


Life in a vacuum?


Busch expands footprint.



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Lighting your way


For 30 years.



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Skimp on boiler maintenance...

Consequences lie down the line.



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Cape Town takes Stock



Excited participants pose at the opening of the Cape Town Stock Exchange. Image credit Twitter.

IN A SUPREMELY ironic sweep, it has taken some clever corporate minds from Johannesburg to devise a cunning plan to launch the Cape Town Stock Exchange (CTSE).

There have been sporadic rumblings around a local stock exchange over the decades, but the furthest that such an idea ever got was a half-hearted attempt to create an index of Cape Town-based companies that traded on the JSE.

The CTSE is far more tangible, and - if suitable traction is found - could be a major catalyst in spurring economic growth in the Western Cape.

How the new exchange transpired is rather interesting. From the start of last month an existing stock exchange 4AX - which was one of four new stock exchange licences issued in recent years - will rebrand to become the Cape Town Stock Exchange (CTSE).

The bourse - which is one of two fully fledged, licensed and regulated stock exchanges in SA - has already relocated to a new head office in Cape Town. That means the CTSE kicks off with a handful of listings already trading on its board. Interestingly, this is not the first time Cape Town has hosted a stock exchange. The city briefly had its own stock market around the turn of the 20th century.

Outlining the rationale for the shift, CTSE CEO Eugene Booysen said Cape Town was synonymous with growth, innovation and had a focus on technological development. "We know it's going to be a great fit."

He said that the CTSE's focus intensified on small- and medium-sized companies. "We believe that these growing enterprises offer huge potential to investors. They and the people who make them tick, are this country's real assets."

The CTSE's cloud-based platform and reduced fees should make listing on a stock exchange a simple and affordable option for smaller businesses. This is a smart pitch with a good number of small companies on the JSE opting to delist - citing onerous regulations and the costs of maintaining listings as some of the drawbacks.

The technology hub in and around Stellenbosch might also provide rich pickings for the CTSE. Allowing tech-entrepreneurs to easily and efficiently raise capital would surely set the CTSE up as a hub for innovation funding, something that could very easily snowball if early momentum is found.

Yaw Peprah, acting CEO of Wesgro, argued that the opening of the CTSE signified Cape Town's capabilities when it came to landing significant business for the region - and would reinforce the city's

place as the financial services hub on the continent.

Peprah noted the service economy contributed an estimated 75.5% to the Western Cape's GDP. "The CTSE will provide a platform for existing funders to gain exposure to quality assets as well as enhanced investment opportunities. As Africa's Tech Capital, we have the ecosystem to support tech-led, innovative business solutions and we're proud that the continent's new international stock exchange will be headquartered in Cape Town".

The launch of the CTSE coincided with the listing of Mpumalanga-based agricultural business TWK Investments, which has a market value of R1.3 billion. TWK's listing may well attract other agribusiness listings to the CTSE. Two more new listings are reportedly in the pipeline, with indications that one might be Port Elizabeth-based agribusiness BKB.

Existing listings on the CTSE include Heartwood Properties, insurer Assupol, renewable energy business GAIA, iHealthcare, NWK and CA Sales. The collective market value of the CTSE is around R10 billion.

The existing 4AX Registry Services and 4AX Debt Services will also be rebranded to CTSE Registry Services and CTSE Capital Solution.

Cummins SA now Level 4 B-BBEE status



Racheal Njoroge.

CUMMINS South Africa (Pty) Ltd. is now officially a Level 4 B-BBEE Contributor, having progressed from its previous Level 8 B-BBEE Contributor status. "It is a significant milestone for both Cummins South Africa, as well as our employees, who stand to benefit from the newly-formed Cummins Employee Empowerment Scheme (CEES)," comments Southern Africa Managing Director **Racheal Njoroge**.

"This has been a long time in the making, being a journey that we originally embarked on in 2015. This initiative has always been close to my heart and is something I will continue to remain passionate about," says Njoroge.

"We wanted to ensure that we fully evaluated all the B-BBEE ownership options available to us, and through the process decided on the Cummins Employee Empowerment Scheme (CEES). Given the global nature of our organisation and workforce, educating our various stakeholder groups on the direction we wanted to take was important."

