Ventilation, and Air Conditioning (HVAC) systems is available from global lubricant manufacturer Fuchs. Its Reniso product range includes synthetic lubricants based on polyol esters (POE), polyalphaolefin (PAO), alkyl benzenes (AB) and polyalkylene glycols (PAG), as well as selected mineral oils with outstanding low-temperature properties.

There is always a suitable Reniso refrigeration oil in the Fuchs portfolio, both for conventional hydrofluorocarbons (HFCs) such as R134a, R410A or R407C, and natural refrigerants such as NH<sub>3</sub>, CO<sub>2</sub> or hydrocarbons. In addition, there are developments of new hydrofluoroolefin (HFO) refrigerants such as R1234ze and R1234yf. "Their mixtures are



currently tested in our development laboratories," says Ashleigh Pollen, industrial and speciality manager, Fuchs Lubricants South Africa.

At Fuchs, comprehensive stability tests are performed with the sealed tube apparatus in special

laboratory equipment. Miscibility and solubility tests of refrigeration oils with several refrigerants are performed in refrigerant atmosphere. The very latest laboratory technology together with specially constructed test rigs allow wear protection trials to be performed on refrigeration oil and refrigerant mixtures.

Long-term trials of hermetically sealed compressors in gas circuits can also be performed on Fuchs' test rigs. The thermal and chemical stability of refrigerant-oil mixtures can be evaluated in special high-pressure autoclaves. These Fuchs in-house laboratory test rigs guarantee excep-

tional expertise. Specific customer setups can be examined, and suitable lubricants can be selected and improved continuously.

Due to the new challenges for refrigeration oils presented by the European F-gases regulation (EU no. 517/2014), a reliable and innovative manufacturer of lubricants like Fuchs becomes a more and more important partner in refrigeration technology.

"The use of synthetic lubricants in HVAC systems can provide several benefits," comments Pollen. Synthetic lubricants typically have better thermal stability compared to conventional mineral oils. This allows them to withstand higher operating temperatures without breaking down, ensuring consistent performance in HVAC systems.

The superior lubricating proper-

ties of synthetic oils can reduce friction and wear in HVAC components. This, in turn, contributes to improved system efficiency by minimising energy losses associated with friction. The excellent oxidative and thermal stability of synthetic lubricants can contribute to longer equipment life. Reduced wear and lower maintenance requirements can lead to increased reliability and longevity of HVAC components.

Synthetic lubricants often have lower pour points and better flow characteristics at low temperatures compared to mineral oils. This can be particularly beneficial in HVAC systems operating in cold climates, as it helps maintain proper lubrication even in freezing conditions.

Synthetic lubricants are less prone to oxidation and degradation over time.

## Natural aggregate ensures energy efficiency and sustainability

PRATLIPERL has been developed by Pratley to promote sustainability in the construction industry. "We have always been committed to sustainability and energy efficiency, especially in terms of infrastructure development and energy savings," says Pratley marketing director Eldon Kruger.

Pratliperl is a naturally occurring mineral aggregate for plaster and screeds that can assist contractors and developers with meeting standards such as SANS 204, which specifies the design requirements for energy efficiency in buildings. The product is a perlite-based, lightweight, thermally insulating, and fire-proof cement aggregate used instead of ordinary building sand.

Unlike ordinary perlites that are brittle and friable, Pratliperl has a stronger surface structure and can be used in conjunction with cement. "The end result is a unique, eco-friendly, and lightweight building material that is both fireproof and thermally insulating," notes Kruger. A major benefit is a reduced requirement for air-conditioning, as structures can be kept naturally cool in summer and warm in winter.

Applications for Pratliperl range from plaster (internal and external thermal insulation) to lightweight floors for high-rise buildings, roof decks, fire barriers, precast mouldings, fireproofing for tunnels in mines, screeds, bathtubs, under-floor heating, tile adhesive filler, bricks and boards, pizza ovens, cryogenic tanks, loose fill, a paint texturing agent,

aggregate for refractory cement and as an insulating surface for molten metal.

