MechChem AFRICA
JUL-AUG 2025
CROWN PUBLICATIONS

SEW EURODRIVE

Massively upscales after-sales service

This month:

Commercial Banking

Choose the partner who powers industry growth.

Behind every thriving industry is a financial partner that seeks to catalyse growth. Nedbank Manufacturing thinks ahead and goes beyond providing financing for fluctuating commodity prices, economic downturns and increased global competition. Long-term success requires a partner who prioritises connection, strategic partnerships and tailored solutions designed for progress and empowerment.

Our in-depth industry insights and enterprise-wide solutions ensure that you are not just prepared for the future but positioned to shape it.

Think bigger.
Think Nedbank Commercial Banking.

For more information about our services, email us at manufacturing@nedbank.co.za.

see money differently


NEDBANK

Helping our customers deliver the metals and minerals essential for a sustainable future.

Weir is a global leader in mining technology. We recognise that our planet's future depends on the transition to renewable energy, and that transition can only happen with the metals and minerals our mining customers deliver.

With signature brands including ESCO®, WARMAN®, ENDURON®, GEHO®, CAVEX®, LINATEX®, and MOTION METRICS™, we combine our deep customer insights, world class engineering, materials science expertise and intelligent automation to deliver innovative end-to-end mining technology solutions that help our customers move less rock, use less energy, use water wisely and create less waste — accelerating the path to smart, efficient and sustainable mining.

global.weir

Mining technology for a sustainable future

CONTENTS

CROWN PUBLICATIONS

Published bimonthly by
Crown Publications (Pty) Ltd
Cnr Theunis and Sovereign Streets
Bedford Gardens 2007
PO Box 140, Bedfordview, 2008
Tel: +27 11 622 4770
e-mail: mechchemafrica@crown.co.za
www.mechchemafricamagazine.co.za

Editor: Peter Middleton
e-mail: peterm@crown.co.za
Advertising: Elmarie Stonell
e-mail: mechchemafrica@crown.co.za
Design: Katlego Montsho
Publisher: Wilhelm du Plessis
Circulation: Brenda Grossmann

Transparency You Can See
Average circulation
Jan to Mar 2025: 10 636
Printed by: Tandym Print, Cape Town

Front cover: SEW-EURODRIVE
Email: info@sew.co.za
Website: www.sew-eurodrive.co.za

COMMENT

Manufacturing: a lever for growth and long-term resilience

Peter Middleton

In an article in the local manufacturing feature of this issue, Amith Singh, National Manager of Manufacturing for Nedbank Commercial Banking, argues that, despite the pressures, manufacturing remains one of the most powerful levers we have to stimulate growth, to reindustrialise South Africa's economy, and to position the country for long-term resilience. With the right interventions, he says, the sector can become the driving force behind South Africa's recovery.

Since the early 1990s, GDP contributions from the manufacturing sector have declined from a peak of 23% to just 13.2% by 2021, writes Singh, adding that in the six months before April 2025, year-on-year manufacturing output decreased by a total of 6.3%, the steepest decline in over a year. Not due to a lack of capability or talent, though, but underinvestment, outdated infrastructure, rising production costs, unreliable energy, and a complex regulatory environment. The result has been shrinking competitiveness and investor hesitancy.

PwC's South Africa Manufacturing Analysis 2024, published in October last year, described the South African manufacturing landscape, following a difficult 2023, as resolute, resilient and adaptable. Providing more than 1.6 million jobs and accounting for 13.0% of South Africa's GDP. "Overall, the South African manufacturing sector holds significant potential for growth and innovation, provided it can navigate the challenges and leverage the opportunities presented by sustainability, digital transformation, and strategic collaboration," said Pieter Theron. PwC Africa Industrials & Services Leader.

PwC predicted the sector would continue to play a significant role in the economy, with manufacturing's nominal contribution expected to grow by an average of 5.7% per annum over the next decade.

Nine months down the line, this seems overly optimistic, though.

In this issue, however, there are positive signs. Sandvik Rock Processing's screen manufacturing facility in Kempton Park is busy. The South African facility is the product designer, IP owner, and product specialist for the SK range of vibrating screens and supports the Australian and Finnish offices with customisations of these. Local customisations of the Australian SM range and Finland's S-range of screens are now manufactured in Kempton Park, with design support from the overseas specialists.

"Environmental sustainability is a key priority for Sandvik Rock Processing. This is why we place a strong emphasis on regional manufacturing. Expanding local production not only supports community development but also helps minimise environmental impact," says Riaan Steinmann, EMEA Operations Director for Screening Solutions at Sandvik Rock Processing.

Expansion is also underway at Weir's Alrode manufacturing facility south of Johannesburg, where a new production facility for the company's ENDURON® Elite and ENDURON® Orbital screen ranges is being built. This strategic investment, says Weir Comminution Director, JD Singleton, will make this plant a major player in global screen production. "It is also an important step in our journey over the past six years to develop a large format ENDURON® Elite range of screens for the mining market."

Tru-Trac, the South African company that pioneered and patented self-aligning idlers for conveyor belt systems, is featured in our Innovative Engineering slot in this issue. Tru-Trac solutions have become the globally accepted gold standard for resolving belt misalignment issues on bulk material conveyors. At bauma 2025 in Munich earlier this year, the company showcased several more advanced innovations: for rip detection, weighing accuracy and reliability, self-adjusting belt alignment, and AI-based proactive maintenance.

In our cover story, we highlight the ongoing investment by SEW-EURODRIVE in scaling up its South African operations. Following the completion of Phase 1 of its expanded operations in 2022, the company is now nearing completion of Phase 2, a massively expanded after-sales servicing, repair, manufacturing and training facility in Aeroton, Johannesburg.

The PwC 2024 analysis notes that digital transformation is reshaping the manufacturing sector, enhancing efficiency, reducing costs and improving product quality. Adopting Industry 4.0 tools and smart factory technologies is driving significant improvements in manufacturing efficiency and sustainability.

There is certainly evidence of this at Sandvik Rock Processing, Weir, Tru-Trac and SEW-EURODRIVE, among others.

Nedbank's Amith Singh says that South Africa's manufacturing sector has what it takes: skill, grit and real potential. But unlocking that promise demands urgency and ambition. "At Nedbank Commercial Banking, we believe this is the time to think bigger, to look beyond the challenges and see the opportunity to lead," he says.

Manufacturing isn't just a sector; it's a national asset, he believes. "With the right partnerships, investment, and long-term vision, we can transform it into a powerful engine of inclusive, lasting growth. From energy efficiency to advanced machinery, from the shop floor to the export market, this is where our future is made," he says.

Perhaps if we take up this battle cry, PwC's 5.7% growth estimate is achievable.

SEW-EURODRIVE massively upscales after-sales service

Following the success of Phase 1 of its expanded operations in South Africa, SEW-EURODRIVE is now nearing completion of Phase 2 – a dedicated after sales servicing, repair, remanufacturing and training facility in Aeroton, Johannesburg that aims to deliver total reliability services.

Jonathan McKey, National Sales and Marketing Manager at SEW-EURODRIVE.

Phase 1 of SEW-EURODRIVE's South African expansion – completed in 2022 – was essential, says Jonathan McKey, the company's National Sales and Marketing Manager. "Firstly, because we were quite literally bursting at the seams. To meet growing demand and take on more market share, we needed more stockholding capacity, more assembly stations, more product-handling capabilities, and more space to take on larger projects and customisations," he says.

Also, the assembly portfolio was decentralised, with Industrial Gear Unit assembly in Nelspruit and Servo Technology and Electronics in Cape Town. The Phase 1 expansion returned SEW-EURODRIVE's product assembly operations to Johannesburg, while retaining existing backup support capability.

This was an investment in local African capability that created confidence in the SEW brand: "The whole of the African continent now knows that SEW-EURODRIVE is committed to servicing their needs and supporting the continent's growth," says McKey.

The Phase 1 plant brought together the electronic automation and mechanical sides of SEW-EURODRIVE's offering – two complementary components enabling more automated drive options that embed advanced control technologies and predictive maintenance. Since opening the new facility, the stockholding value has more than quadrupled to half a billion rand. "We also enhanced our DriveAcademy for skills development, with a larger, more forward-looking facility: using augmented reality (AR), for example, to offer extensive and multifaceted practical product training," he notes.

A new sales division, the Business Development Division, now focuses on specific product ranges and industries. Within this division, Business Development Electronics (BDE) and Business Development Mechanical (BDM) portfolios have been established, along with Business Development Africa (BDA) to drive the Africa expansion strategy.

"We are already servicing 23 African countries across Southern and East Africa – from Ethiopia, Tanzania, Kenya, DRC and Zambia, to Zimbabwe, Botswana and Namibia. BDA gives us a clearer focus with respect to suitable products, service opportunities, and responsibilities in each of these African markets," says McKey.

The Phase 1 expansion also enabled the company to employ more people. "Our staff complement has expanded fourfold. When I first came to Johannesburg, the Engineering and Sales division was made up of seven people. Now we have nearly 40 people taking care of the separate BDE, BDM and BDA portfolios. In Africa, we have employed local people where it makes sense, but we also have roaming teams that travel to various country branches, or where we don't have a permanent presence, to directly deliver services," he adds.

Phase 2: BD Service

With the Phase 2 expansion well underway, a new portfolio is being added – Business Development Service (BDS) – which will be housed in a 17 000 m² facility to massively upscale SEW-EURODRIVE's after-sales and service capabilities.

"Currently, after-sales services are managed through our sales division. Going forward, we will have a dedicated team for after-sales and related services, offering technical support, repair and equipment replacement, and a host of new uptime-related products that we intend to launch later this year with the opening of Phase 2," says McKey.

The Phase 2 facility is being equipped to enable significantly faster lead times for routine servicing, spares, repairs, and refurbishments. "By better controlling more of the elements surrounding after-sales, we will significantly improve onsite reliability and uptime," he says.

As well as a significantly larger repair facility and a 100 t lifting and handling capacity, a light engineering workshop will manufacture drive-system bases and metalwork. Component manufacturing services will also be offered for drop-in customisations or component repairs. The facility will handle aftermarket manufacturing and maintenance work, including motor rewinding and, for gearboxes, the manufacture of replacement of gear sets

SEW-EURODRIVE's existing facility is geared to support growing demand offering advanced assembly, testing and service capabilities tailored to the needs of the African market.

Left: ***SEW-EURODRIVE provides expert repair services for a wide range of drive systems, ensuring minimal downtime and maximum operational efficiency for its customers.*** *Right:* ***SEW-EURODRIVE offers specialised industrial gearbox repair services, combining expert diagnostics, precision engineering and OEM-quality standards to restore performance and extend equipment life.***

for any OEM brand.

The DriveAcademy will be further expanded and moved into the new facility, with its offering extended to include servicing skills development for SEW's range of mechanical and electromechanical drives and automation products. The DriveAcademy will also be made available to complement tertiary education: "We are going to invite young engineering students into the facility to create more awareness and enthusiasm for mechanical and mechatronic drive technologies. This, we hope, will promote our industry, advance our skills base, and strengthen the pipeline for new engineering talent," he notes.

The idea underpinning Phase 2 is to offer a comprehensive range of support services for the product lifecycle of SEW installations. "We want to establish lifelong commitments with customers and to become fully integrated into their day-to-day operations – as committed to their success as we are to ours," McKey explains.

With that comes a guarantee of modernisation. "SEW-EURODRIVE is an innovative company, so a long-term relationship comes with the assurance of keeping clients up to date with technology trends, ensuring the best possible efficiencies, maximum productivity, and minimum downtime," he adds.

The role of BDS and the new SEW Service facility starts immediately after a drive solution has been delivered and installed. The after-sales team will initiate conversations regarding the future of the product and how to manage ongoing maintenance needs. "Recommended care accompanies every sale, but we intend to take this further by developing mutual commitments to manage equipment servicing across its life," says McKey.

With adaptability to manage both SEW and other OEM brands, clients can expect quality repair services to SEW-EURODRIVE standards for all of their drive equipment. "This further closes the loop on our preferred supplier status for new drive and automation solutions, because we can also manage every aspect of after-sales and servicing for installed products," says McKey.

Total reliability

To enhance the engineering capabilities that already exist, more design engineers, draftsmen, and service technicians are being brought on board. "We intend to introduce energy-efficiency surveys and to recommend innovative ways to improve sustainability and reduce carbon emissions. A simple switch to new SEW IE3 or IE4 motors or the use of our Gen C frequency drives, for example, can make a significant difference to a plant's energy performance – and our new digital data interface (DDI) with our Gen C drives offers easy-to-access predictive maintenance capabilities."

Ultimately, SEW-EURODRIVE intends to offer total reliability and asset management solutions for its installed base. "We can assess the entire onsite infrastructure – not limited to SEW products – record concerns, identify criticality and long-lead-time items, and then put in place measures to predict and proactively respond to impending failures," McKey explains.

The R384-million investment in this Aeroton Service facility is the first after-sales-focussed facility for the global SEW-EURODRIVE Group. "Germany is supporting us in this expansion initiative by expanding its own offering, with respect to manufacturing aftermarket gear sets, for example.

"We are one of five or six international entities that sit on SEW's Global Collaboration and Steering Committee and South Africa is seen as an authority for certain applications, such as conveyor drives in mining, and agitation and mixing systems. This gives us a voice with regard to what products and innovations customers in Africa expect in terms of reliability, durability, and sustainability.

"This South African service facility is very significant. We are pioneering new products in SEW-EURODRIVE's after-sales offering for the global Group," Jonathan McKey concludes.

www.sew-eurodrive.co.za

SEW-EURODRIVE's investment in its new Repair and Service Centre enhances local support capabilities, ensuring faster turnaround times and improved service for customers across Africa.

M&C: Africa's world-class service provider for rotating equipment

MCA visits the Cleveland facility of Marthinusen and Coutts, a division of ACTOM (Pty) Ltd, and talks to Marketing Executive, Mike Chamberlain, about the business's comprehensive on- and off-site service, repair, remanufacturing and testing offering.

Form-wound copper stator coils are being installed for a motor at Marthinusen and Coutts' Cleveland facility.

Founded in 1954 by a group of recognised leaders in the repair and servicing of electric motors, Marthinusen and Coutts (M&C) has grown into a trusted service provider for the remanufacturing, repair and maintenance of rotating equipment, most notably for the rewinding of medium and low voltage AC and DC motors, generators, transformers and coils, along with advanced testing.

"We offer a full range of electrical and mechanical services across all industries. We have extensive capabilities in power generation and mechanical engineering from seven well-equipped repair workshops in Southern Africa that now employ almost 450 people," says Mike Chamberlain, the business's marketing executive.

As well as the 9 500 m² Cleveland workshop in Johannesburg, M&C has a 14 000 m² workshop in Benoni and a facility in Rustenburg. "We also operate through other ACTOM outlets across Africa, including Kitwe in Zambia, GEC in Harare, Namibian Armature Rewinders in Walvis Bay, amongst others," he says.

"As well as being a leading repair business for all sizes of motors and generators, we also have a sister division on the mechanical side, ACTOM Turbo Machines, for repairing and re-engineering turbines and all types of large rotating machines," he adds.

What makes M&C different

First and foremost, M&C has an Africa-wide network of passionate people with the skills and experience to manage complex projects on sites all over the continent, says Chamberlain. "We can quickly respond to customers' needs, be they onsite repairs and refurbishments of large motors or motor/generator rewinding and refurbishments at one of our facilities."

For very large machines, the Benoni facility includes a 140 t Wagner lathe that can accommodate a 40 t, 11 m workpiece with a swing of 3.2 m. "We have also invested in specialised equipment and tooling for coil retaining ring removal, and we have a 90 t crane capacity and 1 000 t hydraulic presses for very large salient pole coils used for hydro and synchronous generators. At our Cleveland operation, we have the best-equipped rotating electrical machines load test facility in Africa and a 32 t balancing machine.

For windings, four insulation systems can be accommodated, along with three different vacuum pressure impregnation (VPI) systems for void-free insulation, which enhances the dielectric and mechanical strength of the windings and delivers improved thermal conductivity.

M&C's electro-mechanical testing facilities are the most comprehensive in Africa. "We offer full load testing of HV, LV and DC equipment, and onsite diagnostics, including electromagnetic core imperfection detection (ELCID) testing; turbine vibration analysis (TVA); partial discharge (PD) monitoring, and rotor flux analysis, amongst others. "We also have a very skilled and well-equipped field service team that offers 24-hour field service support for breakdowns and continuous improvement programmes for our customers," Chamberlain informs *MCA*.

Notable projects

M&C installs, services and repairs gearless mill drives across the continent and as far as Panama and Indonesia. Chamberlain describes a recent installation of new GMDs at copper mines. A Perth-based mining client has mines all over the world, including in Kansanshi and Kalumbila, which are both in northern Zambia, and Minera Panama.

M&C was contracted to interconnect the electrical sub-assemblies for nine new ABB gearless mill drives for a copper project in Panama. This mine's life is estimated at more than 30 years, and it produces copper, gold and molybdenum, says Chamberlain, adding that M&C has become the preferred provider of GMD services to this mining house.

On the power generation side, he cites a success at the N'Zilo hydroelectric power station on a 26 MW, 18-pole stator rewind for a vertical

AC synchronous generator in the DRC, a very remote and isolated location.

"The stator's internal diameter was over 5.0 m, so we had to repair it on site. Further complicating the work, the stator was lap-wound, which required a high level of expertise. We have the necessary equipment and skills to carry out such onsite repairs effectively, however, including in the DRC and elsewhere in Africa," Chamberlain assures.

On the service side, he says that M&C has held several long-standing maintenance contracts for independent power stations, including a hydro power station with 4×45 MW Siemens generators, and gas turbine-generator plants for electricity generation in the Western Cape, units that play a vital role in regulating maximum demand and meeting the city's supply targets.

The reverse engineering approach

M&C's design team, led by Rob Melaia, is considered to be the top motor design team in Africa. "They check the winding design of every motor/generator we rewind, looking for ways to improve reliability and performance. Our engineering teams have the experience and ability to apply practical insights gained from years of repairing and analysing motors across various industries.

"They can make winding design improvements, utilising the latest technology and modern insulation materials, which enables motors to run cooler, more efficiently and potentially with increased output in terms of speed, torque or power.

"Most importantly, though, this reverse engineering approach enables us to engineer out known failure points of the rotating equipment entrusted to us, with a key focus on reducing heat generation and minimising the risks of insulation breakdown, which are the primary enemies of motor performance and longevity," says Chamberlain.

M&C also designs and manufactures specialised motors as and when required by customers.