Cummins' ongoing transformation journey is based on the following key goals:

- Investing in its most valuable resource, its people

Continued on P2



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Profitable port for TLG

PSG aligned investment company Zeder appears to have positioned The Logistics Group (TLG) – the old terminals arm of the fruit marketing giant Capespan – into a valuable logistical and terminal hub that is poised for sprightly growth.

TLG was split off from Capespan over five years ago, and now comprises terminal services and warehousing facilities, an integrated suite of logistical solutions, stevedoring facilities, clearing and forwarding as well as digital technology solutions.

For its six month period to end June, TLG reported recurring headline earnings of R90 million – up a whopping 186% from



the prior comparative period. Zeder CEO Johan le Roux said the profit increase was as a result of the positive effect of the strong commodity cycle and the resultant higher volumes on the export

mining commodity side of the business.

He added that the citrus industry experienced record volumes and this contributed in terms of growth in the higher margin fresh fruit export segment.

At this juncture, the rumour mill suggests Zeder – which is mainly focussed on agricultural businesses – might be looking to sell its 98% stake in TLG.

Existing operators like Grindrod and for-

eign entities looking for a foothold in Africa might be potential suitors.

The price that Zeder extracts for the business will be intriguing. At the end of August this year, Zeder increased its valuation of TLG by around R105 million to R1.4 billion.

This continues a steady increase in Zeder's valuation from R1 billion at the end of August 2020 and R1.3 billion at the end of February this year.

Surprisingly Zeder's valuation of TLG is higher than its similar sized stake former parent company Capespan, which is estimated at R1.1 billion. That gives some indication how quickly TLG has been growing in recent years.

The state of the SA PV market

By Patrick Prestele, Frost & Sullivan Africa

THE domestic automotive industry is a major contributor to South African GDP (6.8% as of 2020), providing employment to more than 100 000 people and indirectly benefitting 1.5 million South Africans. In 2020, 326 400 new passenger vehicles were sold, down from 511 000 vehicles from the previous year in response to the Covid-19 pandemic. Factory closure and reduced foot-traffic through dealerships are the primary cause of the decrease in domestic sales. Domestic sales are forecast to recover through 2021 and 2022, primarily supplemented through increased imports of international brands such as Hyundai.

“The EV market in South Africa faces several challenges that hamper the growth of the market...”

Electric Vehicles (EV) are slowly being integrated into the market and are set to become key competitors to internal combustion engine (ICE) vehicles by 2030. While most manufacturers stated the aim to increase the production of EV models, several went a step further

by planning to go completely electric by 2035, with the earliest pure electric production by 2025.

Locally produced vehicles reached 605 000 PVs in 2019, of which nearly 65% was exported to the international markets. As seen in figure 1 Volkswagen and Toyota dominate local production, followed by Ford, Mercedes-Benz and BMW.

Trends of the Industry

However, the nature of vehicles and their uses is changing. Vehicles are becoming increasingly Connected, Autonomous, Shared and Electric (CASE). The entire domestic value chain from small scale suppliers to the financial sector responsible in providing an enabling environment needs to recognize the evolution of electric vehicles. The progress made between the automotive industry and South Africa's government on the automotive policies is a testament to the enormous opportunity that is the local automotive industry.

Research has shown that South African consumers are increasingly searching for available electric vehicle models online, including those that are not yet available in the country. Could this



Audi's e-tron 50 and e-tron 55 models - to be available in 2022.

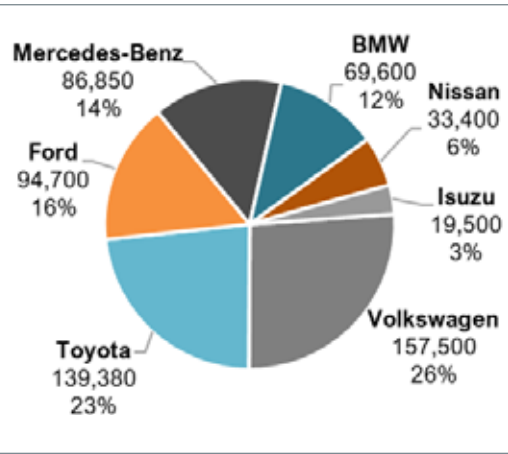


Figure 1 – Locally Produced PV Models by Brand, 2019

be an indication that the country's middle class is ready for EV's to be supplied to the market?