A mere 16 mm of Pratliperl plaster on each side of a wall provides the same thermal insulation as a double-brick (220-mm-thick) wall, essentially meaning that the wall's thermal insulation is doubled. "This incredible insulation value translates into significant energy and cost savings in support of sustainability," says Kruger.

He concludes: "We at Pratley encourage energy efficiency and sustainability to protect our only home. The use of a product such as Pratliperl is the ideal simple step to reduce costs, save energy and ultimately unify our collective commitment to help protect the planet."



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# No lubrication plastic bearings for earthmoving machines



igus South Africa managing director, Ian Hewat

**I**NJECTION-MOULDED plain bearings have been developed for earthmoving machines for lubrication-free operation even while working at maximum load capacity performance.

Produced by global polymer specialist, igus, the new bearings are a stronger and more cost-effective alternative to steel bearings for the agricultural and construction machinery industry. Using its patented iglidur materials, the Q3E plain bearing, the company has for the first time managed to manufacture heavy-duty bearings made of two layers of high-performance plastic using a cost-

effective injection-moulding process.

If an excavator moves hundreds of kilograms of sand, enormous loads act on the bucket's bearing points. So far, igus has primarily used igutex-series plain bearings to handle this. The bearings are made of different materials and manufactured in a winding process. Integrated solid lubricants ensure low-friction dry operation. The outer layer provides enormous strength.

"We have now succeeded in implementing a multi-layer structure using the injection-moulding process, that is both stronger and more cost effective than alternatives," says

igus South Africa managing director, Ian Hewat. The result was the iglidur Q3E series. "The new technology enables us to mass-produce multi-component heavy-duty bearings using very cost-effective injection moulding."

Igus bearing specialist, Juan-Eric Davidtz says The new iglidur Q3E series is the result of intensive cooperation between igus material development and the specialists from igus' in-house tool making. While developing iglidur Q3E, our goal was to implement a multi-part structure similar to the igutex series with iglidur Q3 high-performance plastic for

a tribologically optimised core and a strongly reinforced polymer for a mechanically high-strength shell."

Heavy-duty applications normally require bearings made of metal or fibre composite bushings, for example in construction and agricultural machinery. To reduce costs, the plain bearings made of iglidur Q3E are used as their maximum dynamic surface pressure is 75MPa. This means that it can cover many heavy-duty applications. The decisive advantage is that the plain bearings require no lubricating grease. Microscopic solid lubricants are integrated into the polymer of the inner layer and

released gradually over the bearing's service life.

"Construction and agricultural machinery maintenance are two areas where lubricating the bearing points is one of the most time-consuming tasks," says Davidtz. "By switching to iglidur Q3E or igutex, users can reduce maintenance costs and extend machine service life. Neglecting lubrication for classic metal bearings is a frequent cause of expensive damage to shafts and plain bearings."

## Innovation benefits tractor tyre garage equipment

**C**USTOM-MADE wear-resistant low-friction Vesconite bearings and wear pads are being trialled on a BEISS tyre stripper machine by a company in the thriving tractor-tyre-changing industry.

The trial, conducted in Bultfontein, South Africa, at a company that specialises in tractor-tyre stripping and replacement, aims to prove the efficiency and durability of Vesconite in tractor tyre maintenance.

The wear pads, produced by Vesconite Bearings, were strategically installed on the slides of the hydraulic sled carriage, a crucial component of the tyre stripper machine. This carriage, carrying essential tools for tyre removal and replacement, moves repeatedly during tyre mounting and dismantling operations. Vesconite's wear-resistant properties are expected to mitigate excessive wear, ensuring smooth and reliable performance over extended periods.

Furthermore, Vesconite bearings have been deployed as rollers beneath the table used for positioning tractor tyres during maintenance procedures. The constant back-and-forth motion of this table often leads to wear on conventional components. By introducing Vesconite products, the company anticipates an increase in durability and longevity, providing a reliable solution for garage equipment used on large tractor tyres.