In 2012, ACTOM (Pty) Ltd acquired Marthinusen and Coutts. ACTOM is an industry leader and the largest manufacturer, solution provider, repairer and distributor of electro-mechanical equipment in Africa, and Marthinusen and Coutts is an independently run division of ACTOM (Pty) Ltd.

"While a substantial amount of our work is for clients in South and sub-Saharan Africa, we do projects, installations and refurbishments from Indonesia to Panama. We attract customers because of our engineering capability and our proven track record for reliable delivery, value for money and the high skills levels routinely demonstrated by our workshop and onsite staff," concludes Chamberlain.

www.mandc.co.za

For very large machines, the Benoni facility includes a 140 t Wagner lathe that can accommodate a 40 t, 11 m workpiece with a swing of 3.2 m.

Final assembly of a remanufactured motor.

M&C offers full load testing of HV, LV and DC equipment, and onsite diagnostics.

SHOP BMG ONLINE FOR:

- Electronic Motion Control
- Maintenance Chemicals
- Tools and Equipment
- Power Transmission
- Electric Motors
- Adhesives
- Fasteners
- Bearings
- Sealants
- Gaskets
- Seals

B-BBEE 2
EMPOWERING SUPPLIER

www.bmgworld.net

ISO 9001 Certified
ISO 14001 Certified
ISO 45001 Certified

B-BBEE 2
EMPOWERING SUPPLIER

BEARINGS • SEALS • POWER TRANSMISSION • DRIVES • MOTORS • MATERIALS HANDLING
FASTENERS & TOOLS • HYDRAULICS • PNEUMATICS • FILTRATION • LUBRICATION • VALVES • TECHNICAL RESOURCES • FIELD SERVICES

BMG-WEB-2022-SHOP

AG Lubricants partners with SA steel producer

AG Lubricants has partnered with a major player in the South African steel industry to supply high-performance Mobil lubricants, Quaker Houghton industrial fluids, and value-added technical services.

A collaboration between AG Lubricants and a leader of the steel Industry marks a strategic step toward improving productivity, operational reliability and long-term efficiency within the steel manufacturing environment.

"We are proud to partner with a leader in the steel industry and support their operations with our high-performance lubricants and advanced technical services," says Johan Nell, Lubricant Engineer at AG Lubricants. "This partnership reflects our commitment to delivering measurable value and ensuring the continued success of our industrial clients."

AG Lubricants is supporting the steel producer with an extensive service offering, including on-site maintenance, stock level monitoring, breakdown assistance, product rationalisation and technical consultation, all tailored to meet the rigorous demands of industrial manufacturing.

The partnership began in 2017 and gained momentum following the commissioning of a state-of-the-art hot strip mill, supplied by Danieli. The facility exclusively utilises OEM-approved Quaker Houghton and Mobil technologies to ensure optimal equipment performance.

To ensure accurate product application and smooth integration, AG Lubricants conducted a detailed on-site audit in collaboration with the client's engineers and technical teams from Mobil and Quaker Houghton. Improvements included a full clean-up in the lubrication storage area. Additional site enhancement initiatives are underway.

Demonstrating its commitment to operational excellence, AG Lubricants recently installed a lubrication system at the client's facility. Mobil Grease – known for its superior durability and performance – is used, while the system provides proactive maintenance alerts to prevent grease shortages and reduce downtime.

One of the key factors in AG Lubricants' selection as a preferred supplier was the proven performance of its product portfolio. Quaker Houghton, Mobil, and Centlube products, sourced both locally and internationally, have shown consistent reliability in demanding applications. Independent laboratory tests have demonstrated Quaker Houghton's technical superiority, outperforming competitors in both longevity and performance.

"The partnership showcases the powerful synergy between AG Lubricants' expertise and the steel industry's drive for excellence, together setting new standards for productivity, innovation, and operational success," concludes Nell.

https://aglubricants.co.za

Multotec Spirals improve chrome recovery from UG2 tails

Multotec senior applications engineer, Sithembiso Mayisela, outlines an ongoing success story from a chrome recovery plant in the North West province of South Africa for the recovery of chrome from UG2 tailings from the platinum concentrator upstream.

A chrome tailings recovery plant in the North West province is enjoying ongoing success following an intervention by mineral processing equipment, metallurgy and process engineering specialist, Multotec.

The chrome recovery plant receives UG2 tailings from an MF2 platinum concentrator and recovers chromite before the material is sent to the tailings dam facility. The chromite head grade received by the plant ranges from 16 to 22% Cr. The plant had been struggling to reach the required plant performance targets while using spirals from a different supplier that had reached the end of their life.

The plant invited Multotec to quote on replacement spirals for the plant in 2022. The initial request was for replacement spirals to match the existing footprint, but during plant inspection, it became apparent that the flowsheet had to be optimised before quoting on a full spiral solution.

The client had already initiated the process of modifying the flow sheet, and Multotec assisted the client with spiral selection through test work. Although Multotec can rely on a wealth of experience to guide the choice of spiral selection, test work is always advisable to confirm selections. Test work is typically done by the Multotec Technology Department using similar spirals identified for installation, which makes the test work reliable.

After test work, the results suggested that the HX5 spirals be used on the rougher. The HX5 spiral, which has a pitch angle of 19°, was found to achieve the best recovery and yields on the rougher stage. At 1.0 m wide, the HX5 spiral is able to accommodate a feed rate of 4-7 t per start, with a nominal feed rate of 5.0 t/h. The spiral can be assembled in single, double or triple start, and a triple start assembly can process a nominal feed rate of 15 t/h.

The HX5 spiral was also the spiral of choice for the scavenger application, as suggested by the test work.

Smaller diameter SC21 spirals were recommended for the cleaning stages after test work. The SC21 spiral, which has a pitch angle of 21°, was found to achieve the best upgrade ratios for delivering the required 41% Cr_2O_3 grade.

The SC21 can process 1.0 to 2.3 t per start. Like the HX5, it can be assembled in single, double and triple start, and a triple start assembly can process feed at up to 6.9 t/h.

The material received by the client contains a significant amount of ultra-fines, with more than 10% sized at less than 38 µm. So desliming was recommended before feeding the tailings into the spiral separation plan. Ultra-fines increase the viscosity of the slurry, which reduces the efficiency of separation.

An eight-way Multotec classification cyclone cluster of 250 mm cyclones at 10° with one barrel (VV250-10-1) was selected for the desliming application. Multotec VV-type cyclones, which are polyurethane cyclones, have the advantage of being lightweight when compared to their steel counterparts and offer similar wear rates. The use of a crane during maintenance is not required, as these cyclones can be easily taken apart and lifted by hand. For the scavenger/dewatering application, a six-way cluster with similar cyclones was selected.

The client placed orders in August 2022 for cyclones and spirals, which included ancillary equipment such as distributors, launders and piping. All the items were delivered to the client within four months of order placement and installed over December 2022 and January 2023. The plant started running in mid-January 2023 when mining resumed operations after the

Delivered and installed over December 2022 and January 2023, the plant achieved 6% increase in yield, leading to production output of 40-50% and a project payback period of just three months.

Christmas break.

By the end of January 2023, the plant was producing on-spec concentrate of 41% Cr_2O_3. The first full month of running the plant achieved a 6% increase on the previous plant yield, increasing the production output of the plant to 40-50%.

This enables the client to achieve a project payback period of three months, which includes the rebuild and modification of the plant. The project was completed safely, with no injuries experienced, which was a testament to the good project management from the client.

Jafta Mashele, the Plant Manager of the K3 Chrome Recovery Plant at Sibanye-Stillwater, expressed his satisfaction with the service provided by Multotec's R&D division, for their flexibility in conducting test work to meet the client's needs and their willingness to adapt to specific requests. He stated, "I appreciate Multotec's ability to offer flexible payment terms, which suited and helped us manage cash flows effectively."

Mashele further commended Multotec, saying: "Multotec employs Application Engineers with extensive processing experience and in-depth product knowledge, which enables us to address technical inquiries promptly, both remotely and on site."

*Left: **An eight-way Multotec cluster of 250 mm cyclones at 10° with one barrel was selected for the desliming application.** Right: **Multotec's HX5 spiral with a pitch angle of 19° was found to achieve the best recovery and yields on the rougher stage.***

The plant is currently conducting test work with Multotec to further explore the recovery of chrome from the ultra-fine material, with Mashele consistently emphasising the importance of data-driven decisions. This work is being carried out using the new UX7 ultra-fine heavy minerals spirals, that is specifically designed to enhance the recovery of ultra-fine material.

www.multotec.com

FLS partnerships in support of asset health and productivity

Alistair McKay, FLS Vice President for Capital Sales in Europe, Arabia and Africa, explains why asset health is such a critical foundation of long-term performance and sustainable mining.

Alistair McKay, FLS Vice President for Capital Sales in Europe, Arabia and Africa.

Strong partnerships between mines and their supply partners are based on optimising the health of their productive assets, which remain at the core of operational efficiency. This is according to Alistair McKay, FLS Vice President for Capital Sales in Europe, Arabia and Africa.

"Collaboration and partnership need to add value to both sides," McKay explains. "If there is insufficient value being created in the relationship, there can be very little collaboration or partnership."

FLS's strategy begins with a strong regional footprint, ensuring that the company is close to its customer base to enable not only quick response times but also proactive maintenance strategies. McKay stresses that this approach enables regular visits to support asset health, rather than only being reactive to issues arising.

"Our proactive stance means that mining operations benefit from our ongoing performance monitoring, training and skills transfer – all of which contribute to long-term productivity and asset performance," he says.

Following the capital acquisition stage, a productive partnership enhances the adaptability of the operation to the changes in ore body characteristics that invariably occur over time. This affects key aspects of the feed parameters, while also influencing the consumption of water, power and reagents, for instance.

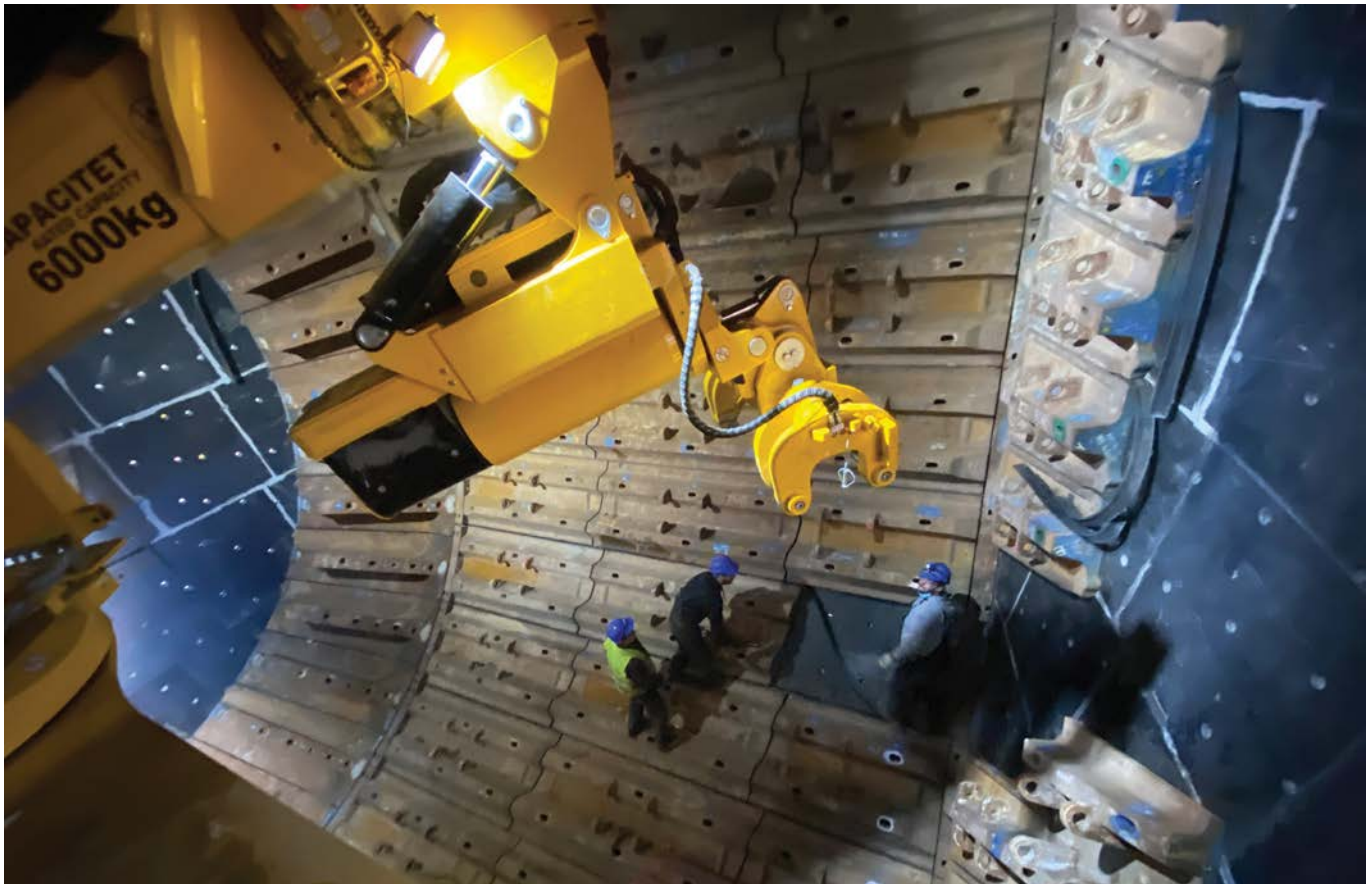
McKay highlights that such a partnership is also based on a shared commitment to sustainability principles and to reducing the environmental impact of mining and processing activity. This includes limiting carbon emissions through energy efficiency.

"This means making the most of equipment capacity through technology that enhances efficient operation while increasing throughput," he says. "The use of LoadIQ, our mill scanner technology, is one example of how we help customers to use mill capacity to the fullest extent – delivering more from the same asset and power draw."

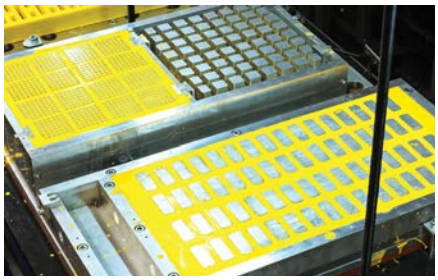
It is also critical to have a research and development component to drive sustainability efforts, he argues. Technological advancement behind FLS's next-generation polyurethane screen panels, for instance, is enabling wear life to be extended by up to four times.

"This supports efficient operations by allowing longer periods between replacement and maintenance, thereby boosting plant uptime and general efficiency," says McKay. "Better production levels from the same asset base mean that capital investment delivers the best value, and operating costs are kept to a minimum."

He also points to the recycling of wear



FLS's ARMOUR™ mill liners are designed for reliability and durability in the toughest wear conditions.



The NexGen polyurethane screen media from FLS is engineered for efficient and reliable screening performance

parts as another important element of responsible asset management. While FLS invests continuously in technologies like composite liners for longer life, there is a time when liners need to be replaced.

"As part of our circular economy approach, we have ways of recycling these worn liners so that there is less wastage in the value chain," he says. "These initiatives support our partnership with customers, as they also need to report on their sustainability performance in increasing detail."

He also emphasises digital advancements with FLS's PerformanceIQ® providing a holistic platform that integrates asset health and performance monitoring.

FLS's advanced sensors and vision systems are helping unlock new levels of efficiency in minerals processing applications.

"Condition monitoring and asset health are often seen as separate silos, but linking the two ensures optimal performance," McKay explains. These tools help shift asset management from a reactive to a proactive approach, reducing unexpected downtime and improving overall productivity. By monitoring equipment continuously, operators can identify trends and potential failures before they occur.

"We encourage customers to monitor assets on an ongoing basis, leveraging AI and digital solutions to enhance decision making and ensure proactive maintenance," he concludes.

www.fls.com

Weba Chute solution transforms Saudi mine

Faizal Mahomed of Weba Chute Systems.

A custom-engineered chute has been delivered by Weba Chute Systems to a mining operation in Saudi Arabia, following more than a year of close collaboration to assess the customer's operational challenges and identify opportunities for improvement.

According to Faizal Mahomed, Client Services Manager at Weba Chute Systems, the relationship with the mine began in 2023 when the company was invited to the site to evaluate performance issues on several existing chutes and propose potential solutions.

"The recent installation of our first chute at this mine follows earlier site visits where we were asked to provide input on possible improvements," says Mahomed. "The operation had long been facing issues with its existing chutes, which failed to adequately control material flow, resulting in excessive wear and equipment damage."

One of the major challenges was frequent blockages that interrupted production and caused costly downtime and maintenance. During his initial site visit, Mahomed was able to assess the operation directly and made a key observation regarding the lump size of the material being transferred. This led to a recommendation to widen the discharge opening of the existing chute, effectively resolving one of the main issues.

"There was still a problem with material falling freely for nearly three metres through the chute, causing severe impact damage," Mahomed explains. "As we built a relationship of trust with the customer, they requested a feasibility study on one of their most problematic chutes. This ultimately led to the first order in late 2024 for one of our custom-designed solutions."

The problematic chute was feeding a conveyor into a surge bin and included a bypass function that was not working effectively. This design flaw frequently caused blockages, forcing shutdowns for manual clearing.

Critically, Weba Chute Systems also identified that the chute's positioning in relation to the head pulley required modification to improve overall performance.

"Our recommendation was to implement our 2.3 m custom-engineered chute design in conjunction with repositioning the head pulley," says Mahomed. "This required the construction of a new head frame, modifications to the gantry and a slight elevation of the conveyor. These changes enabled the successful installation of the Weba Chute in March, and it has since performed exactly as expected."

Mahomed highlights that controlling the material flow was central to the chute's design, particularly to enable effective bypass when the surge bin was full, something Weba Chute Systems was able to demonstrate through detailed CAD models and simulations. Both the existing chute and the proposed solution were digitally modelled, allowing the customer to compare the performance and visualise how the new design would address their issues.

"The optimised angle of repose in our chute, combined with the use of a dead box, were key elements in the final design, selected after evaluating several alternatives," he says. "Our solution also reduced the need for additional equipment, while lowering wear, noise levels, and dust emissions."

"By combining on-site analysis, advanced modelling and a custom-engineered design, Weba Chute Systems delivered a solution that not only resolves longstanding operational challenges but also enhances efficiency, reduces maintenance and improves overall plant performance," Mahomed concludes.

www.webachutes.com

Hybrid and renewable power solutions from WEG Africa

MCA talks to Eduardo Werninghaus, CEO at WEG Africa, about WEG's comprehensive range of integrated, customer-centric power solutions and their role in transitioning industry towards more reliable, renewable and sustainable energy options.