The EV market in South Africa faces several challenges that hamper the growth of the market, however, each challenge has an opportunity associated with it. First challenge is the lack of incentive for electric vehicles in South Africa. Import tax on ICE vehicles is 18%, whilst the tax on EV's is set at 25%.

Increased subsidies from government have the potential to considerably offset the initial purchasing costs of EVs, talks that have already begun to take place between Janico and the South African government.

Another challenge is the availability of non-constrained charging stations. Despite the fact that the country has already deployed a high number of charging stations in major cities and highways,

several of these stations operate on a constrained mode of 30 kWh instead of the standard 80 kWh. This can be handled by employing small-scale residential solar power (mini-grids), identify high capacity hot spots and the use of on-site battery energy storage systems.

A third and final challenge is the long waiting time for an EV, a challenge that is experienced on a global scale and caused by only one factor – limited battery production. South Africa, however, is uniquely positioned to establish itself as a key manufacturer and supplier of Lithium-Ion batteries (LIBs). Abundance of key metals in Africa, existing infrastructure and skilled workforce as well as supporting legislation and trade agreements place South Africa as one of the top locations for battery production. By leveraging the country's currently existing PV production and supply chain and by combining this with battery production, South Africa has the opportunity to establish itself as a key producer of EVs. Additionally, the nation's proximity to key EV building components such as “green aluminium” in Mozambique can further aid its development of EV production.

Cummins SA now Level 4 B-BBEE status

Continued from P1

- Supporting the development of critical skills in the economy through its skills bursary and disability spend
- Maintaining strong partnerships through its Preferential Procurement, Supplier and Enterprise Development programmes; and
- Continued commitment to improving communities through its Socio-Economic Development Programmes

CEES, which is managed through a Trust, will deliver tangible value for all black employees. “It does not only align us with the legislative requirements but allows us to pursue our transformation journey even further, as we continue to build a strong business for all stakeholders.”

Njoroge notes that a Level 4 B-BBEE certification also directly impacts Cummins' customers, as it positively contributes to their own scorecards, enabling them to increase their procurement spend as they are now dealing with a compliant Level 4 supplier. “We are already partaking in tender opportunities that were previously not an option, so this latest development is certainly a win-win for all stakeholders,” says Njoroge.

While its impact will be felt throughout the Cummins Africa and Middle East region, the Level 4 B-BBEE status applies specifically to Cummins businesses in South Africa. “It will definitely benefit us in the region as it will allow us to access additional business opportunities. Of course, such legislation is country-specific, while the localisation requirements also differ from country to country. We are, however, willing to share our wealth of knowledge and experience in this regard with any stakeholders contemplating a similar transformation journey in their own specific areas.”

Njoroge adds that Cummins South Africa's transformation journey is far from over, and that it will continue to invest in its employees, as well as uplifting and empowering the local communities in which it operates. As for the future, Africa remains a critical market, with significant potential. “Opportunities in Africa remain plentiful, despite some challenges, and hence there is a strong commitment on the part of Cummins to continue investing in the region. We sincerely hope that all our stakeholders join us on this exciting journey, as together we can do so much more to stimulate economic growth,” concludes Njoroge.

OUR PARTNERS



Invicta adds fibre to its diet

PAROW-based industrial supply giant Invicta Holdings – a group built on decades of smart acquisitions – is firmly back on the front foot.

The group – which is controlled by retail tycoon Christo Wiese – last month, announced an agreement to acquire a majority shareholding in Dartcom for R565m. This is the biggest acquisition made by Invicta since Steven Joffe – the former boss of casino group Gold Reef – took over as CEO. Joffe was parachuted into Invicta two years ago to clean up the balance sheet, shed non-core businesses and find new growth traction.