The Vesconite solutions were installed in January 2024, replacing conventional nylon wear pads and bearings that had worn out over



three years. The client, introduced to Vesconite through positive word-of-mouth feedback, will provide information on the performance of the Vesconite components on the BEISS machine, which is exposed to the rigours of cumbersome tractor tyres.

Should the Vesconite bearings and wear pads outperform the traditional nylon products, Vesconite Bearings plans to expand its offerings to other tyre stripping operations specialising in tractors. This move aligns with the increasing demand for durable and efficient solutions in the agricultural sector, which is driven by a growing global population's need for food, the rise in mechanisation in agriculture, and, in some cases, supportive government policies and subsidies promoting agricultural equipment purchases.

Vesconite Bearings remains dedicated to advancing innovation in the agricultural industry and the equipment that supports the farming sector.

## Sustainable demolition practices must include glass recycling

**A**S global construction and demolition (C&D) waste surpasses 25% of total waste production, the imperative for sustainable practices intensifies. Recent research underscores the pivotal role of glass recycling in demolitions, shedding light on its substantial contributions to sustainability and the evolution of circular construction.

Kate Bester, contracts and project manager at Jet Demolition, emphasises the significance of a carefully engineered approach in large-scale, technically challenging projects, dispelling the misconception of demolition as merely 'reverse construction'.

In C&D waste, recycling emerges as a potent mitigation measure to curtail landslides, lower energy consumption, offset construction industry greenhouse gas emissions, recover valuable materials, create jobs, and preserve natural resources.

Bester underscores the critical role of glass recycling during demolition, highlighting its status as an endlessly recyclable material that, despite its unique resource conservation potential, often ends up in South African landfills or as aggregate.



Efforts to achieve a 50% glass-recycling rate in the United States could divert millions of tons of material from landfills annually, significantly reducing greenhouse gas emissions. Moreover, glass recycling holds the promise of mitigating emissions from glass manufacturing, a sector responsible for at least 86 million tonnes of carbon dioxide yearly.

Bester acknowledges the challenges facing glass recycling, including safety hazards, transportation costs, and the rise of alternative materials, but underscores its con-

tinuing role in circular construction.

However, recycled glass remains a key player in circular construction. The architectural glass industry showcases the potential for a scalable circular economy by developing fire-safe building claddings using recycled glass.

This cladding offers a cost-effective, structurally robust, fire-resistant solution that can be easily recycled upon demolition, demonstrating a circular economy solution to address a significant waste stream.

The standard glass recycling process in construction and industrial sites comprises four main steps: dismantling, collection, segregation, and treatment. These steps ensure the safe and practical removal of glass from structures, subsequent collection, segregation from other materials, and treatment to remove pollutants, making the glass ready for recycling.

Bester concludes: "Recycling glass in construction is an environmentally beneficial and crucial consideration for any demolition or refurbishment project."

## Citrus exports look to grow

**T**HE 2024 citrus export season will begin in earnest in April In the build-up to the export season, the variety focus groups of the Citrus Growers' Association of Southern Africa (CGA) presented their predicted export volumes for the upcoming season at the Citrus Marketing Forum held last week.

According to CGA CEO, Justin Chadwick, overall, an increase in export volume is expected. This is a testament to the resilience of South African citrus growers, producing more citrus under challenging circumstances, such as steep increases in input costs, loadshedding and deteriorating public infrastructure. This increase is also a result of younger trees coming into production across a number of regions.

The following estimates have been provided for the 2024 season:

- The current prediction is that 37.9 million (15kg) cartons of lemons will be exported to key markets, which is an increase of 7% over last year.
- Figures for oranges are also

expected to be up. Predictions show a 4% increase in export volume for Navel oranges, with 25.6 million (15kg) cartons expected to be packed.