"WEG Brazil and Africa have made internal commitments in terms of sustainability, but we do not believe in telling customers what to do. Instead, we offer a comprehensive portfolio of modern, energy-efficient products for both generating power and efficiently using that power to drive industrial equipment. We are here to help clients with their transitions towards improved access to cleaner power, and the most efficient and cost-effective use of that power," begins WEG Africa's CEO, Eduardo Werninghaus.

Electric motors, he says, typically consume around 60% of the power used by the industrial sector, so a simple focus on switching to more energy-efficient IE3 or IE4 motors goes a long way towards meeting environmental commitments. But WEG can also offer a very wide range of power generation improvements, from using diesel power to using natural gas in backup generators, for example, or installing hybrid renewable power generation systems that combine a backup generator with solar panels and battery storage systems.

In addition, the company in Brazil is the OEM for an extensive range of modern and highly efficient steam turbines for anyone needing process steam, and steam turbogenerators for those with access to a fuel resource such as biowaste or a combustible off-gas, for example. "Steam is widely used in the African market, and we have WEG turbogenerators available that can be fuelled by ethanol or any biofuel from the waste bagasse from sugar plants," adds Werninghaus.

In Brazil, he continues, where the sugar and ethanol business is very strong, there are even small pig farms that generate biogas from pig waste and use it to generate electricity via a steam turbine. "So we at WEG offer a broad scope of solution possibilities. The important thing for customers, though, is to journey with us, so we can use whatever available resources they have to develop turnkey solutions that best meet their daily needs, their sustainability commitments, and their investment budgets," he tells MCA.

Pointing to a poster of one of WEG's flagship hybrid power projects in the South of Brazil, he says this solution combines WEG wind turbines with a solar PV plant and battery storage, with WEG as the OEM and technology partner for the entire plant. "We developed this 1.0 MWh renewable power plant in partnership with a global energy and renewable energy supplier. This was an R&D project to assess the capacity of the WEG turbines to remain connected during grid instability.

"For us, this plant demonstrates our global capacity to deliver turnkey hybrid power generation solutions for our customers, everything from the turbines and PV panels to the inverters, switchgear and transformers

WEG's flagship hybrid power project in the south of Brazil combines WEG wind turbines with a solar PV plant and battery storage.

WEG offers a wide range of power generation solutions, including hybrid genset-renewable solutions that combine backup generators with solar panels and battery storage.

involved in a complex grid-connected renewable power generation solution," he says.

Turning attention back to local requirements, he says that mines and plants across Africa tend to be dependent on conventional diesel generators to back up unreliable electricity grids. "To make these backup systems respond faster and to help reduce emissions and costs from the diesel generator, we can add battery storage to these systems, and/or a renewable PV or wind generator, or even a steam turbogenerator.

"We analyse the options depending on the outcome the customer is looking for: be it peak shaving, their commitment to reduce GHG emission, or they may simply want a more reliable energy supply," Werninghaus explains.

If there is a maximum carbon emissions requirement that needs to be met for the company's transition, he says WEG will help customers to calculate how this can be met: and if it is about payback on electricity from a utility, then WEG engineers can help to find and develop the best combined hybrid option. "We are also 100% open to working with engineering consultants or other EPC companies that develop hybrid power solutions such as these," he adds.

In terms of scale, he says that WEG can accommodate projects from a small commercial office to utility-scale power generation of hundreds of megawatts. "We can offer solutions from 500 kW up to 70 or 80 MW and more. A 50 MW plant is typically what the industrial market is looking at right now," he continues, adding that if talking about a grid-connected wind plant, though, 100 to 200 MW would be more usual.

Depending on the resource availability, he says, WEG can also provide turnkey hydroelectric power solutions, and these can be quite small.

WEG is also the OEM for an extensive range of modern and efficient steam turbines for those needing process steam, and turbogenerators for those wishing to generate power from biowaste or a combustible off-gas.

Increasingly, customers with older steam turbines or diesel generators are under pressure to reduce their gas emissions, so they are looking to use either far more efficient or different power technologies to meet their needs. This is where hybrid power solutions really come into their own. In addition, they come with added benefits such as better power availability and, in the longer term, they can reduce operating costs.

Hybrid solutions work because of the available natural resources, so before switching, an analysis of the available solar, wind or hydro resources is essential. Storage is also resource-dependent because it needs to make up for times when the natural resource or the external grid supply is unavailable.

Peak shaving can also be effectively managed through a hybrid power solution, and these systems are no longer unaffordable. In Brazil, he says, where peak demand tariffs are very high, the payback periods on hybrid system investments for keeping grid demand below the thresholds can be very attractive.

For best results, he advises that customers need to take a very close look at what their energy load looks like through the day, week and month. "This enables us to juggle the resources to match their availability, so that the power generated follows the load profile, while always ensuring it can react quickly to meet unexpected demand or supply shortages," he says.

"Because WEG has such a flexible portfolio of products, we can take an unbiased position on which technologies to apply to a given situation. The best solution for the customer is always the one that best meets their needs. We talk to people, from farmers to miners to big commercial development companies, and we are always open to discussing what their priorities are and what they would most like to achieve. We then try to marry what we have to what is readily available to the client.

"This approach enables us to always provide best-fit sustainability solutions," concludes Werninghaus.

www.weg.net/institutional/ZA/en

ACTOM highlights local rail capabilities

As South Africa accelerates its R158.54-billion infrastructure investment plan, the spotlight is once again on the country's rail network – and the engineering expertise that keeps it running. ACTOM, a company at the forefront of this work, showcased its offering at Africa Rail 2025.

Nqobile Mthembu, Business Development Manager at ACTOM.

With more than 120 years of experience, ACTOM has built up a strong footprint in rail, supporting both modernisation and maintenance projects across South Africa. Its work with key clients such as Transnet and PRASA reflects a broader effort to ensure continuity in rail services while adapting to new technologies and challenges.

Balancing continuity and change

"In many ways, we're helping to bridge South Africa's rail past and its future," says Nqobile Mthembu, Business Development Manager at ACTOM. "Much of the country's rail infrastructure still relies on older systems, but the pressure is on for us to upgrade and automate. That transition needs to be managed carefully."

In KwaZulu-Natal, ACTOM is assisting with the refurbishment of legacy relay-based interlocking systems, a key part of the signalling infrastructure. Elsewhere, it is involved in modernising rail yard automation systems for Transnet, improving safety and operational efficiency.

ACTOM plays a critical role in supporting both in-house and third-party legacy technologies, drawing on its experience as an Original Equipment Manufacturer (OEM). This capability allows the company to service and maintain aging infrastructure while laying the groundwork for modernisation to ensure that older systems remain functional and safe as new technologies are phased in.

"We're not just installing new equipment," Mthembu notes. "Our cradle-to-grave operational model means that we stay involved throughout the system lifecycle, providing the support needed to keep things running and to ease the shift to more advanced technologies."

Cross-cutting industry expertise

ACTOM's work in the rail sector brings together multiple business units, each contributing to different parts of the network:

- Signalling systems: ACTOM Signalling is currently focused on upgrading relay-based systems, particularly in PRASA's KZN operations.
- High voltage equipment: ACTOM HVE produces components like disconnectors, circuit breakers and instrument transformers.
- Smart technologies: offers substation automation, smart metering and battery backup systems that help improve energy resilience – a growing concern given load shedding and cable theft.
- Rotating machinery and traction motors: ACTOM subsidiaries LH Marthinusen and Reid & Mitchell support the repair and supply of key electromechanical components used across freight and passenger rail.
- Vibration management: Arnot Vibration Solutions contributes technology that enhances locomotive reliability and passenger comfort.

Local presence means faster response.

Maintenance is a central focus for ACTOM, with its after-sales support and proactive

ACTOM is involved in modernising rail yard automation systems for Transnet, improving safety and operational efficiency.

service models helping rail clients achieve up to 30% reductions in downtime. This, in turn, results in significant savings that lower the total cost of ownership while improving overall operational efficiency.

One of ACTOM's key advantages is its local reach. With service hubs and factories across the country, the company can respond quickly to client needs, often dispatching technical support teams in less than two hours.

"Our nationwide footprint means we're not flying in support from elsewhere," says Mthembu. "We're embedded in the areas we serve, and that's essential when it comes to reducing downtime on critical infrastructure."

The sector still faces key risks

"There's no doubt that security and sustained funding are major challenges," Mthembu says. "We've seen too many instances where progress is rolled back by vandalism or delays in key upgrades. There's a real need for coordinated investment – not just in equipment, but in protecting what's already there."

She adds that while companies like ACTOM are ready and able to support rail revitalisation through local manufacturing and technical expertise, lasting improvements will require long-term commitment from all stakeholders.

"Government, operators and private sector partners must work together to create a stable environment for rail to thrive. If we can secure the infrastructure and maintain consistent investment, rail can once again become the backbone of affordable, sustainable transport in South Africa."

Looking ahead

ACTOM will offer a closer look at its capabilities through an interactive digital showcase over the two-day event. Visitors will be able to explore case studies and speak directly with engineers working across signalling, traction motor manufacturing, and energy resilience.

"At Africa Rail 2025, we showcased how local capacity can contribute meaningfully to national infrastructure goals," says Mthembu. "It's about keeping the system moving – today and into the future," he concludes.

www.actom.co.za

ACTOM unveils localised inverter-integrated transformer solution

ACTOM, South Africa's largest manufacturer, repairer and distributor of electro-mechanical equipment, debuted a breakthrough in renewable energy integration at Enlit Africa 2025, with its locally manufactured inverter-integrated transformer.

Developed in strategic collaboration with global inverter leader, Sungrow, the solution is a fully integrated, factory-tested solution designed to meet the growing demand for utility-scale solar PV projects. It combines a transformer, an inverter, a Ring Main Unit (RMU), and an LV combiner box into a single, skid-based, plug-and-play system. This not only reduces on-site complexity but also significantly cuts installation time, project risk and lifecycle costs.

"This is more than a product launch, it's a step-change in how we localise global innovation to empower Africa's energy future," says Lee Mbenge, Divisional CEO of ACTOM Distribution Transformers. "By bringing together international technology with local manufacturing, we are accelerating clean energy adoption while building South African skills and industrial capacity."

A proudly South African solution

ACTOM's partnership with Sungrow brings world-class inverter technology, complemented by locally designed and assembled components. This integrated approach leverages ACTOM's in-house manufacturing expertise, ensuring seamless production, rigorous quality standards and dedicated after-sales support tailored to African market needs.

"ACTOM's strength lies in our end-to-end local capabilities," says Mbenge. "Apart from the inverter, every element is produced within our business units, allowing us to deliver efficient, high-quality solutions that are suited to the African context."

Supporting Solar's rapid rise

With solar PV now the dominant focus of public and private energy investment across the continent, this launch couldn't come at a better time. The integrated solution directly supports the development of solar farms, particularly by Engineering, Procurement and Construction (EPC) contractors who benefit from pre-tested, factory-assembled systems that minimise on-site challenges and accelerate project commissioning.

"By delivering a fully assembled and factory-tested system, we eliminate the complexity of on-site integration," Mbenge explains. "For EPCs, that means faster commissioning, improved quality control and fewer delays."

Innovation that builds local capacity

The partnership with Sungrow brings global technological expertise into the country while facilitating local skills development and job creation. ACTOM's team is actively building technical capacity around installation, support and long-term maintenance to create a foundation for future innovation.

"This isn't just about this one project. It's about laying the groundwork for future self-reliance," says Mbenge. "We're growing the skills base, hiring more talent and showing that South Africa can lead in delivering world-class clean energy solutions."

Future-focused and scalable

While initially developed for solar farms, the inverter-integrated transformer is equally suited to broader energy applications such as Battery Energy Storage Systems (BESS), where it can help stabilise grids, support off-grid setups, and address generation shortfalls during peak demand or load shedding.

"This technology offers a scalable pathway to expand Africa's renewable energy capacity while reducing our carbon footprint," Mbenge concludes. "It's a practical solution with the potential to reshape how we power the continent."

www.actom.co.za

ACTOM's fully integrated, factory-tested inverter-integrated transformer solution is designed to meet the growing demand for utility-scale solar PV projects. It combines a transformer, an inverter, a Ring Main Unit (RMU), and an LV combiner box into a single, skid-based, plug-and-play system.

Purpose-engineered modular substations

David Claassen of Trafo Power Solutions highlights the advantages of engineered modular substation solutions that are factory-built to include integrated dry-type transformers.

Well known for its role in bringing dry-type transformer technology to South Africa, Trafo Power Solutions' success is now based on the company's in-house design and engineering capability. "We supply complete, customised solutions that include dry-type transformers as one of many components," says David Claassen, MD of Trafo Power Solutions.

Modular substations, also known as E-houses, have become increasingly popular in recent years, originally as a solution for remote mining locations in Africa. Now, they are fast becoming a preferred alternative to brick-built substations.

"From a cost perspective, modular substations are significantly cheaper, primarily because they are manufactured off-site and housed in a transportable steel structure. On-site construction involves labour issues and health and safety requirements, which can cause delays and uncertainty. When manufacturing a modular substation, these issues fall under normal factory operations, allowing for quicker, higher-quality, and more cost-effective builds," he says.

Other benefits include the installation, commissioning, and testing, all of which can be conducted under tightly controlled factory conditions.

The most important aspect of any solution provided by Trafo Power Solutions, Claassen notes, is thoroughly understanding the client's application. Modular substations are critical to the reliable operation of production equipment. Not only must the solution meet all operational requirements, but it must also be protected from dust, moisture, temperature, and other site-specific environmental hazards.

Trafo Power Solutions manages the entire electrical design of its modular substations, which can include any of the equipment typically found in conventional substations, including the dry-type transformer, low- and medium-voltage switchgear, motor controllers, and automation equipment.

"We're not typical product suppliers; we are solution providers. We ask the correct and appropriate questions before we start designing because we aim to provide the best possible solution. We need to understand harmonics, load requirements, transport restrictions, site conditions, and all aspects of the operating environment," says Claassen.

Another major advantage for Trafo Power Solutions clients is that the company has experience with all tier one electrical product suppliers. Preferences are based solely on client requirements, reliability, and fitness for purpose in the given environmental conditions.

The dry-type transformer advantage

Dry-type transformers are now widely accepted, and their inherently safer nature enables Trafo Power Solutions to fully integrate them into its mobile substations.

"It is possible to use an oil-filled transformer in a modular substation, but compared to dry-type transformers, these require a host of additional safety systems and protections. Structurally, a sealed base is required to contain any oil leaks, and fire detection and suppression systems must be included, all of which add cost," Claassen says.

The core premise of a modular substation is the ability to transport the system to the site for 'plug-and-play' installation. Modular substations using dry-type transformers are lighter and more robust. On rough roads, despite suspension and packaging measures, peripheral equipment such as thermometers and relays on oil-filled transformers is likely to sustain damage, while oil leaks may develop, which will require additional onsite intervention.

Dry-type transformers are simpler, lighter,

A dry-type transformer supplied by Trafo Power Solutions is installed within a modular substation, delivering safe and reliable power distribution for this application.

more compact and robust. They can be designed to fit on standard road transport trailers and quickly offloaded and connected to the supply and client distribution networks without the need to repair transport damage.

Export success

Claassen notes that Trafo Power Solutions recently supplied a skid-mounted mobile substation to a coal mine in Queensland, Australia. This unit was designed, manufactured, and tested in South Africa before being shipped and delivered. The solution included a transformer and MV and LV switchgear for a step-up application from a 400 V generator to 6.6 kV. "This mobile substation solution accompanies the customer's generator set to deliver power where needed on the mine," he explains.

"Although we're a South African-based company, we understand and can operate within the standards and specifications of any country. This mobile substation for Australia is a typical example," says Claassen.

Trafo Power Solutions was also involved in the design and engineering of dry-type transformers for a large intake substation for a data centre in the Netherlands that meets all EU standards. With a global upswing in demand for data centres, Trafo Power Solutions has built a strong reputation for meeting the 100% uptime requirements for the substations powering data centres in South Africa, Africa and Europe.

The Renewable Energy market

Another growth area for Trafo Power Solutions is the renewable energy sector, where transformer design is critical due to significant non-linear loading. "At PV solar plants, high levels of harmonics from inverters increase the temperature in the transformer windings," Claassen explains. This is in addition to the already high ambient temperatures typical of solar installations.

"Moreover, the transformers cycle from full to zero load every day, which causes expansion and contraction that must be accounted for," he adds.

While dry-type transformers are typically cooled using natural ventilation, forced ventilation can also be used, and where space is limited or heat loads are high, water cooling options are also available.

"In the global renewable energy market, our strategic partner TMC is one of the largest suppliers of dry-type transformers, with thousands of custom-designed units sold annually into the PV sector in the US – a sector that demands the highest reliability with lowest losses," he says.

"We continually strive to understand our clients' needs and to identify the best possible solutions to meet them. This enables us to engineer tailored electrical power solutions that reliably and consistently deliver," Claassen concludes.

www.trafo.co.za

A 3 000 kVA dry-type transformer supplied by Trafo Power Solutions is housed in a modular substation, providing a robust and efficient power solution tailored for demanding site conditions.

A Trafo Power Solutions dry-type transformer paired with 800 A primary switchgear within a modular substation, a factory-assembled, robust power package ready to deploy on site.

Efficient, compact geared-drive solutions for wastewater treatment

With a comprehensive portfolio of geared units, electric motors, inverters, automation solutions and digital monitoring systems, Bonfiglioli offers effective, efficient and reliable solutions for wastewater treatment. Easy maintenance, adaptability, compactness and a wide torque range are among the fundamental features of the company's solutions for this sector.

As is evident across sub-Saharan Africa, we are in the midst of an escalating water crisis. The media is full of articles on how global warming is increasing the core temperature of the Earth, and recent studies predict that, by the year 2050, sub-Saharan Africa could be receiving 10% less rainfall every year.

Wastewater treatment plants (WWTPs) play a crucial role in maintaining public health and environmental safety by processing and purifying wastewater before it is released back into natural water bodies. These WWTPs rely heavily on geared-drive systems for effective and reliable operation.

For more than sixty years, Bonfiglioli has been teaming up with equipment manufacturers and industrial and mining solution providers to assist them in supplying world-class products that can mitigate against water scarcity. From desalination to purification, the water and wastewater sector is complex and requires reliable solutions to ensure the uninterrupted flow of operations. With a full portfolio of drive and automation products, Bonfiglioli can offer efficient solutions for multiple applications in support of wastewater treatment plants.