The Dartcom deal is a bold move in that it represents an inter-

esting departure for Invicta from traditional industrial equipment supplies like its core business in Bearing Man. Dartcom is a distributor of communication and renewable energy technology equipment and solutions in South Africa and across the African continent.

The group offers a wide range of solutions across the following radio frequency technology, fibre connectivity and fibre management solutions, fibre network products and solutions as well as power and renewable energy solutions.

Dartcom Fibre Solutions (DFS) is a wholly owned subsidiary of DSA, and is a locally based manufacturer of fibre optic cables under license from OFS Fitel

LLC (a subsidiary of Furukawa Electric of Japan).

Interestingly, Dartcom recently established Gbitel – which specialises in the design, build and transfer of fibre networks, as well as tower and power infrastructure projects through a model that benefits small, medium and micro enterprises (SMMEs).

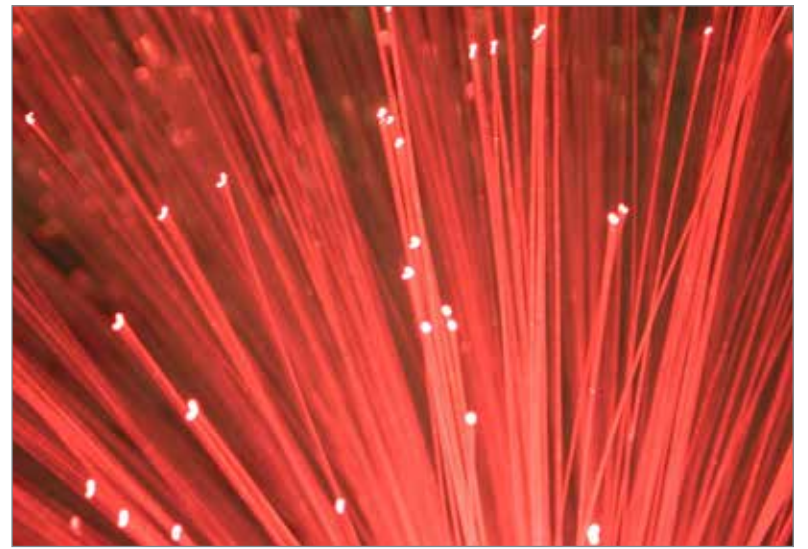
Invicta said the advance on Dartcom formed part of its strategy to diversify from its industrial base in South Africa to establish a diversified telecommunications, renewable energy and related battery storage technologies solutions provider.

Invicta maintained it could “emulate and leverage off” of the

existing engineering services and product distribution platform that the group had built over the past decades. The majority 78% shareholding in Dartcom was acquired from New GX Capital Group. New GX Capital will become a meaningful shareholder in Invicta after accepting 16.5m Invicta shares (as well as R50m in cash) for their shareholding in Dartcom.

The fact that New GX Capital is accepting script as settlement for the bulk of the purchase price for Dartcom suggests the vendors have great confidence in Invicta extracting strong synergies from the relationship.

Invicta disclosed that Dartcom posted a



consolidated net profit of R14.2 million for the year to end March 2021. This profit figure included a loss from foreign exchange of R33 million, and reflected muted trading conditions in the markets in which Dart-

com Group operated during the Covid-19 lockdowns.

Invicta noted: “As a significant increase in the profits of the Dartcom Group is expected, the parties have agreed a profit warranty...” Specific-

cally, the Dartcom vendors have guaranteed that the group will deliver cumulative consolidated net profit after tax of at least R349 million over a three year period. That puts the price tag in far clearer perspective.

Aspen's sales windfall totals R1,8bn



ACINO and Aspen Pharmacare Holdings Limited and its subsidiaries have signed an agreement for Acino to acquire six South African prescription medicines for over R1.8 billion.

The acquired medicines are used for the treatment of gastroenterology, erectile dysfunction and cardiovascular diseases. The acquisition will further strengthen Acino's footprint in South Africa by expanding their offering in these important therapeutic segments.

The transaction includes the Truстан®, Altosec®, Zuvamor®, Ciavor®, Grantryl® and Aspen Granise-tron® brands. To secure uninterrupted patient access to these medicines, the parties have also signed a manufacturing and supply agree-

ment in terms of which Aspen will supply the Aspen manufactured products to Acino for a period of seven years.