- Grapefruit exports are also predicted to increase back up to the long-term average. The 14% growth figure translates into 16.7 million (15kg) cartons.
- The Satsuma season is likely to close around the 1.7 million mark (up 16%), while Clementines and Novas are expected to reach 5.4 million (up 8%) and 4.5 million (up 8%), respectively.

Chadwick said he quality of the fruit for 2024 looks to be excellent and timing for harvesting is expected to be typical. Recent dry conditions in the northern growing regions could mean that fruit sizes might be somewhat smaller than in 2023, but late rains could change this. Meetings with a variety focus groups are held regularly to track estimates and any final data on fruit sizes will be communicated when available.

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# East London dealership scoops prestigious overall DOTY award

**D**AIMLER Truck Southern Africa hosted its Dealer of the Year awards, to recognise dealers and general distributors for their 2023 performance. The theme for the awards evening was Fortune Favours the Brave, to commend dealers and general distributors for demonstrating bravery and emerging victorious in 2023. As a result, Mercedes-Benz Trucks maintained its market leadership position in the Extra Heavy Commercial Vehicle segment, while sustained growth was recorded for FUSO Trucks, Mercedes-Benz Buses, TruckStore and Daimler Truck Financial Services.

Twelve awards across seven award categories were handed out at the exclusive gala dinner, with the most sought-after award of the evening, the 2023 Overall Dealer of the Year

award being won by Ronnies Commercial Vehicles East London.

In addition and for the first time, Ronnies Motors Commercial Vehicles, being the 2023 Overall Dealer Of The Year, is also recognised as the Daimler Truck Overseas (DTO) EliteClass winner for Southern Africa and will represent our region at the Global EliteClub Awards in Germany, later in 2024. The DTO EliteClub global partner recognition programme aims to appreciate and award the highest performance across the entire DTO network, including regional centres: Australia, Central Africa, Latina, Middle East & Africa, Southern Africa and East Asia, for being one of the pillars for sustainable success.

"A massive congratulations to Ronnies

Commercial Vehicles East London and its entire team for walking away with the most prestigious award of the evening: Overall 2023 Dealer of the Year and for being Southern Africa's first DTO EliteClass winner. Your commitment to excellence did not go unnoticed and fortune favoured the bravery, resilience, and determination you displayed in 2023. Congratulations to all other nominees and winners, collectively we set the benchmark for the local commercial vehicle industry, said Michael Dietz, president and group CEO Daimler Truck Southern Africa.

Mike Honiball, CEO for Daimler Truck Financial Services adds: "Daimler Truck Financial Services continues to flourish and grow, it is thanks to the support from our



From left, Andre Botha, Russell Grigg, Jonathan Cotterell

network. Well done to all the winners and especially Ronnie's Motors for this colossal achievement."

## EL learner jets off to Beijing science competition

**C**UTTING-EDGE research projects by local young scientists will compete against other high-tech studies at this year's Beijing Youth Science Creation Competition (BYSCC) in China, under the theme "Discovery, Innovation and Responsibility".

The four young scientists, who will be accompanied by Dr Sure Mupenzi, Eskom Expo provincial coordinator for Limpopo, won their place to represent South Africa at the Beijing competition from 28 March to 1 April, after being nominated by a panel of academics and professionals at the Eskom Expo for Young Scientists International Science Fair (ISF) in October 2023.

Kiyara Tami Swartbooi (pictured), a Grade 12 Port Rex Technical High School learner in East London and Eskom Expo ISF Silver medal recipient in 2023, will present her research project, "Thermal Faucet: A Smart Water Management System". Swartbooi's



smart faucet (tap) prototype addressed two critical global issues: water and energy conservation. Her innovation is a significant advancement where smart home technology embraces energy and water conservation to produce an intelligent, intuitive, efficient,

and cost-effective solution. Her mastery of technical terms and engineering processes set her apart from her peers.