Low maintenance, versatility, efficiency and reliability are fundamental features required for water and wastewater processes. Through the precise control of drive speeds, we can supply energy-saving solutions for the pumps, mixers, aerators, clarifiers, filters, water screens and conveyors typically used in this sector.

Bonfiglioli gearboxes have been deployed in thousands of facilities, from municipal wastewater plants to industrial water recycling units. The company's long-standing relationships with OEMs in the water sector attest to the reliability of its solutions and the technical expertise of its engineers.

Preliminary treatment

In the preliminary stages of wastewater treatment, raw water is routed through gate valves for flow control, before being routed through bar screens, rotary drum screens and mesh filters to remove large debris and solids. Subsequent screening and grit removal channels allow sand and heavy particles to settle, and rakes are used to remove accumulated rubbish and debris from the bar screens, preventing clogging and ensuring consistent water flow.

Water gate valves, essential for preventing flooding and maintaining balanced flow, use drives such as Bonfiglioli 3/A Series planetary gearboxes to deliver the high torque needed to actuate the gates at the required speed. A wide reduction ratio is available and, when coupled with an Agile Series Smart inverter, smooth starts and fine speed regulation can be achieved for optimal effluent flow control.

Finer particles are then removed using mesh filters. For these, a shaft-mounted Bonfiglioli F Series gearbox, geared motor and smart inverter combination is the preferred choice.

Primary treatment

The screened influent then enters settling tanks or clarifiers, where coagulants and flocculants are added to help the finer particles coalesce, with a low-velocity skimmer gently stirring the tank and removing surface debris. Heavier particles and other solid waste sink to the bottom, where they are collected and discharged as primary sludge. This clarification stage typically eliminates 40-60% of suspended solids and reduces organic loading.

A high torque, low speed drive is necessary to drive a clarifier rake, making Bonfiglioli's 300M Series planetary drive with a directly coupled geared motor ideal. A premium Active Cube inverter can be used to provide variable speed, automation and failure protection functions, adding reliability and energy efficiency to this stage of the process.

Secondary treatment

Clarified water then enters a series of aeration basins, which are biological reactors that use activated sludge to break down the organic material in sewage and/or industrial wastewater. The biological reaction requires oxygen to be dissolved in the water. This is done using surface aerators, rotating systems with paddle-like blades or impellers that agitate the surface water to introduce air bubbles into the water.

Bonfiglioli's HD Series gearbox range is meticulously designed to meet the rigorous demands of aerating, agitating and mixing applications. The Series offers standard and customised solutions, with either bevel helical (HDO) or parallel shaft (HDP) arrangements.

The units can be configured with housings with extended bearing centres on the output shaft, significantly increasing their capacity to

With a full portfolio of drive and automation products, Bonfiglioli can offer efficient solutions for multiple applications in support of wastewater treatment plants.

Bonfiglioli's HD Series gearbox range is meticulously designed to meet the rigorous demands of aerating, agitating and mixing applications.

withstand high shaft loading. In addition, the compact Active Cube inverter drive is recommended to deliver customisable, multi-drive synchronisation and torque control.

Sludge treatment and disposal

The sludge from primary, secondary and tertiary stages of wastewater treatment needs to be removed, thickened, stabilised and dewatered. Separating the water from the solids often involves compressing the sludge or slurry using a screw press, a rotating screw housed in a cylindrical or conical structure. As the screw rotates, it compresses the sludge, expelling water through apertures while retaining the dewatered solids.

This transfers high axial loads to the drive, which is why Bonfiglioli's extensive product range offers a variety of technologies and solutions to ensure robust, reliable performance. The modular, compact and easy-to-install design of Bonfiglioli's planetary range, for example, aligns well with the low-speed, high-torque requirements of these presses.

Key advantages of the wastewater range

Bonfiglioli gearboxes are popular in wastewater treatment, mixing and agitating applications for their modular design. Facilities often require customised setups based on capacity, process layout or local regulatory standards. Bonfiglioli offers a wide range of configurations, including: worm gearboxes; helical inline geared motors; helical-bevel gearboxes; parallel shaft gear units and planetary gear systems.

This modularity allows systems integrators and OEMs to tailor the drive solution to the specific demands of each application. Maintenance in wastewater treatment plants can be challenging due to the nature of the environment and the continuous operation of most equipment. Bonfiglioli gearboxes are engineered for long maintenance intervals and simplified servicing, thereby significantly reducing the total costs of ownership (TCO) and offering a high return on investment (ROI) compared to less durable alternatives.

Complete solutions

Bonfiglioli's scope of supply extends much further than gearboxes. The company offers in-house designed, turnkey solutions for the water sector, which can be supplied fully assembled. Each drive solution typically consists of a gear unit, motor, inverter and couplings, engineered to interface seamlessly with the customer's equipment to ensure quick and easy installations.

Modular gearbox solutions are available for every aspect of a treatment plant, from the high torque, low speed planetary Series to the HDO and HDP heavy duty industrial range, and the compact, high efficiency inline or right angle drives such as the C (in-line helical), A (bevel helical) and F (shaft mounted) geared motor series.

The Active Cube frequency inverter range offers flexibility and intelligent control from premium cabinet inverters to compact, regenerative and decentralised options. These come with integrated programmable logic (PLC), encoder feedback and remote diagnostics. This functionality enables operators to optimise plant performance based on real-time system feedback.

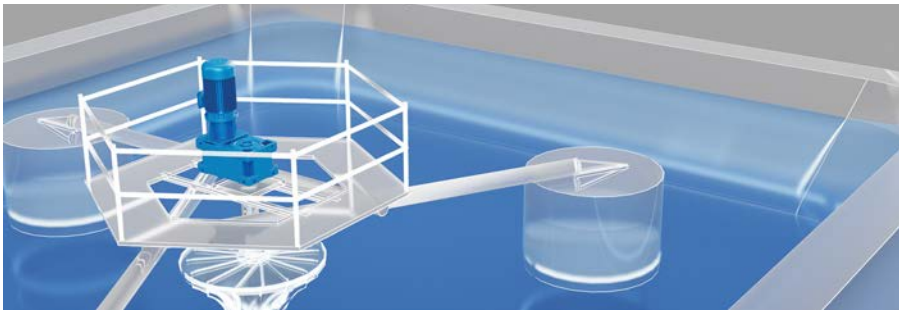
In addition, Bonfiglioli has an IoT digital monitoring system that integrates into SCADA platforms and cloud-based asset management solutions. The system is a fully customisable solution for OEMs and empowers operators to adopt predictive maintenance strategies from live conditional monitoring data. This enables the shift away from reactive service models to condition-based interventions that improve plant reliability, reduce downtime and lower costs.

"There is growing pressure on municipalities and governments to improve the quality of drinking water and the treatment of sewage. If the sources of the water are not correctly treated, this will have a direct impact on the quantity of available water. The fact that water is a renewable resource is a blessing for us, as it can replenish itself again and again over time, but that doesn't mean that we can take it for granted and not give water the importance that it deserves.

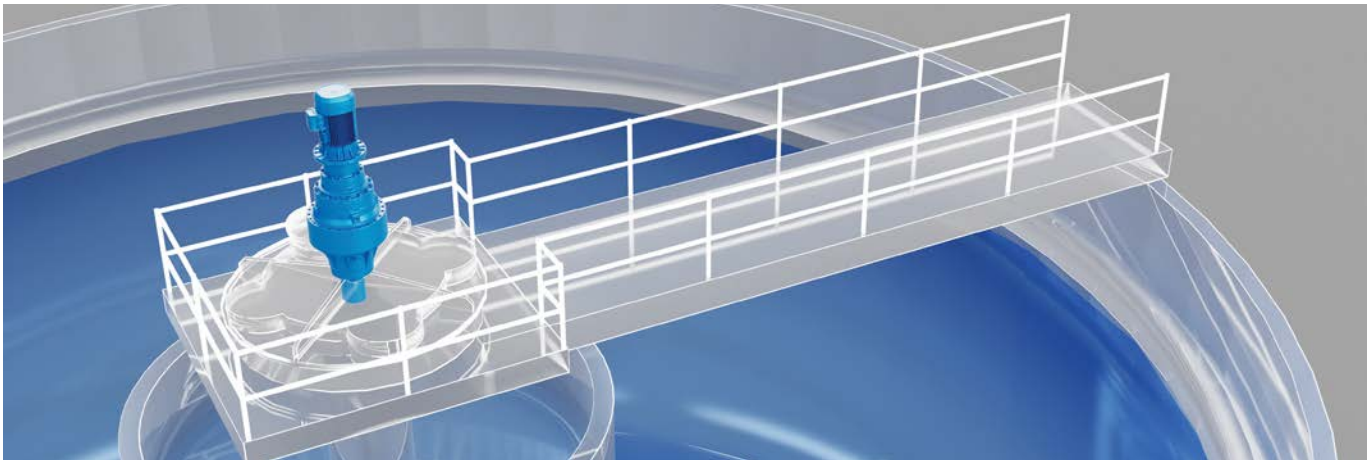
The Bonfiglioli 'we engineer dreams' motto is testament to the company's determination to continue to partner with both public and private enterprises in the fight against relieving water shortages and improving the quality of treated wastewater.

Scan this code to download Bonfiglioli's Wastewater Solutions brochure

www.bonfiglioli.com/south_africa



Surface aerators are rotating systems with paddle-like blades or impellers that agitate the surface water to introduce air bubbles into the water.



Bonfiglioli's 300M Series planetary drive with a directly coupled geared motor are used.

The next generation peristaltic hose pump

Verder, a global leader in advanced pumping solutions, has launched the Verderflex Dura 100, the latest innovation in peristaltic hose pump technology. This large capacity pump has been designed to deliver unparalleled efficiency and reliability in water treatment, chemical processing, high-density slurries, and more, setting a new standard for pumping performance across a wide range of industries.

Darryl Macdougall, Verder Pumps South Africa MD.

The Dura 100 builds on the proven foundation of its predecessor, the VF 100. While maintaining the robust technical specifications that made the VF100 a trusted choice, the new Dura 100 introduces the latest design enhancements and technological upgrades characteristic of the Dura series.

"Engineered to tackle the most demanding applications with enhanced durability, efficiency and ease, the Dura 100 represents a significant advancement in fluid transfer technology," says Darryl Macdougall, Managing Director, Verder Pumps South Africa.

Industries and applications

The Verderflex Dura 100 is specifically designed to excel in demanding applications, and is capable of handling highly viscous, abrasive and shear-sensitive fluids.

They are perfectly suited to applications such as, but not limited to:

- Metering, dosing and transfer duties with a focus on sludges, slurries and abrasives – from lime slurry transfer or sludge removal in water treatment facilities, to slurry transfer in precious metal recovery.
- Transporting fly ash from coal-fired stations.
- De-watering applications, such as a filter press.
- omato pastes and fruit puree, as well as potato skins, are used in food manufacturing.

With this launch, Verderflex continues to uphold its reputation as a leader in fluid transfer technology to Enable Progress for the benefit of many.

The Dura 100 is now available across Verder Group's operational footprint, including in South Africa and Africa.

Verder Pumps SA (Pty) Ltd was established in 2002 and over the past 23 years has become a leading pump supplier throughout South Africa and Sub-Saharan Africa with a reputation for providing reliable, cost-effective, efficient and long-lasting pumping solutions. As a subsidiary of the global Group, Verder Pumps SA offers a wide range of the company's durable, industrial pumps, suitable for numerous applications across various industries.

www.verderliquids.com/za

The new Verderflex Dura 100 peristaltic hose pump introduces the latest design enhancements and technological upgrades and is capable of handling highly viscous, abrasive and shear-sensitive fluids.

Wireless leak detection valve

Designed to prevent water leakage by automatically shutting off the water supply when a leak is detected, the Runxin F104 Wireless Leak Detection Valve is one of the latest offerings from Allmech, a leading South African manufacturer of boilers and a supplier of water treatment components.

"Water damage can be costly and disruptive, but the Runxin F104 leak detection valve offers a smart, automatic solution to safeguard a home or business. It can prevent damage in homes by detecting leaks in geysers, solar heaters and water filtration systems, making it perfect for residential use, but it's also something we think will be of use to our water bottling clients," says Anelia Hough, water treatment consultant at Allmech.

"It helps prevent water damage and water loss where clients have installed water treatment plants by detecting leaks in key areas. Once the leak is detected, the automatic ceramic ball valve is closed to prevent any further water loss or damage to the area. It's also great for clients using water cooling systems, or operating boilers, water softening systems, prefiltration systems and reverse osmosis (RO) or demineralisation plants."

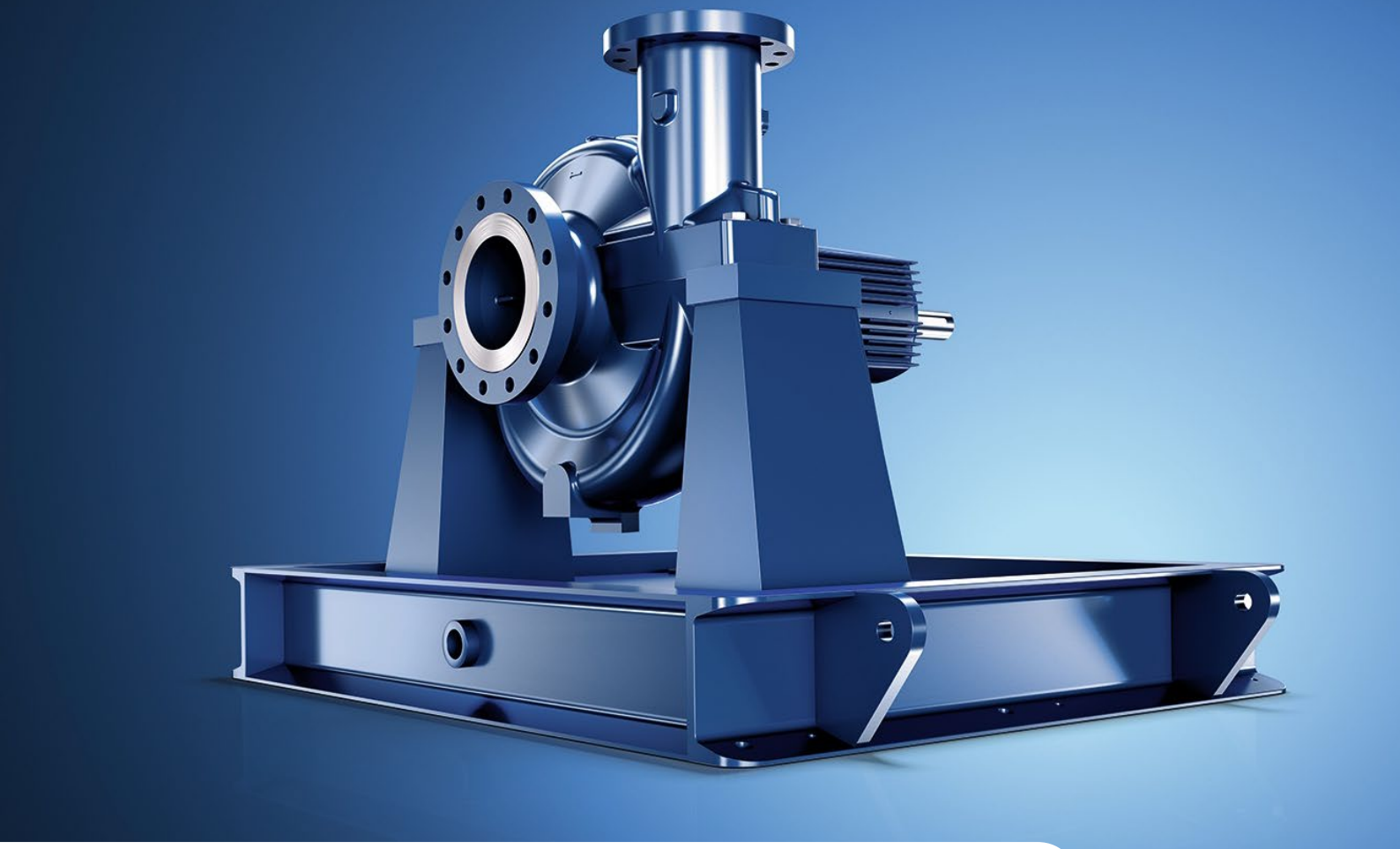
Other applications include hotels, offices and factories, where the valve can prevent water damage and water loss in areas such as production lines, laundries and kitchens, where a high volume of water is consumed. "If water pipes burst during non-operating hours, the valve detects the leak and shuts off the water supply," says Hough. "The valve can connect to multiple leak sensors, allowing real-time detection across different locations. It will also work well in places like gym pool rooms, where heating and filtration systems are located."

She says companies supplying water treatment solutions, such as water softening systems, water filtration systems, prefiltration systems and RO or demineralisation plants should consider supplying this valve as a value-add product to give their clients peace of mind. "Unlike conventional detection systems that only alert users to a problem, the F104 automatically closes the water supply when a leak is detected, preventing damage," she points out.

www.allmech.co.za

The Allmech Runxin F104 Wireless Leak Detection system prevents water leakage and associated damage by automatically shutting off the water supply when a leak is detected.

FLUENT IN PETROCHEMICAL.



RPH process pump:
Robust, Reliable, Efficient and to API 610 12th edition

Your Level 1B-BBEE Partner

High pressures, extreme temperatures and aggressive media: The challenges in refineries, chemical and petrochemical industries are tough. They require robust quality products – like the RPH (OH2) process pump. The low-maintenance pump safely and efficiently handles various petroleum products, leaving nothing to be desired.

Find out more at
W: www.ksb.com/en-za
Tel: +27-11-876-5600 (H/O)

KSB
PETROCHEMICALS/CHEMICALS

KSB

Advanced technologies for water reuse

Utilities and businesses around the world have reused 18.1-billion cubic meters of water since 2019, enabled by solutions from global water technology leader Xylem, the Company revealed in its most recent Sustainability Report. That volume is enough to meet the annual water needs of more than 350-million people, based on global use estimates.

Reuse is just one part of a broader effort to increase global water security, alongside the implementation of advanced treatment and digital technologies. Water managers are using the innovations to protect water sources, remove contaminants, reduce emissions and make water infrastructure more resilient.

South Africa is a major consumer of water, despite below-average global rainfall that is distributed unequally across its geography. South Africans use an average of 235 litres per capita each day, a third higher than the global average of 173 litres. Water reuse and conservation practices, including rainwater capture and drip irrigation, are spreading among local communities, spearheaded by organisations such as Xylem Watermark and its partners.