This partnership is a compelling affirmation of Acino's long-term strategy and purpose to increase people's access to affordable healthcare in the areas where they need them most. This acquisition comes on the heels of a series of other strategic investments, including the acquisition of a women's health portfolio in Russia earlier this year and Takeda's primary care portfolio in 2020.

“This agreement will fortify Acino's presence in South Africa and enable us to expand our diverse portfolio of high-quality, innovative treatments that help improve people's lives”, said Steffen Saltofte, CEO of Acino. “Acino

is committed to growing its footprint across our core emerging markets to deliver the best value to our patients, customers, suppliers and shareholders.”

Aspen's Group Chief Executive, Stephen Saad, said, “This transaction forms part of Aspen's communicated strategy to refine its product portfolio in South Africa. The acquisition of these trusted brands in South Africa represents excellent scaling and commercial opportunities for Acino as it expands its footprint in South Africa by adding these products to its existing product portfolio.”

The transaction is subject to customary closing conditions, including regulatory approvals. It is anticipated that the transaction will complete by 31 December 2021.

In good taste

IN the demanding, 24 x 7 food and beverage sector, where production schedules are very tight and standards meticulously high, any downtime in production can prove to be disastrous, resulting in lost time and a financial impact.

So when a household name in the local food and beverage sector recently took some of their Atlas-Copco oil-free compressors offline for maintenance at their Johannesburg plant, Rand-Air – an established leader in the field of portable air, power, flow and lighting solutions, and part of the global Atlas Copco Specialty Rental division – acted swiftly to ensure uninterrupted, seamless production could continue unabated.

The customer, whom Rand-Air has supplied with rental equipment since 2016, hired two Atlas Copco ‘Class 0’ oil-free compressors for their plant over a seven day period: namely, the PTS 800 and the ZT132.

The food and beverage manufacturer required the machines at short notice, as their own machines had been taken offline



to be serviced.

“The customer has their own Atlas Copco compressors, so is familiar with and likes the brand and technology,” points out experienced Rand-Air sales representative responsible for the hire, Benita Oosthuizen.

The PTS800 is a diesel compressor and the ZT 132 is electric. Hoses from the two compressors were placed externally, running into a manifold and then into a production feedline in the plant. The volume of air supplied was 42m³/h at 8,5 bar.

“The Class 0 oil-free compressors eliminate the risks of oil contamination and the accompanying product spoilage, brand damage and

delays that represent extra costs. Preventing oil from entering the compression process is a necessity for the generation of consistent, 100 percent oil-free air,” Oosthuizen explains.

She says that the company's ability to provide quality service in such a quick turnaround time speaks to its agility:

“We have a large fleet of compressors and could supply two to the customer at relatively short notice. We had already discussed and planned ahead with the customer, and due to this, could provide the required equipment speedily – in line with our ethos of ‘making agility count’ and delivering on our promises quickly, efficiently,

safely and with quality.”

Oosthuizen adds that the delivery of the Atlas-Copco compressors was a smooth process, with both compressors quickly and easily offloaded and installed – and the customer expressed their delight with the speed and quality of service provided by Rand-Air.

All of the Atlas Copco-manufactured compressors that Rand-Air supplies are ISO 9001, 14001 and 18001-certified; and feature the latest compressed air technology. Further, its design allows for economical fuel consumption and efficiency; while their portable nature ensures easy transportation and convenient on-site installation.

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Steel shortage a bonanza for some

SOUTH AFRICA's current steel shortage is compounding an already serious obstacle to the efficient functioning of the sub-continent's overhead crane market: declining service footprints.

Currently, only Condra has both the capability to manufacture and enough steel with which to do it. By contrast, other manufacturers are suffering material shortages exacerbated by a declining capability in terms of geographic reach, further lengthening lead times for this type of machinery.

Condra's order book is benefiting, with the company continuing ontime execution of orders at its factories in Johannesburg and Cape Town.