Nyakallo Nonjabulo Mbongo, a Grade 11 Welkom-Gimnasium learner and Eskom Expo ISF Gold medal recipient in 2023, will showcase her research project, "Soil restoration, Inoculated biochar?" Mbongo was moved by how soil degradation threatens crop productivity and food security on a global scale. To improve soil quality, she explored various biochar inoculations and performed several precise experimental trials to arrive at her conclusion. The significance of her findings is that small-scale farmers and gardeners can improve the quality of their crop yield by using a cost-effective, simple, and readily available inoculated biochar.

Grade 12 learners, Steffan Thielen and Rohan van Loggerenberg from Paul Roos Gymnasium in Stellenbosch, will showcase their research project, "Optimisation of Artificial

Neural Network training". The Eskom Expo ISF Gold medal recipients in 2023 asked, "How can the architecture of an Artificial Neural Network (ANN) be optimised through the use of a dynamic network architecture?" Specifically, they aimed to develop a system in which the architecture of an ANN dynamically adapts itself so that it efficiently fits the purpose during training. The learners demonstrated an in-depth understanding of Artificial Neural Networks and AI in general, and were able to articulate how current findings in these fields related to their research.

The acting chief executive officer of the Eskom Development Foundation, Mologadi Motshela, said: "Participating in the Eskom Expo offers young scientists valuable opportunities to nurture their creativity, enhance problem-solving abilities, and refine research skills, while devising innovative solutions to everyday challenges."



Craig Sheppard of ELB Equipment with an Ammann AV70X tandem roller

**S**OUTH Africa's largest multi-franchise equipment supplier ELB Equipment, has moved speedily to supply machines needed to uplift the country's road infrastructure as much anticipated funds are released by government to complete a plethora of projects. At the forefront of its offering are the pav-

## Paving trains accelerate road construction

ers, compactors and rollers from global leader Ammann, which are used together in combination as hyper-efficient paving trains to surface, compact and finish roads to exact specifications using the latest technology in road construction. The Ammann paving trains can cut road construction times considerably and are able to provide higher quality surfaces than traditional methods.

ELB Equipment's road and compaction equipment specialist, Craig Shappard, says that the company works with the country's leading road construction contractors and is ready to supply paving trains and other road construction equipment as the contracts are awarded.

"A typical Ammann configuration consists of a AFW700-3 paver, AV70X tandem roller and AP240 pneumatic roller working in tandem. With a paving speed of up to 30m per minute, it is clear to see why this paver leads the paving train lineup. In addition, it is able to pave extra wide sections with up to three metre width and deep runs of up to 300mm deep.

It also allows either electric or gas heating of the screeds depending on the requirements.

"With its advanced Pavemanager 2.0 control automated paving system the paver is able to constantly monitor the process and provides feedback to operators. It also controls many key functions for precise results. Some other features include:

- CAN-based control system
- Connected both to the main operator control and to the screed remote control panels
- Full overview of the complete paving process
- Automatic programming of slope and/or crowning
- Constant operator feedback
- Saves and loads paving parameters for each layer (memory function)
- Automatic levelling system
- Offers colour displays and intuitive menus and functions on both, the main dashboard and the remote controls

Similarly, the screeds provide infinite settings with concentric flexilevers for rapid and

automatic changes in the angle of attack. Efficient side shield controls can be operated from behind the screed with a single crank for safety purposes.

High compaction screeds for thick layers and roller compacted concrete can also be used. The powerful machines are available in either 4- or 6-wheel drive depending on traction requirements.

In the most common configuration of the paving train, the paver is followed by an Ammann AV70X articulated tandem roller. This combines drum dimensions, frequencies and amplitudes to deliver optimum compaction results. The roller has two frames connected by an oscillating joint that enables crab steering on each side. The crab steering provides increased compaction output and responsiveness, which is crucial on any job site.

A unique propulsion system drives the roller and the powertrain is situated in the rear frame with independent pumps for drive and vibration which provides optimal traction and compaction force.

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