"Our customers are tackling the world's toughest water challenges," said Matthew Pine, Xylem President and Chief Executive Officer. "Their results show the impact of scaling proven technology solutions to strengthen water systems. The work they do empowers businesses and communities to become more water-secure."

In 2019, Xylem launched its 2025 Sustainability Goals, including several targeting the positive impact its technology enables for its customers. Since then, Xylem solutions have enabled customers to:

- Reuse 18.1 billion cubic meters of water, extending the lifecycle and value of freshwater. In the US, a global spirits manufacturer identified opportunities to reuse more than 3 785 m^3 of water annually.
- Reduce non-revenue water in distribution networks by 3.7-billion m^3. In Spain, a provincial water utility avoided two major pipeline failures and prevented leaks, saving 25 000 m3 of water each year with predictive monitoring and analytics.
- Prevent 10.7 m3 of polluted water from entering waterways. In the U.S., an advanced treatment service is enabling industrial manufacturers to remove heavy metals from wastewater, reduce hazardous waste and minimise discharge to local waterways.
- Reduce water-related CO_2e emissions by more than 6.4 million metric tonnes. In Eastern Europe, a food processor cut energy use by 33% with an upgrade to smart aeration technology.

Xylem achieved all four of its 2025 Customer Sustainability Goals ahead of schedule. Building on that momentum, the company has set a bold new target: enabling customers to reduce annual water demand by 2 billion m3 by 2030.

"We partner with our customers to advance their sustainability ambitions, creating positive impact in the communities we all serve," said Claudia Toussaint, Chief Sustainability Officer at Xylem. "This report shows how our commitment to sustainability leadership enhances Xylem's competitiveness in the marketplace. By embedding sustainability in every aspect of our business and culture, we are empowering our customers and communities to achieve the water security essential to health and economic growth."

Xylem's impact also extends across its value chain. In 2024, 43% of Xylem's supplier spending supported partners aligned with WASH4Work, a global initiative focused on expanding access to clean water, sanitation, and hygiene.

"Every drop we can reuse is a win for our communities," says Chetan Mistry, Strategy and Marketing Manager at Xylem Africa. "We see success when we work closely with community members. We provide the materials and equipment, and experts who share their knowledge, but it's the community that makes a difference. There are also gains for water recycling among local mining, agriculture, and the public utility sector." The country could face a 17% water deficit by 2030, according to the Development Bank of South Africa. Yet, it can make up that shortfall through active water recycling and reuse. With Xylem's help, South Africa is making water more sustainable.

Water reuse and conservation practices, including rainwater capture and drip irrigation, are spreading among local communities, spearheaded by organisations such as Xylem Watermark and its partners.

"By embedding sustainability in every aspect of our business and culture, we are empowering our customers and communities to achieve the water security essential to health and economic growth," says Xylem Africa's Chetan Mistry.

MDX Pumps: a leap forward in mill duty pumping

This article from KSB Pumps and Valves outlines the design strides that have been taken since KSB's MDX mill duty pump was first introduced in 2008.

KSB's GIW MDX pump has consistently evolved to meet the changing needs of mill-circuit applications. This pump is designed with the latest technology from GIW to deliver superior wear properties and extremely long service life while handling aggressive slurries.

In 2008, the KSB GIW® MDX pump represented a major leap forward in mill duty applications. Before its introduction, KSB's range of GIW® slurry pumps had already built a solid reputation in the industry.

Nevertheless, the MDX was meticulously designed from the ground up as a world-class mill pump for cyclone feed applications. It incorporates cutting-edge features such as an adjustable suction liner, thicker sections for improved wear life, and oversized shrouds for superior performance.

Within five years of its launch, major mines began specifying the MDX pump for new facilities and expansions. The MDX has consistently outperformed other pumps, often two to four times in certain cases. As a result, many customers have standardised on the MDX for their cyclone feed applications, praising it for its best-in-class wear performance and ease of maintenance. The adjustable suction liner, which allows for nose gap adjustments while the pump is running, has been particularly lauded.

Significant advancements

KSB GIW has remained closely engaged with customers, using their feedback to continuously improve the MDX design since its introduction to the market.

- In 2009, the introduction of Endurasite® and Enduraclad® materials provided additional paths to enhance wear performance.
- By 2011, full pump lift capabilities were introduced even for the largest MDX 750 pumps.
- The modular wet end introduced in 2012 reduced the time required to replace a complete pump wet end.
- By 2014, further hydraulic improvements were made, including adding 35% more wear material to the impeller nose and optimising casing thicknesses.

These advancements harmonised the wear life of all key wet-end components, creating a consistent hydraulic design approach for larger models from the MDX 400 to the MDX 750.

Additional design advancements are anticipated in 2025 to enhance the hydraulics of smaller pumps in the 100 to 350 range.

Additional upgrades

In 2018, the first RAMSL (Remotely Adjusted Mechanical Suction Liner) was installed, revolutionising the adjustment of impeller nose clearance by enhancing wear performance and reducing maintenance time.

This was followed by the installation of the first SLYsight in 2021, an advanced slurry pump wear monitoring system that uses sensors to provide real-time data on pump wear, optimising maintenance schedules and extending pump life.

These features have enhanced the maintenance-friendly aspects of the MDX range, allowing for real-time data collection on pump operation, wear and nose clearance settings. This data, previously requiring planned maintenance shutdowns, can now be collected in real time, providing operators with new tools to optimise equipment uptime.

Future advances

Looking ahead, KSB GIW is leveraging its world-class foundry capabilities to meet the market demand for larger mill duty pumps. The development of the MDX 850 will take full advantage of this expanded foundry capacity.

Additionally, the new KSB IoT and Automation Lab in Grovetown, Georgia, USA, will accelerate the development of digital products. Plans include a handheld version of SLYsight and a user dashboard for on-demand data to optimise equipment performance. These initiatives will introduce exciting new features to the market, ensuring the MDX product line remains ahead of the curve and continues to offer best-in-class performance.

www.ksb.com/en-za

SLYsight is a slurry pump wear monitoring system that provides real-time data on pump wear.

ABB innovations for energy efficiency and sustainability

The application of sensor technology to reduce operational and standby power losses of traditional current and voltage transformers means that, over the lifetime of a typical switchboard in the African environment, energy savings equate to 181 MWh over 30 years. This is according to Egon Worthmann, Business Manager – Commercial and Operations in the Distribution Solutions Business at ABB.

Sensor and digital technologies used in conjunction with ABB's switchgear assist customer operations to run more efficiently, thereby reducing their carbon footprint. This enables African customers, in particular, to be less reliant on coal-fired power stations.

"ABB has long championed energy efficiency and sustainable operations. We have invested a huge portion of our revenue into research and development," says Egon Worthmann at the Enlit Africa event in Cape Town, which saw the technology leader presenting its digital substation architectures with CPC/VPAC (SSC600) to enable centralised protection and control.

Local substation operators benefit by having the flexibility to meet the growing and changing demands of the modern distributed power network. The system also enables condition monitoring of assets, ultimately reducing lifecycle costs.

"We are also using the opportunity to showcase and present our medium voltage (MV) secondary switchgear, which is SF_6 free, to assist our customers in achieving their sustainability goals," adds Worthmann. ABB's SafePlus Air 24 kV is an innovative, eco-efficient medium-voltage gas-insulated switchgear (GIS) that eliminates the use of sulphur hexafluoride (SF_6), a potent greenhouse gas. Instead, it utilises dry air as the insulation medium, offering a sustainable alternative for secondary distribution networks.

By replacing SF_6 with dry air, SafePlus Air significantly reduces environmental impact. Dry air has a Global Warming Potential (GWP) of zero, compared to a GWP of 25 200 for SF_6. The switchgear complies with IEC standards and the EU F-gas regulation (EU) 2024/573, aligning with global efforts to phase out SF_6 in electrical equipment.

ABB's SafePlus Air switchgear has been successfully implemented in pilot programmes aimed at reducing carbon emissions. For instance, Northern Powergrid in the UK adopted SafePlus Air for substations in County Durham, contributing to its goal of decarbonising its network by 2040. The switchgear's compatibility with existing systems enabled seamless integration and resulted in significant reductions in SF_6 emissions.

Left: ***Veron Maharaj, Product Marketing Specialist in the Smart Buildings Division at ABB.*** *Right:* ***Egon Worthmann, Business Manager – Commercial and Operations in the Distribution Solutions Business at ABB.***

ABB's Tmax XT MCCBs feature a range of integrated technologies that contribute meaningfully to energy efficiency and environmental responsibility.

The LV offering

Building on the sustainable innovations demonstrated in its medium-voltage (MV) portfolio, ABB is also advancing low-voltage (LV) solutions with the same focus on energy efficiency and environmental responsibility. This highlights ABB's holistic approach to reducing emissions and improving operational efficiency across the power distribution value chain.

At Enlit Africa this year, ABB showcased the Tmax XT moulded-case LV circuit breaker (MCCB), designed to complement medium voltage (MV) innovations such as SafePlus Air in achieving customers' broader sustainability goals. The Tmax XT MCCBs feature a range of integrated technologies that contribute meaningfully to energy efficiency and environmental responsibility.

Among these features is the Ekip Power Controller, which facilitates dynamic load management and peak shaving. This capability can reduce energy consumption by up to 20%, helping users avoid penalties for surpassing contracted limits and managing peak demand more cost-effectively. The Tmax XT

also delivers high-precision metering with 1% energy measurement accuracy, enabling detailed monitoring and optimisation of energy use.

Through ABB Ability™ connectivity, the MCCBs enable real-time data analysis and remote energy management via the cloud. Their Ekip Touch trip units support comprehensive power quality assessments, including voltage, energy, power and harmonics, allowing for more proactive maintenance and system optimisation.

In line with global green building initiatives, the Tmax XT supports compliance with environmental certification standards such as Green Mark Platinum, thanks to its precise energy monitoring and reporting capabilities. Its modular and upgradeable design ensures that customers can easily enhance system functionality without having to completely replace hardware, reducing electronic waste and lowering lifecycle environmental impact.

In addition, safety and reliability have been enhanced with features such as arc-fault and adaptive protections, which reduce the risk of system failures and maintenance interventions, further contributing to operational sustainability.

"ABB has been driving sustainability across the entire value chain of its circuit breaker product line. Our goal is not only limited to the sustainable production of circuit breakers, but also to ensure that the end users of our products in Africa get access to technologies that help reduce energy consumption," explains Veron Maharaj, Product Marketing Specialist in the Smart Buildings Division at ABB.

He adds that circuit breakers, once used purely as protective devices, have now evolved into multifunctional tools, thanks to ABB's innovation. The Tmax XT MCCBs have been engineered to reduce power losses and the total cost of ownership over their operational lifespan. With integrated digital communication across eight industrial network protocols, the devices offer seamless data sharing and control within complex electrical systems.

ABB presented these solutions at Enlit Africa 2025 at the Cape Town International Convention Centre, Africa's premier gathering for the power, water and energy sectors.

As the world's demand for electricity grows, ABB's 50 000+ employees across 100 countries collaborate with customers and partners to transform how people connect, live and work. "We develop innovative products, solutions and digital technologies that enable energy efficiency and a low-carbon society across all sectors. By applying global solutions with local expertise, we shape and support global trends, deliver excellence for our customers, and power a sustainable future for society," says Egon Worthmann.

https://go.abb/electrification

ABB's SafePlus Air 24 kV is an innovative, eco-efficient medium-voltage gas-insulated switchgear (GIS) that eliminates the use of sulphur hexafluoride (SF_6).

Rollon linear guidance systems

BMG has expanded its portfolio of motion control technologies with the introduction of Rollon linear guidance systems, designed for high efficiency in many industries, including the rail sector in Africa.

These advanced systems, developed by Rollon, a member of The Timken Company, are specifically engineered to deliver high-performance motion solutions in demanding environments, including railway infrastructure and maintenance applications.

The Rollon Compact Rail system, which has shown success in European maintenance locomotives, offers a robust solution that enhances both safety and functionality. By facilitating smooth manual adjustments of onboard equipment, such as seating mechanisms, this system enables technical teams to improve lateral visibility and react more effectively to trackside conditions during maintenance operations. The system also allows operators to slide across to observe both sides of the locomotive, without relying on powered components, which reduces failure risks and improves operator performance.

Leon Koekemoer, BMG's Linearway and Ball Screw Product Specialist, says: "Rollon's linear motion guidance solutions are built to accommodate misalignment and can be mounted on standard fabricated steel, without the need for precision machining. This makes them ideal for heavy-duty and mobile environments, as seen in the railways sector. The telescopic rails within the range offer market-leading load capacities, ensuring long-term reliability.

Rollon's approach is based on delivering modular and configurable motion systems that integrate easily into various industrial structures. For railway operators, this translates into reduced fabrication costs and greater flexibility in vehicle interior layouts. Beyond seating, the same principles are being applied to tool storage, inspection bays and other areas, where adaptable linear movement can contribute to better ergonomics and workflow."

A notable feature of the Compact Rail TLC43 and ULC43 models is their performance under harsh operating conditions, including vibration, dust and shock.

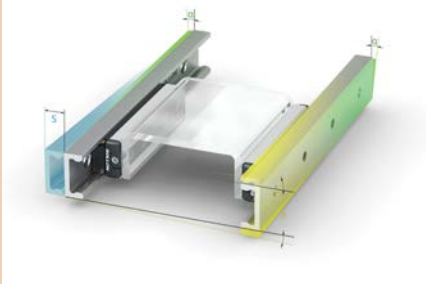
These rails use rollers rather than balls, providing smoother and quieter motion, while withstanding acceleration of up to 3g and functional loads of 150 kg. This solution is suitable for both new installations and retrofitting in mobile maintenance units, where ease of integration and minimal electronic control requirements are advantageous.

In addition to maintenance in the railways sector, Rollon Compact Rail, with its self-aligning and compact design, is used in diverse industries, including industrial machines, material handling, packaging, aerospace, electronics, food and beverage, machine tools, building and furniture, special vehicles, robotics and automation, and healthcare.

As part of the extensive Timken portfolio, Rollon products benefit from global standards in quality assurance and supply chain integration. BMG's appointment as the authorised distributor in Africa ensures that the local market has access to both the product range and the necessary local support, including technical selection, condition monitoring and retrofit consultation.

BMG supports industry with motion control solutions that combine performance, durability and ease of use. The Rollon system enhances this offering, particularly for rail customers seeking dependable and efficient components for fleet upgrades and new builds.

https://bmgworld.net



Rollon linear guidance systems are designed to deliver high performance in demanding environments.

Do you need more clarity in your network?
We can provide it!

Transforming wastewater back into clean water takes a lot of work. This makes it all the more important to have readings you can rely on. Our level and pressure instrumentation is made precisely for this purpose: To ensure that when you measure, you get accurate and reliable data, so you know what's going on in your processes.

Everything is possible. With VEGA.

vega.com

VEGA HOME OF VALUES

Mastering measurement for chemical storage

From corrosive acids to volatile hydrocarbons, VEGA's advanced instruments: VEGAPULS, VEGABAR, and VEGASWING, deliver reliable performance in the toughest chemical storage environments.

Chemical storage facilities, whether for raw materials, intermediates or final products, pose significant measurement challenges due to the variety of stored substances. Substances may range from corrosive acids and alkalis to volatile hydrocarbons and toxic chemicals, requiring specialised measuring solutions. VEGA's suite of instrumentation, including the VEGAPULS radar sensors, VEGABAR pressure transmitters, and the VEGASWING vibrating level switches, addresses challenges with precision and reliability, even in extreme conditions.

Precision level measurement

Level measurement in chemical storage tanks is essential for inventory management, safety and process control. One of the most advanced technologies employed in these applications is the radar-based level measurement.

The VEGAPULS 6X non-contact radar sensor stands out for its superior accuracy and reliability for level measurement of bulk liquids and solids, making it suitable for chemical storage tanks. The 6X sensor is capable of tolerating substances like solvents, hydrocarbons or other aggressive chemicals due to the non-contact radar technology. Employing chemically resistant materials, such as PTFE and PEEK, further enhances its durability in corrosive environments.

The High-frequency radar technology employed allows for the detection of surface liquids with exceptional precision, regardless of tank geometry or obstructions, such as mixers or heating coils, which are often present in chemical storage vessels. The 80 GHz radar beam of the VEGAPULS 6X is ideal for chemical storage applications as it produces a narrow beam angle, minimising interference from tank walls or internal fixtures.

Guided wave radar sensors like the VEGAFLEX 81 offer a reliable option for continuous level measurement in storage tanks. The VEGAFLEX transmits guided radar waves along a cable or rod, which is effective for monitoring levels in tall tanks that experience high pressures, high temperatures and foam formation.

Reliable pressure measurement

Pressure measurement is equally critical to ensuring safety and operational control. Tanks storing volatile substances or pressurised chemicals require precise monitoring to prevent overpressure or vacuum conditions. The VEGABAR series of pressure transmitters provides highly accurate and dependable pressure measurements, even in harsh operating environments.

The VEGABAR 83 pressure transmitter, equipped with ceramic-capacitive sensor technology, can operate under extreme pressure and is capable of pressure measurement of gases, vapours and liquids. The ceramic measuring cell offers high resistance to corrosion and abrasion and is suitable for use in chemical storage tanks containing acids, alkalis and other reactive substances.

Characterised by accuracy and long-term stability, it is a dependable option for monitoring process pressure or hydrostatic levels in tanks.

The VEGABAR 82 is designed for applications that require differential pressure measurements and can be combined with any other sensor in the VEGABAR 80 series to electronically track differential pressures. This transmitter features a chemically resistant ceramic measuring cell, providing high-precision measurements of differential pressures. It is suitable for processes involving closed chemical tanks, where it is necessary to monitor both liquid levels and pressures simultaneously.

Differential pressure measurement is essential for cryogenic or high-pressure chemical storage, as even minor pressure deviations can present operational risks.

The integration of pressure measurement systems with level sensors creates a comprehensive monitoring solution for chemical storage tanks. Combining the VEGABAR pressure transmitters with VEGAPULS radar sensors allows operators to monitor both pressure and level parameters in real-time, providing critical insights into the tank's status, enhancing safety and control.

Safety and level switches

Continuous level and pressure measurement, along with point-level detection, play a critical role in safety applications, such as high- and low-level alarms in chemical storage tanks. VEGA's VEGASWING series of vibrating level switches is designed for these functions. The VEGASWING level switch operates on vibration technology, where the device's tuning fork vibrates continuously when it is not in contact with the medium. Upon contact with the liquid, the vibration ceases, which triggers a level alarm. This technology is engineered to ensure reliability even in extreme temperatures and pressures, thereby contributing to the safety of chemical storage processes.