Typical of these is one for a wide-span overhead crane secured by Cape Town subsidiary BB Cranes working in close cooperation with structural steel company Vlotten-



Busy factory floor – Condra's Johannesburg factory reflects the company's healthy order book, with two cranes under manufacture and a third (yellow machine) under test.

burg Engineering.

The customer, Dolphin Offshore Chandling, has placed an order on Vlottenburg Engineering for a new maintenance workshop in the Angolan port of Luanda.

Condra's crane for this workshop will be an overhead electric travelling machine with a span of almost 30 metres, allowing the full floor area to be serviced.

The crane will work to maintain equipment brought in by Dolphin from oil exploration vessels and offshore oil and gas extraction platforms.

During the tender phase of the contract, Condra proposed that the crane lifting height be maximised to 9,1 metres – almost the full height of the workshop walls – by designing girders with angled ends to match the

slope of the workshop roof. Such a design allows the crane to be mounted with much of the machine's volume occupying unused space within the roof itself.

Crane capacity will be 10 tons. There will be variable speed drives on the hoist and the long- and cross-travels, and control will be by pendant.

Besides their angled ends, the 28,7-metre

long twin girders have been designed with splices to comply with regulatory restrictions on the road between Johannesburg and Luanda, where load lengths cannot exceed 18 metres because of curves.

Splice designs have become a common feature among Condra's export orders. For the Dolphin Offshore Chandling crane, steel plates welded eccentric-

cally to the four inside faces of the male box girder will result in a friction grip to reinforce girder strength and integrity beyond that delivered by the splice bolts alone. An internal box insert traversing the splice will deliver additional strength and rigidity, resulting in an almost seamless splice with a projected girder life in excess of 20 years.

Even though BB Cranes secured the Dolphin Offshore Chandling contract from Cape Town, Condra is executing manufacture at its Johannesburg works to reduce shipping costs.

The order was placed in mid-August for delivery end November.

Commenting on South Africa's current steel shortage, Condra's managing director Marc Kleiner said that the situation was compounding difficulties in the market.

"Right now, we have

an advantage because we have steel stocks, including essential square-bar," he said. "But the steel supply situation for all manufacturers is likely to ease come November."

Kleiner cautioned that service footprints beyond South Africa would nevertheless remain a problem for most companies:

"Condra is the only company to increase service levels in central and southern Africa. Other participants are hindered because their manufacturing and staff levels have been negatively affected by the overall economic climate."

In recent months, Condra has captured an increasing share of the sub-Saharan market for cranes and hoists, with notable recent orders from Cameroon, DRC, Angola, Botswana and Mozambique.

Visit Condra's website: www.condra.co.za



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De Beers' latest diamond recovery vessel



Maiden voyage: Latest Debmarine Namibia's diamond recovery vessel.

FOLLOWING the official handover held on the 18th and 19th of August at Damen Shipyards Mangalia, Debmarine Namibia's new diamond recovery vessel has arrived in Cape Town after a four-week long maiden voyage where it will be fitted with mission equipment before beginning operations off the coast of Namibia early next year.

The successful delivery marks the end of the shipbuilding phase of a landmark project that began over three years ago. It is the first vessel to be delivered by Damen Shipyards Mangalia, the Romanian yard that joined the Damen group in 2018, to take on large and complex, engineered to order projects under the banner of the Mid-Sized Vessels division.

Debmarine Namibia is a subsidiary of the well-known diamond mining and jewellery company De Beers, owned in equal shares

with the Government of the Republic of Namibia. The Additional Mining Vessel (AMV#3) as it is technically known, will use sub-sea crawling extraction techniques to retrieve diamonds from the seabed off the coast of Namibia. These will then be processed on board. 177 metres in length, it is now the largest diamond recovery vessel in the world and the new flagship of the Debmarine Namibia fleet. The vessel is expected to operate for at least 30 years.

The build involved many challenges, ranging from the onset of COVID-19 early in the project to the management of many subcontractors, each contributing their specialist skills and products. Engineering challenges included the installation of a DP2 dynamic positioning system based on a seven-thruster propulsion system powered by six

generators, to enable greater flexibility in the vessel's operations. Project management was undertaken by De Beers Marine South Africa (Pty) Ltd.