The VEGASWING 63 serves as a universal level switch for all liquids, including aggressive and hazardous chemicals. It reliably detects levels with millimetre accuracy, regardless of the mounting position. The instrument can be utilised in vessels for various applications, such as empty or full detection, approved overfill protection, dry run protection, or pump protection. The position of the switching point is adjustable through the tube extension. The VEGASWING 63 is noted for its reliability and security across a broad range of applications.

VEGA's technologies enable chemical processing plants to manage their storage systems.

Advantages of VEGA Technology

VEGA's radar and pressure measurement technologies operate independently of the environmental factors commonly found in chemical tanks. Non-contact measurement solutions help reduce wear and exposure to hazardous chemicals, leading to lower maintenance costs and reduced downtime.

Sensors and transmitters are designed for seamless integration with process control systems. Digital communication protocols, including HART, Profibus, and Foundation Fieldbus, enable operators to monitor level and pressure measurements remotely, enhancing operational efficiency and facilitating predictive maintenance strategies.

VEGA's diagnostic tools support quick troubleshooting and system optimisation, which is essential for minimising disruptions to chemical storage operations.

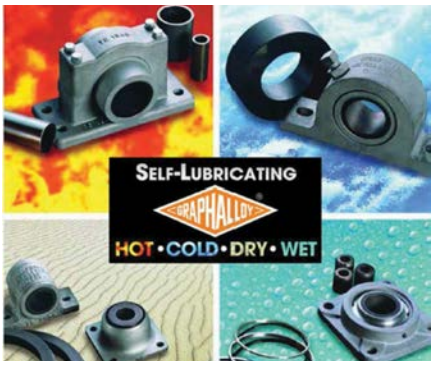
Safety is a critical aspect of VEGA's instrumentation, with the VEGAPULS 6X and VEGABAR 83 certified and approved for use in hazardous zones, complying with international safety standards such as ATEX and IECEx for explosive or corrosive environments.

The implementation of VEGA's technologies enables chemical processing plants to manage their storage systems effectively, even under demanding conditions. Through robust design, chemical resistance, and safety certifications, VEGA has established itself as a leading provider of instrumentation solutions for the chemical industry.

www.vega.com/en-za

Graphalloy®: the self-lubricating metal alloy for demanding environments

Craig FitzGerald of ISO-Reliability Partners introduces Graphalloy®, a self-lubricating composite graphite-metal material that can operate without conventional lubrication, even in high-temperature, chemically aggressive or inaccessible environments.



In industrial operations where traditional bearings are prone to failure, a unique material has steadily built a reputation for reliability under extreme conditions. That material is Graphalloy®, a graphite-metal alloy renowned for its ability to operate without conventional lubrication, even in high-temperature, chemically aggressive, or inaccessible environments.

Developed by the Graphite Metallizing Corporation, Graphalloy® has become a preferred solution for engineers seeking long-lasting, maintenance-free performance in sectors ranging from power generation to chemical processing. Its distinct structure combines the inherent lubricity of graphite with the mechanical strength of metals such as nickel, bronze, copper or silver. The result is a material that not only withstands harsh conditions but excels in them.

A true composite

Graphalloy® is not a simple mixture or coating but a true composite. The manufacturing process involves machining high-purity graphite into the required shape, then impregnating it with molten metal under vacuum or pressure. This infusion permeates the graphite's porous matrix, enhancing its strength while preserving its natural self-lubricating characteristics. The outcome is a solid, homogenous material that offers a rare combination of dimensional stability, wear resistance and thermal resilience.

One of the standout qualities of Graphalloy® is its thermal capability. Unlike conventional lubricated bearings, which often fail as lubricants evaporate, degrade or ignite, Graphalloy® maintains performance at temperatures up to 538°C in oxidising environments, and up to 400°C in steam. This makes it particularly valuable in applications such as ovens, kilns, and turbines, where high heat is a constant factor.

"Graphalloy® is an ideal solution for any bearing or bushing application where lubricants fail due to the surrounding environment," says Craig FitzGerald.

Impressive mechanical properties

The mechanical properties of Graphalloy® are equally impressive. It exhibits a low coefficient of friction, even under dry-running conditions. It does not seize or gall, making it ideal for oscillating or rotating motion. The material also offers high resistance to wear and maintains its dimensional integrity across a wide temperature range, thanks to its low thermal expansion.

Crucially, Graphalloy® resists attack from a broad range of chemicals, including acids, alkalis and solvents. This makes it suitable for use in some of the most aggressive industrial environments, where corrosion and contamination are persistent concerns.

Available in over 100 grades

Graphalloy® is available in various grades, each tailored to specific conditions. For example, nickel-based grades are often used in food processing or pharmaceutical settings due to their corrosion resistance and compliance with hygiene standards. Other grades are designed to handle dry start-up conditions in pumps or continuous operation in high-temperature conveyors.

The applications of Graphalloy® are wide-ranging. In the pump industry, it is frequently used for sleeve bearings in vertical or submersible pumps, where conventional materials often fail during dry start-up or intermittent flow. In valves, particularly those handling steam or corrosive gases, Graphalloy® bushings provide consistent performance without lubrication, even after extended periods of inactivity.

Temperature and chemical resistance

In high-temperature environments such as industrial ovens or conveyor systems, Graphalloy® eliminates the need for lubrication, preventing dripping or smoke, a significant advantage in industries such as food production or textiles. The material's chemical resistance also makes it ideal for components in mixers, agitators and pumps operating in corrosive environments, including those containing acids, ammonia or chlorine gas. Even in the nuclear sector, Graphalloy® is used in valve stems and bushings where radiation, pressure and heat demand exceptional material performance.

In addition to these benefits, Graphalloy® offers important operational advantages. It requires no maintenance or lubrication systems, significantly reducing downtime and associated costs. It can operate continuously or intermittently without the need for supervision, making it suitable for remote or hazardous locations. Graphalloy® does not contaminate products, making it environmentally friendly, and contributes to safer operations by eliminating the risks associated with lubricant leakage or failure.

Application-specific conditions

Despite these advantages, Graphalloy® is not without limitations. It typically carries a higher initial cost than traditional bearing materials such as bronze or PTFE. It also has a lower load capacity compared to hardened steel and can be brittle under impact. Furthermore, it is sensitive to thermal shock, which can, if not effectively managed, cause cracking in certain grades. These factors mean that engineers must consider application-specific conditions such as load, speed, temperature and environment when selecting Graphalloy®.

When compared to other common bearing materials, as shown in Table 1, the advantages of Graphalloy® become particularly evident.

Real-world applications

In real-world applications, the advantages of Graphalloy® translate into tangible operational gains. For instance:

- In a steel mill's hot rolling line, Graphalloy® bearings replaced

lubricated roller chain bearings that had been failing weekly due to lubricant breakdown. Following the switch, maintenance intervals were extended to over a year, with no unexpected downtime.

- In a chemical processing facility, Graphalloy® components were installed in a sodium hydroxide mixing tank. They operated continuously for five years without showing signs of wear or corrosion, a remarkable improvement over the previous sealed bearing system.
- A nuclear power station using Graphalloy® in its steam valve assemblies reported reduced maintenance schedules and improved system responsiveness under high-pressure and temperature conditions.

Dependable, low-maintenance solutions

Graphalloy®'s success is rooted in its ability to solve complex problems in environments where other materials simply cannot cope. Its blend of mechanical strength, chemical stability and self-lubrication makes it an ideal candidate for engineers seeking dependable, low-maintenance solutions. While the upfront cost may be higher, the lifecycle cost benefits, including reduced downtime, lower maintenance and improved safety, are substantial.

As industries move toward more resilient, efficient and sustainable operations, materials such as Graphalloy® are becoming increasingly important. In an age where performance under pressure is not just desirable but essential, Graphalloy® stands out as a material that delivers quietly, consistently, and under the most punishing of conditions.

A range of graphite-metal/alloy bushings and bearings is available from ISO-Reliability Partners. "Graphalloy® is an ideal solution for any bearing or bushing application where lubricants fail due to the surrounding environment," says Craig FitzGerald.

ISO-Reliability Partners is an original equipment manufacturer (OEM) of class-leading micro-fine oil filtration solutions. ISO owns the iconic Filter Focus brand of vacuum dehydration systems, automated water removal for compressed air, and high-efficiency industrial air scrubbing. "Our high production standards ensure customer satisfaction and unrivalled protection of their critical production equipment," concludes FitzGerald.

www.iso-reliability.com

Material	Graphalloy®	Bronze	PTFE	Steel
Lubrication	Self-lubricating	Requires oil	Self-lubricating	Requires oil/grease
Maximum Temperature	538°C	204°C	260°C	204°C
Corrosion Resistance	Excellent	Moderate	Excellent	Low
Dry Running	Yes	Limited	Yes	No
Wear Life	High	Moderate	Low-Moderate	High (with lubrication)

A comparison of the properties of Graphalloy® with other common bearing materials.

SKF's integrated triple-action solution

SKF has successfully delivered a powerful, integrated solution to a leading metals industry customer in Cameroon, combining advanced CoMo (condition monitoring) technology; quality, high-performance bearing products; underpinned professional, expert services.

Before implementing SKF's holistic solution, the customer had been operating in a conventional, reactive maintenance mode. Subsequently, equipment, including fans and rolling mills, was routinely run to failure, with premature failure a common occurrence. This resulted in unplanned downtime and the need for systematic bearing replacements.

Predictive maintenance practices were absent, with only global vibration measurement conducted, while static balancing was outsourced to third-party test benches. Additionally, over-greasing of critical assets was a recurring issue, further compromising equipment performance, reliability and lifecycle, while driving up costs and driving down production.

SKF's integrated approach

Following an assessment, SKF responded to these challenges by recommending an integrated approach with three components: condition monitoring (CoMo), high-performance bearings, and on-site as well as remote service expertise to effectively target operational gaps. "This solution was designed not only to prevent premature failures but also to enable predictive maintenance, reduce over-greasing incidents and bring critical balancing processes in-house," emphasises Lionel Ndjee, SKF Sales Engineer Central Africa.

"In addition to vibration analysis, balancing and alignment services, we also provided our customer with lubrication assistance. Furthermore, we organised a technical session, supported remotely by our team of metals industry experts, to better understand the customer's challenges and tailor the most effective solution for their operations."

This triple-impact approach is a collaboration between the local SKF team and their Authorised Distributor, TMC (Transmissions Manutention du Cameroun). The local distributor permitted the customer to take advantage of his 'duty-free company in Cameroon' status by delivering the goods ex works. All of this has not only boosted the customer's operational efficiency and reliability but is also delivering measurable cost savings and sustainability benefits, such as extended service life of equipment, demonstrating the value of a holistic strategy that is tailored to meet the customer's exact demands.

This successful collaboration underscores SKF's ability to deliver not just individual components, but fully integrated solutions that drive real operational value. "Our joint efforts have also earned the customer's trust, resulting in a new agreement to, in the future, source bearings through our distributor," highlights Ndjee.

"By combining deep application knowledge with cutting-edge technologies and service expertise, SKF continues to help customers reduce costs and improve asset performance, leading to more efficient and sustainable operations," he concludes.

www.skf.com

SKF's holistic strategy brings critical fan balancing processes in-house.

SKF is collaborating with an Authorised Distributor in Cameroon to drive operational value for customers with an integrated, triple-action solution: CoMo (condition monitoring); quality, high-performance bearing products; and professional, onsite services

Hexagon Electrical expands local manufacturing and services

Hexagon Electrical has expanded its manufacturing and service capabilities to meet growing demand for customised, high-performance specialised electric motors for heavy engineering, hazardous industrial and mining applications.

Hexagon Electrical, which is based in Brakpan, Gauteng, specialises in both flameproof and non-flameproof equipment, combining mechanical precision, electrical expertise and design innovation to deliver robust, energy-efficient certified solutions tailored to exact customer requirements.

"Our broad product portfolio comprises motors and transformers, enclosures and switchgear, ventilation fans, scrubber fans and auxiliary equipment, as well as a full range of flameproof equipment compliant with SANS 60079 standards," explains David Dyce, CEO, Hexagon Electrical.

The range of specialised Hexagon motors includes dual kW and dual speed AC motors, slip ring motors, and water-cooled flameproof motors. "Also in our portfolio are flameproof or standard winch and traction motors, as well as standard or flameproof pad mount motors for heavy-duty mining applications," says Dyce.

"All motors are offered with optional customisation in voltage, mounting, shaft configuration and thermal protection. The company also designs, supplies and services transformers, enclosures, ventilation equipment and auxiliary components for integrated system deployment.

"This robust equipment is engineered to ensure high performance and optimum safety in critical applications, including ventilation in hazardous areas, chemical processing, materials handling and in underground mining.

"Through in-house design, manufacturing and testing facilities, our highly-skilled team offers a complete service lifecycle, including system design, motor rewinding, mechanical refurbishment, electrical testing and final certification."

The company's recent investment in test infrastructure enables motors to be evaluated at full load up to 460 kW and 6.6 kV. Flameproof inspection is conducted by accredited inspectors and all products undergo mechanical and electrical assessments before final assembly. A dedicated vacuum pressure impregnation (VPI) system and dual varnishing process ensure quality, durability and performance in extreme operating environments.

Hexagon's facility is equipped with four production bays, each with dedicated lifting capabilities ranging from 5 to 25 t. In-house machining, lamination punching, coil winding and dynamic balancing are all undertaken using modern equipment, including a 460 kW Schenk dynamometer and high-voltage test systems.

The manufacturing process is supported by proprietary design software developed in collaboration with the University of Witwatersrand, enabling advanced simulation, stress verification and application-specific winding design.

Environmental and safety standards underpin the company's operations, which are fully compliant with SABS, SA Flameproof Association, SEIFSA, MASC and ISO technical standards. Motors and control systems are assembled in accordance with SANS 10242 and inspected against client specifications before dispatch. Each unit is supplied with a full data book, including balancing certificates, electrical test reports, records of the repair history and traceable calibration records.

Hexagon Electrical operates under the leadership of David Dyce, whose technical background and commitment to quality assurance continue to drive the company's focus on performance, reliability and long-term customer support. As part of Montsi Investments, Hexagon maintains a strategic focus on industrial resilience, supplying both the manufacturing of new products and repair services to sectors where downtime and failure risk carry high operational costs.

www.hexelect.co.za

Winding of the stator coil of a flameproof water-cooled motor at Hexagon Electrical.

Barring the rotor of a squirrel cage induction motor with copper bars.

Hexagon Electricals' highly skilled team offers a complete service lifecycle, including system design, motor rewinding, mechanical refurbishment, electrical testing and final certification.

Tough SA-built HVAC solutions for extreme environments

Booyco Engineering, South Africa's specialist in high-performance HVAC systems for mobile military, rail, mining, construction and agricultural applications, is celebrating 40 years in business. MCA speaks with managing director Brenton Spies and technical director Grant Miller about the company's expanding offerings.

Grant Miller, Technical Director and Brenton Spies, Managing Director at Booyco Engineering.

With over four decades of experience, Booyco Engineering has evolved into a global leader in specialty HVAC systems custom-designed for military vehicles and mobile equipment. "We've built a formidable reputation for manufacturing durable, high-quality systems, with most of our units designed for operation in extreme environmental and ambient conditions," explains Grant Miller, technical director.

Initially focused on HVAC systems for military vehicles, the company's reputation for rugged reliability soon attracted interest from the rail, mining, and earthmoving sectors.

Miller highlights a major project involving HVAC and cooling tower systems for 240 Alstom Traxx 23E locomotives, currently being built in Bayhead, Durban, for Transnet Freight Rail (TFR). Booyco Engineering has been producing the units for cabin air conditioning and the cooling towers for extracting heat from the drive transformers and converters.

Booyco Engineering's compact diesel-powered APU keeps HVAC systems running while the vehicle's engine is off, saving fuel and cutting emissions on site and in the field.

"This contract, which started in 2014 for what was then Bombardier Transportation, which was subsequently bought out by Alstom Transport, required unique designs to meet the stringent European EN Railway standards – covering vibration, electromagnetic compatibility (EMC), reliability, environmental protection, and more," says Miller. "We are the first South African company to successfully produce railway-rated cooling tower systems that meet these standards – and we do extensive acceptance testing before delivery."

Leveraging years of experience supplying both South African OEMs as well as international equipment suppliers, Booyco Engineering has recently designed a third-generation HVAC system for an overseas military vehicle manufacturer. These units, built to meet rigorous military specifications, will be manufactured locally and exported for fitting at the vehicle assembly plant.

Custom designs and modular innovation

To reduce costs and lead times, Booyco Engineering has established a catalogue of modular evaporators, condensers and integrated units to cover a wide capacity range. This enables HVAC units for mobile mining, construction and agricultural equipment to be quickly and economically customised to suit different vehicle and environmental requirements.

"Locally, we have a strong presence in both OEM and aftermarket sectors," says Brenton Spies. "Our HVAC units are used across a range of South African-manufactured mining, construction and agricultural equipment, tailored to suit the equipment and specific operating requirements."

Field services and on-site support

While the OEM side remains consistent, Spies notes that demand for aftermarket services has increased significantly. Booyco Engineering's field services and sales teams regularly visit mines to assess, maintain, and upgrade HVAC systems. "We also offer man-on-site contracts where our technicians are permanently based at mines and Transnet sites, ensuring maximum uptime of the equipment," he explains.

Thanks to Booyco Engineering's strong reputation, contractors often seek advice on retrofitting HVAC systems onto older vehicles. A retrofit contract for a mining operation in Tanzania recently saw ten Booyco A009 4 kW 24 VDC evaporator units and ten B009 7 kW 24 VDC condenser units installed on existing equipment. The scope also included the supply of installation kits and compressors. Spies explains that the installation followed an evaluation by one of Booyco Engineering's field service technicians.

Innovation and future growth

Booyco Engineering recently introduced a 900 cc diesel auxiliary power unit (APU) to allow HVAC systems to operate when vehicle engines are off. The company is now running trials to demonstrate potential fuel savings and reduced carbon emissions.

"We're also pursuing other military contracts locally and abroad. For this market, we've developed an HVAC unit for hybrid electric military vehicles that cools both the crew and the vehicle batteries," Miller says.

Strategic expansion remains a priority within Africa, most notably Tanzania, and into Europe and Asia. "We recently launched a new company under the 'For-The-People' umbrella to represent all Booyco products in African markets," Spies says. "This includes HVAC solutions, proximity detection systems, fail-safe braking systems, and more."

"After 40 years in business, we're still growing, innovating and expanding – locally, across Africa, and globally," he concludes.

www.booyco.co.za

Industrial fan production facility launched

LH Marthinusen, a Division of the ACTOM Group, has launched a new industrial fan manufacturing and services factory in Ekurhuleni, propelling domestic manufacturing and job creation, aligning with South Africa's National Development Plan and supporting Eskom's infrastructure growth.

LH Marthinusen can boast of over a century of technical excellence and local industry leadership. The company's legacy of pioneering electro-mechanical repair and manufacturing expertise began with its founding in 1913, and it still underpins the company's current expansion, which is deeply rooted in South Africa's industrial progress.

The newly established fan factory not only manufactures industrial fans and their components but also offers maintenance services for essential fan systems that support Eskom's air pre-heater infrastructure. These fans are crucial for Eskom's power generation facilities, as they play a key role in managing airflow and regulating temperature levels.

David Sullivan, Divisional CEO of LH Marthinusen, highlights the strategic significance of this facility: "The launch of this facility underscores our dedication to fulfilling Eskom's infrastructure needs with local products and innovative solutions. Our fans play a pivotal role in the successful operation of Eskom's essential air pre-heater systems. This facility not only boosts our manufacturing capabilities but also fosters employment growth and industrial development in the region."

At the launch of LH Marthinusen's new fans facility in Ekurhuleni are, from left: David Sullivan, Divisional CEO of LH Marthinusen; Mpho Parks Tau, Minister of Trade, Industry and Competition; Mervyn Naidoo, CEO of ACTOM; and Andries Mthethwa, Chairman of ACTOM.

While the project aims to create 50 new positions throughout the first three years, the company envisages an additional 120 job openings to meet Eskom's and general industries' infrastructure demands.

The production of each industrial fan requires 49 tons of steel, along with two tons of stainless steel. The substantial demand for local steel used in quadrifuge (four-stage) fan stations drives growth in domestic manufacturing and supply chain development.

CEO of The ACTOM Group, Mervyn Naidoo, notes: "Our investment and expansion aligns perfectly with the goals of South Africa's National Development Plan (NDP). This supports industrial development while strengthening local manufacturing operations and establishing employment opportunities. This facility supports both energy security for the nation and the NDP's mission to drive economic transformation and skills development, and to modernise infrastructure. It further helps us construct an enduring economy which serves South Africa's long-term development purposes."

The facility tour at the launch event allowed attendees to view both the production lines and the R&D facility that performs critical fan component reverse engineering of blades and impellers.

www.lhm.co.za

The facility not only boosts LH Marthinusen's manufacturing capabilities but also fosters employment growth and industrial development in the region.

Sandvik Rock Processing Vibrating Screens: custom-designed, locally manufactured

Riaan Steinmann, EMEA Operations Director for Screening Solutions at Sandvik Rock Processing, takes *MCA* on a tour of the South African vibrating screen manufacturing facility in Kempton Park and highlights the company's global design and local manufacturing advantage.

Sandvik Rock Processing is a global company with considerable design and manufacturing expertise. For vibrating screens, the company now owns the IP for three different screen ranges: the SK range from South Africa; the SM range from Australia and the S range of sizing screens from Lahti in Finland.

"Sandvik Rock Processing in South Africa is the product designer and IP owner of the SK range, so we support the Australian and Finnish offices for SK screen customisations. Australia supports the SM range, while the Lahti office in Finland supports our S-range," says Riaan Steinmann, Sandvik Rock Processing Operations Director for Screening Solutions for the EMEA region.

From a manufacturing and onsite service support perspective, he notes that Sandvik Rock Processing's manufacturing facility in Kempton Park, Johannesburg is capable of producing any vibrating screen in the company's product range for clients across the EMEA region, while still offering application specific customisations to best meet individual client requirements.

Summarising the three different ranges Sandvik Rock Processing Steinmann says that SK vibrating screens are typically used in the junior to major mining sectors. They consist of a variety ranging from smaller flat deck horizontal screens to large multi-slope (banana) mining screens, grizzly- and scalping screens for ROM applications, as well as a range of vibrating feeders.

"These have been developed in South Africa based on extensive engineering expertise focused on quality, efficiency and high throughput. Designed to be fully adaptable, heavy-duty SK equipment is engineered to handle the toughest site conditions and to match specific ore compositions," he tells *MCA*.

The SM range has its origin in Australia, he continues. Market leading, the range includes some of the largest vibrating screens in the world and is well known for its high capacity and uptime. "SM screens are widely used in Africa's biggest mines. The range includes linear grizzly screens, linear flat screens, and multi-slope screens. These are purpose-designed for durability, precision and efficient processing of large volumes of ore, coal, coke, base metals and rock, while delivering industry-benchmark classification accuracy," he says.

The S Range, which is based on Sandvik Rock Processing's original vibrating screen design, is a solution for precise sizing of aggregates and is widely trusted by the building industry, quarries and processing plants across the world. "As with all these different designs, the S Range can be fully customised to suit unique application requirements and throughputs," adds Steinmann.

Sandvik Rock Processing's screen-design philosophy

Sandvik Rock Processing's screening philosophy is centred around optimising both the physical and dynamic design parameters of the screen, while also selecting the most suitable screening media to match the unique characteristics of the ore being processed. This approach positions the company to deliver proven, effective solutions to the markets, with the screen and the media designs optimised to deliver the best-possible screening outcome.

Riaan Steinmann, EMEA Operations Director for Screening Solutions at Sandvik Rock Processing.

"A recent success involved one of the biggest coal mines in South Africa, which was experiencing significant pegging issues on a large aperture screening panel. Pegging was successfully eliminated and the overall screening performance significantly improved by optimising the design and operating parameters of the vibrating screen, while also engineering a media panel to minimise pegging," he explains.

Screen development and FAT testing

Steinmann says that Sandvik Rock Processing's screen design process typically only takes a couple of days from the time a RFQ is received to the delivery of a design proposal and quotation. "This involves gathering mineral processing data from the customer and utilising our proprietary

Left: ***An SK Feeder undergoes precision welding at Sandvik Rock Processing's Kempton Park fabrication workshop as part of the assembly process.***
Right: ***Two S Range feeders securely strapped and prepared for shipment from the manufacturing facility.***

Sandvik Rock Processing sizing and costing tools to generate accurate, real-time cost estimates. Then, once the order is placed, and the customer approves the general arrangement drawing, the standard manufacturing lead time ranges from 12 to 18 weeks, depending on the screen's size and complexity."

Sandvik Rock Processing screens are designed with global manufacturing in mind, and this includes selecting screen components based on steel sections that are commonly available in different markets. Another notable differentiator is that on Brownfield projects the company can match the footprints of competitors, without compromising the integrity or performance advantages of their equipment.

Before delivering a screen design to site, Sandvik Rock Processing performs a factory acceptance test (FAT) using its purpose built screen testing bay at its Spartan premises in Kempton Park. "Sometimes clients want to witness these tests in person, but we can also patch them in to witness the tests remotely. Every delivered screen comes with a full test report highlighting the technical specifications, test results, and a certificate," Steinmann notes.

On commissioning at a client site, the screen will again be tested, and the results compared to those from the FAT. "We have also developed specialist software that we take to site for diagnostics. By collecting vibration data from key test points under different loading conditions, we are able to double check that the installed performance aligns with the FAT results.

"In addition, we can feed these results onto a digital twin of the design to ensure that the engineering matches the actual performance required onsite," he says, adding that this data is ideal for diagnostics, proactive maintenance and condition trending across the life of the screen.

Refurbishments, retrofits and onsite service

Sandvik Rock Processing also offers cost-effective onsite service and refurbishment solutions for all the equipment it provides. "For exciter gearboxes, for example, we offer a comprehensive strip-and-assess process that involves evaluating each component against strict tolerance criteria. A detailed technical report is then provided to our customers, outlining the parts that require replacement.

"By regularly replacing the screen panels, and refurbishing the gearboxes, motors and other components, we can keep our vibrating screens performing as reliably as they did when new," he says.

New opportunities and sustainability

Steinmann says that Africa is emerging as a significant player in the global rare-earth mineral supply chain, with several countries possessing substantial reserves. "We are currently seeing these emerging opportunities in countries such as Tanzania, amongst others, where project development is underway.

From an ESG perspective, he says that environmental sustainability is a key priority for Sandvik Rock Processing. "This is why we place a strong emphasis on regional manufacturing. Expanding local production not only supports community development but also helps minimise environmental impact. By shortening supply chains, we reduce transportation-related emissions, thus contributing meaningfully to our sustainability goals.

"Our solutions prioritise performance, productivity, safety, and efficiency, with a range engineered to handle throughput capacities from 1.0 to 8 000 t/h. Our vibrating screens are backed by deep industry expertise, and we can also offer advanced digital monitoring technology, high-quality OEM spare parts, consumables and life-cycle services," concludes Steinmann.

www.rockprocessing.sandvik

SRP's SM horizontal double deck exciter-driven screen is equipped with Sandvik screening media, ensuring consistent performance across tough applications.

An SM Range horizontal double-deck exciter-driven screen with an S Range feeder being lifted by crane during on-site handling.

Weir builds production capacity for new screen ranges

Weir is seeing positive market response to two vibrating screen ranges launched last year and has invested in the expansion of its world-class Alrode plant, one of three manufacturing facilities in South Africa.

Expansion at Weir's Alrode manufacturing facility south of Johannesburg will build production capacity for its vibrating screen ranges launched last year.

According to JD Singleton, Weir's Comminution Director for Europe, Middle East and Africa (EMEA), the positive market response to the company's ENDURON® Elite and ENDURON® Orbital screen ranges has required the investment in expansion.

"This strategic investment at Alrode will make this plant a major player in global screen production," says Singleton. "It is also an important step in our journey over the past six years to develop a large format ENDURON® Elite range of screens for the mining market."

Bridget Ledwaba, Weir's Managing Director for Africa, says the expansion of the Alrode plant also shows Weir's confidence in South Africa and its potential, and the company's commitment to the country's industrialisation. She emphasises that the investment will be good for job creation in the local economy and will benefit the fiscus through the value it will add to the general economy.

These ENDURON® Elite double-deck banana screens – weighing up to 50 tonnes – are remarkable for both their production performance and their energy efficiency, says Singleton. The design includes the world's largest exciters, demonstrating the unmatched technology underpinning the range.

"The exciter design allows these large machines to be driven by just two exciters, compared to the three exciters required by other screening OEMs," he explains. "The energy saving benefits are most pronounced when the screens are applied in a closed circuit with our market-leading ENDURON high-pressure grinding rolls (HPGRs)."

He says the exciters can be run at 16 Hz while maintaining safe operating temperatures, due to the inclusion of a casing design that includes fluid flow analysis and passive heat rejection. An advanced sealing system with O-ring and gasket ensures a superior seal over a wide range of operating conditions.

Customers in West Africa are already running two of the ENDURON® Elite screens, which measure 4.3 m by 9.7 m and operate in a circuit with ENDURON® HPGRs. A large order for 12 of the ENDURON® Elite screens is also being prepared at Alrode for Barrick Gold Corporation's Reko Diq copper-gold project in Pakistan – part of a £53-million contract to Weir for fine grinding, separation and tailings solutions.

The other successful screen launch by Weir last year was its ENDURON® Orbital range – a circular motion screen for smaller tonnage mining. With typical production rates of up to about 400 to 500 tonnes per hour, this range is also suitable for application in the aggregate and sand segments. These exciter-driven screens feature a bolted design, says Singleton, making them efficient and easy to maintain.

"They complement the ENDURON Elite range and have found a strong market among junior miners operating across Africa," he says. "The all-bolted construction improves reliability by eliminating welding in high-stress areas, allowing these screens to deliver exceptional performance and service life."

Weir has also introduced its own in-house ENDURON® screen panels and is seeing rapid take-up by customers who operate its vibrating screens. Singleton highlights that the panel technology leverages Weir's extensive institutional knowledge in wear materials, and its wide footprint allows customers a convenient sourcing option from Weir service centres.

www.global.weir

The expansion at the Alrode facility highlights Weir's confidence in South Africa and its commitment to supporting the country's industrialisation.

ENDURON Elite screens, weighing up to 50 tonnes, are driven by just two exciters thanks to their innovative, energy-efficient design.

Manufacturing must be at the centre of industrial strategy

Amith Singh, National Manager of Manufacturing for Nedbank Commercial Banking, outlines the challenges facing South Africa's manufacturing sector while finding opportunities to reposition manufacturing as a platform for value-added production, regional trade, and innovation-driven growth.

South Africa's manufacturing sector has always been a key contributor to industrial development, job creation, and economic transformation. Yet in recent years, its influence has waned, challenged by systemic issues including energy insecurity, infrastructure failures, global competition, and policy uncertainty.

Despite these pressures, manufacturing remains one of the most powerful levers we have to stimulate growth, reindustrialise the economy, and position the country for long-term resilience. With the right interventions, the sector can become the driving force behind South Africa's recovery.

From peak contribution levels of over 23% of GDP in the early 1990s, the sector declined to just 13.2% by 2021. According to Stats SA, manufacturing output in April 2025 decreased by 6.3% year-on-year, the steepest decline in over a year, with vehicle production down 13% and broad contraction across key subsectors.

This decline isn't due to a lack of capability or talent. Rather, it reflects underinvestment, outdated infrastructure, rising production costs, unreliable energy, and a complex regulatory environment. The result has been shrinking competitiveness and investor hesitancy.

Meanwhile, the operating context is growing more demanding. Manufacturers are contending with global supply chain disruptions, escalating input costs, logistics backlogs, and climate-related pressures. Infrastructure constraints, from ports to rail, inflate costs, while the persistent energy crisis disrupts production and delays projects.

And yet, in these challenges lies opportunity: to reposition South African manufacturing as a platform for value-added production, regional trade, and innovation-driven growth.

The African Continental Free Trade Area (AfCFTA) provides a catalytic framework. With access to over 1.3-billion consumers, AfCFTA makes a compelling case for manufacturers to scale operations and diversify. However, this must be matched by strategy, adequate capital, and effective execution capability.

To realise this, four areas demand urgent focus:

- **Structural and policy reform:** A competitive sector depends on consistent, industry-aligned policy and regulatory certainty. Investors need predictability. We need a streamlined industrial framework that supports localisation, drives competitiveness, and prioritises sectors aligned with the green and digital economy. Decision-making on licenses, permits, and trade agreements must also accelerate to keep pace with global shifts in industrial dynamics.
- **Infrastructure modernisation:** Reliable infrastructure, energy, water, ports, rail, and digital networks are essential. Without this foundation, the sector cannot thrive. Investment must be fast-tracked, especially via public-private partnerships that unlock funding and delivery capacity. Energy tops the list. Load-shedding costs the industry billions annually. Manufacturers urgently need clarity on embedded generation, grid access, and green energy procurement to build resilience.
- **Manufacturing and innovation:** Global manufacturing is embracing digitalisation, automation, and sustainability. South Africa must follow suit. Whether in steel, food processing, chemicals, or automotive components, Industry 4.0 is now a key driver of competitiveness. Technologies such as smart sensors, robotics, additive manufacturing, and predictive maintenance can enhance quality, reduce costs, and increase productivity. Yet uptake remains patchy, often due to capital and skills constraints.That's where financial institutions play a vital role. At Nedbank Commercial Banking, we partner with manufacturers to unlock finance, enhance efficiency, and support digital upgrades. We also work with industry bodies to integrate best practices in climate resilience and sustainability.
- **Climate resilience and ESG:** Manufacturing is becoming increasingly vulnerable to climate-related risks, including water scarcity and supply chain disruptions. At the same time, ESG standards are becoming non-negotiable, with growing pressure from customers, regulators, and funders.

This is no longer just a compliance issue. It's strategic. Businesses that embed sustainability are better positioned to access green finance, meet export requirements, and maintain market relevance. South African manufacturers must prioritise water reuse, energy efficiency, waste reduction, and low-carbon design. The payoff: lower costs, greater resilience, and long-term growth.

"In these challenges lies opportunity: to reposition South African manufacturing as a platform for value-added production, regional trade, and innovation-driven growth," says Amith Singh, National Manager of Manufacturing for Nedbank Commercial Banking.

What now?

The road ahead requires more than hope. It calls for data-led, collaborative action between government, business, financiers, and labour. We must manufacture our way to economic revival, not by clinging to past models, but by reimagining the sector as a driver of high-tech, export-led, and climate-smart development.

By investing in infrastructure, aligning policy, embracing innovation, and embedding resilience, manufacturing can reclaim its place as a national growth engine.

South Africa's manufacturing sector has what it takes: skill, grit, and real potential. But unlocking that promise demands urgency and ambition. At Nedbank Commercial Banking, we believe this is the time to think bigger, to look beyond the challenges and see the opportunity to lead.

Manufacturing isn't just a sector; it's a national asset. With the right partnerships, investment, and long-term vision, we can transform it into a powerful engine of inclusive, lasting growth. From energy efficiency to advanced machinery, from the shop floor to the export market, this is where our future is made.

https://business.nedbank.co.za

IPR expands access to Sasolburg

Dewatering pump and dredging rental specialist IPR has expanded its footprint in the Free State by joining forces with its sister company Rand Air, both of which form part of Atlas Copco's Specialty Rental Division within the Power Technique Business Area. Customers in the Free State region will now have convenient access to IPR's full range of dewatering pumps and dredging solutions through Rand Air's established branch in Sasolburg.

Lee Vine, Managing Director of IPR, says the decision to strengthen support for customers in the Free State follows the company's integration into the Atlas Copco group.

"Market awareness around our capabilities has grown significantly since joining Atlas Copco, and with that came an exponential increase in demand for our dewatering pumps and services," Vine explains. "Establishing a presence on the doorstep of our customers in Sasolburg allows us to service key industrial clients, including Sasol and Natref, more efficiently. Additionally, this strategic location enables us to extend our rapid response service across the broader Free State region."

IPR has built its reputation on speed, reliability and technical excellence, and Vine emphasises that this move will enhance those qualities. "Our teams are both competent and responsive and now we are supported by a deeper rental fleet in the area to meet immediate and long-term needs."

The Sasolburg branch will not only serve as a hub for rentals but will also manage the sale of dewatering pumps and associated accessories. Vine notes that the region's significant agricultural sector has created growing demand for the company's locally manufactured SlurrySucker dredging solution, designed to help farmers desilt dams and storage reservoirs.

IPR's rental fleet spans a comprehensive range of equipment from small electric submersible pumps to large diesel-driven surface dewatering pump sets. Vine points out that there is a particular demand for electrical submersible pumps in underground mining dewatering applications, and these will now be readily available from the Sasolburg location. The company will also maintain stock of large diesel-driven pump sets, typically used for emergency dewatering and situations involving significant water ingress.