With the constraints of COVID-19 Damen also undertook the complete commissioning process, implementing incremental ways of working to ensure that it was all completed on time. "De Beers celebrates the completion of the vessel which, after a long period of design, construction and testing has now proceeded to sea" said Michael Curtis, Head of the AMV3 Project. "The vessel build has been a truly multinational effort which has converged successfully at Damen Shipyards Mangalia. The build of this magnificent ship has enjoyed a high profile in Namibia as the largest ever single investment in the history of marine diamond recovery.

Expanding the world of vacuum technology



New premises for Busch service centre on the corner of Tee Jay and Taurus Streets in Brackenfell.



Modern workshop facilities at the new Busch service centre in Brackenfell.

THIS may be a bold statement but every industry can benefit from Busch Vacuum and Blower technologies. Its products are designed with a focus on customer peace of mind, offering increased production efficiencies, reduced maintenance costs, and lower energy and water consumption. Compared to many of the older installed vacuum technologies, Busch delivers up to 60% reduction in the total cost of ownership.

Busch Vacuum Solutions is a family business founded in 1963 by Dr. Karl Busch and his wife Ayhan, and their focus has always been on helping the customer. They set out with the aim of increasing production in factories, improving healthcare in hospitals and clinics, delivering better hygiene and packaging efficiency in the food industry to name a few focus segments.

As more and more new sectors were identified so the need for the Busch range to expand was clear and so a high spend on R&D delivered specific sector focussed products and the range expanded to serve the pharmaceutical, oil and gas, chemical, water and waste water, woodwork, dairy and automotive sectors, and more recently with the addition of Pfeiffer Vacuum they now enter the high and ultra-high vacuum market as well.

Over its more than fifty years of existence Busch has become the supplier with the widest range of products to the widest range of sectors.

Busch in Africa

Over the years many Busch Vacuum pumps and blowers were installed into the Africa market, and in 2009 a decision was

made to open a full subsidiary company, Busch Vacuum South Africa (Pty) Ltd, based with head office in Johannesburg and with dedicated service centres in Cape Town, Durban and Accra Ghana. There are also agency representations in Gqeberha (Port Elizabeth), and Cairo, as well as many distribution partners throughout Africa.

Manie Fourie -Sales Director for Africa comments on the Cape Town region specifically "The Cape Town operation has expanded three times since its original establishment in 2012, the latest being earlier this year and we now occupy a modern service centre on the corner of Tee Jay and Taurus streets in Brackenfell, with Branch Manager Awee van der Merwe".

He continues -"Our original foothold in South Africa was through the vacuum packaging and pharmaceutical industry but that quickly spread to diverse industries like medical facilities, water treatment, printing, plastics, wood and many more segments in the local market in Cape Town. The water and wastewater treatment and medical sector have especially proven to be a dominant sector for our products, and with a growing population of installed pumps and equipment it is critical that Busch can offer local expertise in the servicing and maintenance of these products.

Water and wastewater treatment shows good growth

"Modern technological developments in the water and particularly the wastewater sectors, where mechanical rakes in settling tanks have given way to fine

bubble aeration processes, has introduced Busch to this sector in South Africa. The blower technology offered is well established for many years in Busch Europe where they developed a wide range to suit market requirements. Over the years Busch Africa has now developed strong relationships with all industry players such as engineering consultants, contractors and municipal plant managers regarding the operation, maintenance requirements, benefits, and advantages of the Busch vacuum blower range.

Medical market as a growth area

Fourie adds "Another growth area of our business has been in medical services such as hospitals where attention is now being paid to the upgrading of central medical vacuum plants in existing and new greenfield hospital facilities. This sector also receives regular technology updates and support directed at consultants, contractors and managers of these facilities"

Furthermore, he sees the hospital sector as a major growth area for the company throughout Africa where many countries are shifting focus to building new hospitals and /or upgrading existing facilities, often via World Health Organisation initiatives and other interventions. It is one of the drivers for opening the Busch Ghana branch which incorporates a sales office and service centre.