With a deeper rental fleet now available in the Free State region, IPR can respond quickly to both planned maintenance and emergency dewatering needs.

Cost-effective compressed air rental

Flexibility, reliability, efficiency and cost control are fundamental to the long-term sustainability of industrial plants that rely on compressed air. Rental solutions deliver exactly that.

"The argument for renting compressed air is a strong one, built on a foundation of benefits that enhance and streamline every link in a customer's value chain," says Rudi Denton, Rental Sales Manager for Integrated Air Solutions. Starting with the machines themselves, Denton affirms that Integrated Air Solutions' extensive and versatile rental portfolio, which includes rugged, high-performance industrial screw, diesel and electric units, delivers flexible compressed air tailored to meet virtually every operational need.

"Our diesel screw compressors cover an impressive range from 185 cfm at 8 bar up to the powerful 1 500 cfm, 24 bar machine, which is further complemented by our diesel oil-free compressors that provide clean air at 1 500 cfm and 10 bar."

For customers seeking electric options, Integrated Air Solutions offers compact 15 kW units at 6 bar up to the more heavy-duty 250 kW compressors at 10 bar. The extensive rental fleet enables the air solutions specialist to cater to project-specific needs with the flexibility to upscale or downscale equipment as required. This allows Integrated Air Solutions to serve virtually every market segment - from construction, civils and infrastructure, general industry to borehole drilling, oil & gas, logistics, and even the residential sector. "This brings me to CapEx," continues Denton. "Renting an air compressor eliminates the need for significant upfront capital investment, making it an ideal solution, even more so when budgets are tight. Moreover, instead of tying up resources in equipment ownership, businesses can allocate funds elsewhere."

Further elaborating on the added flexibility of rental solutions, Denton explains that the customer can rent a compressor to meet the air demands of a specific project, and, when the contract ends, the unit can be returned, eliminating the cost of equipment lying idle after project completion.

With one of the youngest equipment fleets in Southern Africa, Integrated Air Solutions is committed to supplying premium quality, efficient machines equipped with state-of-the-art features and cutting-edge technologies.

www.air-solutions.co.za

Integrated Air Solutions empowers customers with reliable, flexible, cost-effective compressed air rentals.

CSIR leads planning for West Coast green hydrogen hub

The regional planning and support for green hydrogen projects in the Saldanha and West Coast area has received a boost with Freeport Saldanha appointing the Council for Scientific and Industrial Research (CSIR) to coordinate Phase 1 of the West Coast Green Hydrogen Master Plan. As part of South Africa's commitment to position itself as a key player in the global green hydrogen market, the Saldanha area is envisaged as a central hub for green hydrogen production and export.

Green hydrogen is produced by splitting water into hydrogen and oxygen, using electrolysis. This process is powered by renewable energy sources such as solar or wind power. "In the Saldanha context, the water would probably need to be sourced from desalination of seawater, if green hydrogen is produced at scale," says CSIR research group leader, Paul Lochner.

Green hydrogen has the potential to replace fossil fuels in sectors where electrification is difficult, such as maritime shipping, the production of iron, steel, cement and fertilisers, and long-distance transportation such as rail and trucking. These are referred to as the 'hard-to-abate' sectors in the transition from fossil fuels to green energy.

The proposed Saldanha Hydrogen Hub is a flagship initiative under the Western Cape Government's Green Hydrogen Strategy and Roadmap, which was approved in May 2024. The hub is expected to leverage Saldanha Bay's strategic location, its access to renewable energy resources such as wind and solar, the potential for midstream hydrogen processing, and its strong import-export capabilities underpinned by significant port infrastructure.

The port provides access to international shipping routes and export and/or supply of green maritime fuels based on derivatives of hydrogen.

ems@csir.co.za

Bühler showcases solutions at MTE Botswana

Bühler recently participated in the Mining & Technical Exhibitions (MTE) event in Palapye, Botswana, showcasing its innovative mining solutions to industry professionals. As a key platform for networking and industry collaboration, MTE Palapye brought together major players in the mining sector, allowing Bühler to demonstrate its high-performance chains and conveyor solutions designed for the sector's demanding environments.

At Palapye, Bühler demonstrated its robust chain conveyor solutions, engineered to meet the specific needs of the mining industry. Designed for high-capacity material transport, these conveyors can move up to 1 200 t/h over distances of up to 100 m. Utilising advanced forging and hardening processes, Bühler's chains offer exceptional tensile strength and wear resistance, ensuring long service life and reduced maintenance requirements.

Commenting on the event, Francois Knoetze, Head of Manufacturing at Bühler Southern Africa, stated: "MTE Palapye provided an excellent platform to showcase our mining solutions, particularly our high-performance chains. Our technology is designed to withstand the harsh conditions of the mining industry, offering reliable and efficient material handling solutions that improve productivity while reducing downtime."

Bühler has been operating in Southern Africa since 1972, with a strong presence in Johannesburg, where it manages sales, service, project execution, and manufacturing for the region. The company's manufacturing facility operates as an independent entity, supplying high-quality assemblies for machines and production plants to both external customers and Bühler business units worldwide.

Manufactured using advanced forging and hardening processes, Bühler's chains offer exceptional tensile strength and wear resistance.

www.buhlergroup.com

Recycled material for igus energy chain

igus is converting the entire standard E2.1 energy chain range to use the new recycled material, igumid CG LW.

Following the successful development of the world's first energy chain made from recycled plastic, motion plastics specialist igus is taking the next step: the company is converting the entire catalogue range of its standard energy chain, series E2.1, to the new recycled material igumid CG LW.

The European Union wants to establish a circular and climate-neutral economy by 2050 at the latest. Instead of producing waste, a functioning circular economy relies on the cradle-to-cradle concept. Consumables are returned to the natural and technical cycle to conserve valuable resources and raw materials.

With the E2.1 energy chain series, which will be completely converted to recycled material this spring, igus shows that this is no longer a dream of the future. The company is taking this step after introducing the first energy chain made from recycled material in 2022. The energy chain series is now manufactured from the recycled material igumid CG LW. It consists of post-consumer recyclate from, for example, old fishing nets and discarded energy chains, which are recycled and processed as part of the in-house 'Chainge' programme. The energy chains made from the sustainable material not only have mechanical specifications that are comparable to those of standard chains, but are also available at the same price as the previous E2.1 series. Even in terms of wear behaviour, stability and continuous flexing cycles, the energy chains offer the same quality.

"With this recycled chain series, we are enabling customers to make a contribution to the circular economy for plastics together with us," says Jörg Ottersbach, Head of Business Unit e-chains at igus. Compared to the standard material, the recycled material has an 80% lower CO2 footprint.

igus is also driving forward its sustainability measures with the new products. The company is focusing on measures in all areas (Scopes 1 to 3), from using process heat and green electricity to adding more e-charging stations to modernising buildings.

www.igus.eu

Jonathan Rogoff, CEO at Tru-Trac Rollers.

Conveyor innovations for better weighing accuracy and uptime

Following the release of several new products at bauma 2025 in Munich earlier this year, *MCA* talks to Jonathan Rogoff, the CEO of Tru-Trac Rollers, about the company's innovations for rip detection, weighing accuracy, self-adjusting belt alignment and AI-based proactive maintenance.

At Electra Mining Africa last year, Tru-Trac Rollers showcased its dynamic weighing systems to help belt operators better manage material flow rates, along with its newly released AI-based Rip-Prevent system, developed with European partner company, SHG. "At bauma 2025, we introduced a new belt-scale innovation with AI integration, which merges the AI principles developed for the RIP Prevent+ system with our belt-scale solution," Jonathan Rogoff, CEO of Tru-Trac Rollers, tells *MCA*.

Tru-Trac's new AI Intelligent Belt Scale has incorporated a mass-flow estimation functionality, which, if calibrated using a known weight, can be used to maintain the accuracy of a Tru-Trac belt scale and to alert users to calibration drift and load cell deterioration.

Rogoff explains: "There is an ongoing need for belt-scales to be regularly calibrated to maintain their weighing accuracy. These systems generally have two or four load cells, depending on the accuracy required, which is typically around 1.0% for a basic scale with two load cells, and up to 0.1% for a high-accuracy four-load-cell Tru-Trac scale. But these become inaccurate over time, if not regularly calibrated."

RIP Prevent+, he says, continuously collects data from the drive motor, which is fed into an AI analyser to determine real-time power consumption, belt speed, belt load and many other parameters, primarily to determine the onset of belt ripping. By extending the scope of the analysis, however, this AI system can detect when the belt is running empty or loaded, and it can provide consistent accuracy with respect to the mass flow of material across the belt – down to 2.5% if calibrated with a known weight, with accuracy errors as low as 0.4% having been detected.

This easily accessible and continuously available information is ideal for monitoring the health and accuracy of Tru-Trac's belt weighing systems, Rogoff adds. "It is difficult to predict when a load cell on a belt scale starts to become inaccurate. So the scales tend to be calibrated fairly frequently, typically every two to four weeks," he says.

But this involves shutting down production, and it may be unnecessary. Also, a load cell may fail prematurely before a scheduled check, which may cause under- or over-billing until the problem is discovered and the load cell is replaced.

"Belt weighing is also required for blending different material streams, so if the calibration of the scale is off, the material mix is going to be wrong, which may result in costly downstream implications," he says.

The Belt Scale monitoring feature integrated into Tru-Trac's new upgraded RIP Prevent+ system is a proactive way of continuously monitoring, not only the accuracy of the belt scale, but also the health of individual load cells. "We've developed a smart junction box that takes inputs from each load cell. If we detect an anomaly between the consistent AI-based mass flow result and the Tru-Trac belt scale result, we are then able to interrogate individual load cells to see which one is out of calibration or failing. So we no longer have to test each cell to find a fault or to confirm load cell balancing.

The information is also continually fed into the AI RIP Prevent+ monitoring system, which displays the health of each load cell and the accuracy status of the scale, among several other valuable parameters.

Reporting and proactive maintenance

By tracking gradual failures in load cells, proactive maintenance can be scheduled to minimise disruption, with calibration intervals scheduled only when needed. In addition, once a fault in an individual load cell has been detected, the AI-based weighing system can compensate for mass flow errors by aggregating data from other cells, ensuring that billing remains accurate until the scale can be conveniently serviced.

Tru-Trac is also currently using the AI platform to build in advanced reporting metrics. "With all of the data already available, we are now adding real-time conveyor belt performance functionality to the system, which includes tonnage per day versus targets and the 'black belt' periods where the belt is running unloaded and inefficiently. All the relevant metrics that an operator would want to get from a belt from a productivity and efficiency point of view are now being incorporated into the reporting menu of the

Tru-Trac's Belt Scale delivers AI-driven accuracy and maximum uptime, powered by the advanced RIP Prevent+ system for intelligent conveyor monitoring.

Left: ***Tru-Trac's new Apex Trackers deliver enhanced belt traction and feature auto-adjusting tension for improved performance and reliability.***
Right: ***Tru-Trac's advanced reporting system tracks daily tonnage, idle time and productivity, giving operators valuable insights to optimise performance.***

RIP Prevent+," he adds.

In addition, by feeding additional information from sensors into the RIP Prevent+ system, we are now able to monitor the health of the gearbox, bearings, and the return belt scrapers. Tru-Trac is further expanding the proactive maintenance capability of this easily installed, low-investment, AI-based system.

One vibration sensor on the return belt scraper enables Tru-Trac to monitor whether the scraper is in contact with the belt and successfully removing carry-back material and preventing spillages and contamination. As the scraper begins to wear close to the point of losing contact, a change in the vibration signature is detected, alerting operators to the need for a replacement or service. Similarly, adding a sensor to the gearbox gives clients another simple proactive maintenance tool on this vital component of their conveyors.

"Ultimately, we see this system as offering a comprehensive advanced reporting and predictive maintenance solution for conveyor belt operators, including pre-emptive rip prevention, proactive maintenance of belt scales; misalignment detection, drive and gearbox health reports, and productivity and belt efficiency tracking – all of which make a significant contribution to successful, cost-effective and efficient belt utilisation," he says.

New Apex trough and return trackers

Also introduced at bauma were Tru-Trac's new Apex trough and return trackers, which feature moulded rubber with a new tread-pattern design for better traction. "The belt tracker steers the conveyor belt, so it must maintain good traction between the tracker and the belt. This new moulded tread pattern delivers better adhesion and therefore better tracking performance on the trackers," he explains.

In addition, a new self-adjusting bracket has been developed to automatically tension the conveyor tracker to the belt. Previously, this tension would have had to be manually adjusted to a fixed tension. Now we have included a spring mechanism that enables the tension to be set via a single bolt, using a built-in indicator to ensure the correct tension is applied. Once set, the tension on either side of the tracker maintains optimal tracking performance," Rogoff tells MechChem Africa.

These designs have been successfully tested and have proved to be effective at the busy Richards Bay Coal Terminal. "We are continually evolving our product offering, adding new features and improvements that we know will improve conveyor performance, reliability and uptime.

"At bauma 2025, our innovations received strong interest from the international market. We are determined to maintain Tru-Trac's leadership position in belt tracking and innovation, and we will continue to expand and improve our current product range and to develop new products to better meet the needs of conveyor belt operators," he concludes.

https://tru-trac.com

Tru-Trac introduced a new belt-scale innovation at bauma 2025 featuring AI integration that combines RIP Prevent+ intelligence with advanced weighing technology.

PDS: from collision warning to intelligent safety

Booyco Electronics CEO Anton Lourens shares insights on the company's journey, the current state of Proximity Detection Systems (PDS) and the technologies shaping its future.

Proximity Detection (PDS) has seen a remarkable evolution in South Africa's mining industry over the past two decades. Once simple warning tools, today's systems are highly advanced technologies integrating GPS, RFID and other technologies that now play a central role in improving safety, preventing fatalities and driving operational efficiency.

At the forefront of this transformation is Booyco Electronics, a South African innovator committed to developing PDS solutions tailored to the diverse and often demanding conditions found in both underground and surface mining.

Booyco Electronics' origins and evolution

Booyco Electronics was founded in 2006 in direct response to calls from the coal mining sector for a system to help reduce mining machine injuries and fatalities. The company's first innovation was the Booyco CWS 500, a collision warning system designed to detect personnel near trackless mobile machines (TMMs) in underground environments.

"This was followed by adding vehicle-to-vehicle solutions and in a natural progression, we expanded into PDS solutions for surface applications," says Lourens. "Today, we offer a full suite of PDS technology solutions that cover both underground and open-cast mining operations."

Booyco Electronics' expertise extends beyond mining, too. Among its specialised solutions is a PDS designed for use in refineries and smelters, reflecting the company's ability to customise systems to different high-risk industrial environments. The company's products are also used in industries such as forestry.

Underground vs surface PDS

The underlying technology differs significantly between underground and surface deployments. In underground settings, very low frequency (VLF) radio waves – typically under 125 kHz – are used to penetrate rock and 'see' around corners, typically over distances of up to 20 m. Personnel wear RFID tags, often built into their cap lamps, which detect sensors mounted on mobile equipment. When a person enters a predefined danger zone, the system sends visual and/or audible warnings to both the operator and the worker. Some solutions also integrate with automatic braking systems to prevent collisions.

"In surface mining, we can rely on GPS to track the location of vehicles," explains Lourens. "This enables potential real-time tracking and, with RFID, allows vehicles to communicate with one another and with control systems.

One of Booyco Electronics' unusual installations is at a coal terminal where its configurable systems are adapted to the specific operational requirements of the site. "While hardware may be standardised, software customisation is key due to varying operators' codes of practice (COPs)," Lourens notes.

Challenges and trends

Deploying PDS comes with its challenges, particularly in terms of infrastructure, connectivity and varying environmental conditions. A growing trend is the adoption of sensor fusion, integrating multiple sensing technologies into a single coherent platform. The goal is seamless interoperability and improved efficiency across technologies and machines.

International standards, such as ISO/TS 21815-2, are helping to address these challenges by guiding how PDS interfaces with different vehicle systems, ensuring broader compatibility and system integration.

Since 2022, South African mines are required by law to implement PDS systems. "The implementation has increased the focus on training, change management and user buy-in," says Lourens. "Our service offering now includes not just system supply and maintenance but also helping mine personnel adapt to and adopt the technology."

The operational value

While improving safety remains the primary goal, PDS also delivers measurable operational value. "These systems generate data that can help operators identify bottlenecks, track vehicle or personnel movement outside designated zones and detect traffic congestion in real time," Lourens explains.

This data can be used to enhance mine planning, resource allocation and workflow efficiency – benefits that support both productivity and regulatory compliance.

Nearly 20 years after Booyco Electronics' first system went live, the pace of PDS innovation continues to accelerate. "The functionality of these systems has advanced rapidly, and we continue to evolve them to stay aligned with technological advances and the industry's changing needs," says Lourens.

What hasn't changed is Booyco Electronics' core purpose: "Our mission has always been – and continues to be – to keep people safe in high-risk environments," he concludes.

As mining embraces digital transformation, PDS technology has firmly established itself as a critical enabler of safer, smarter operations.

www.booyco-electronics.com

Booyco Electronics' Proximity Detection Systems (PDS) are now a common feature in South African mines.


Bonfiglioli
We engineer dreams
www.bonfiglioli.com
Tel: 011 6082030

SEW EURODRIVE

YOUR PARTNER IN DRIVE TRANSMISSION AND AUTOMATION

Our extensive sales force throughout Southern Africa is complemented by our Business Development Divisions. This unique service provides customers with access to project-specific staff and a range of after-sale services.

DEDICATED STAFF FOR KEY ACCOUNTS AND SPECIALISED INDUSTRIES

FREE ON-SITE COMMISSIONING ASSISTANCE ON NEW PROJECTS WITHIN SOUTH AFRICAN BORDERS

REPAIR AND EXTENSIVE RECONDITIONING SERVICES ON GEARED MOTORS, ELECTRONICS AND INDUSTRIAL GEAR UNITS

ON-SITE REPAIRS AND MAINTENANCE CARRIED OUT BY EXPERT FIELD-SERVICE TECHNICIANS

ADDITIONAL SERVICES INCLUDING:

+ Energy consumption survey
+ Power transmission infrastructure surveys
+ SLAs for maintenance, service and repairs
+ Horizontal and vertical load-testing
+ Oil inspection and sampling
+ Vibration analysis
+ Laser alignment
+ Shutdown repair maintenance capacity planning

www.sew-eurodrive.co.za