The facility will serve as the hub for direct OEM support within the West Africa region. Plans are in place to open an East Africa branch in 2022 and then a branch in Egypt in 2023.

Always near you

A major advantage to customers in South Africa is having a dedicated Busch service centre close to their businesses where direct contact can be had with Busch specialists rather than working with 3rd party resellers. Busch Africa can supply most vacuum pumps, blowers and spare part kits ex stock and are fully geared to service and

overhaul pumps in their workshops or to carry out service work and commissioning at a customer site. Service of competitor products is also offered with full warranty.

Busch Engineers have extensive vacuum application experience can assist with all vacuum system designs for skids or centralised vacuum systems. Support from Busch centres of excellence in

Germany, England and the Netherlands for detailed system design and construction is always available and a designs, drawings and documentation are completed to the highest standards.

With Busch Global acquiring a majority share in Pfeiffer Vacuum in the last few years, Busch Africa was awarded the Pfeiffer distributorship for the African continent.

With Pfeiffer part of the portfolio, it is now able to offer a wider range of technologies in the high and ultra-high vacuum markets. This coupled with Pfeiffer's market leading Leak detecting and gas analyser equipment.

Feel free to contact the Busch Cape Town Team for a free vacuum audit or assistance on any vacuum or blower service requirement.



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PFEIFFER VACUUM

THE BEE IN MY BONNET COLUMN

There is always a consequence

THE spiralling petrol price increase, projected by the AA to reach R20/litre by year end means that those of us that rely on our cars for transportation will be laying out about R1 000 every time we fill up. For many, that means paying more to feed your car than to feed yourself.

What a nice Christmas present on top of all the other increases in food, electricity, water, levies, rates etc. etc.

The petrol price increase will for a great number of us be seen as the last straw and the search for alternative modes of transport will be high on the agenda, but alas, generally poor public transport will mean that many might have

to resort to a bicycle.

While the fuel price increase is largely out of our control due to the rapid increase in the price of oil, which recently breached the \$85/barrel, the Rand/Dollar exchange rate is something that we can control along with the level of taxation levied on every litre of fuel.

But that requires competence, commitment and astute financial management by the exchequer – all of which are in short supply – and a fundamental about turn in the ANC's socialistic policies, which like lemmings, are leading us to the edge of the cliff and a fatal drop...

"The total levies combined in 2021 are expected to deliver

around R126 billion to government with around R83 billion coming from the GFL (General Fuel Levy) and R43 billion coming from the RAF (Road Accident Fund) Levy. The tax collected from the GFL goes directly to Treasury and can be used for any purpose that the government determines." – AA.

We all know that the RAF is bankrupt and it's no wonder – it's a government dept. If third party insurance were made compulsory, then would we need a RAF levy?

But what of EV's – electric vehicles? While there is a significant swing to this mode of transport worldwide, especially now that vir-

tually all the major vehicle manufacturers are committed to discontinue the manufacture of ICE (internal combustion engine) vehicles by 2035. Predictions and analysis by research companies show that the world sales of EV's in 2021 will top 6,4 million vehicles.

Worldwide bread and butter EV's are comparable in price to the ICE equivalent and the choice citizens enjoy means that there is strong competition amongst brands. Some countries subsidise the cost price to encourage usage and of course they have a stable electricity supply which ensures you have the juice to run the thing when you need it.

Neither of the fore-

going are present in South Africa, in fact the government positively discourages EV ownership my slapping an additional 7% more import duty on those admittedly high priced EV's that are available including Porsche, Jaguar, BMW and soon Audi – hardly run of the mill brands.

Why that should be is baffling or perhaps not. One would think that making EV's more price accessible would mean that more people would want to own one with environmental benefits plus the prospect of reducing fuel spend by at least two thirds, coupled with vastly reduced maintenance bills. Eskom would benefit with the sale of more electricity

in off peak hours without having to install more generating capacity (in a perfect world) but the fiscus would suffer as the amount of fuel tax collected would be reduced.

The roll out of home and a convenient charging infrastructure would create a new industry, much needed jobs and payola for shopping centre managers, municipalities and parking garages via charging for charging whilst parking.

On the flip side, the oil companies, garages and pump jockeys will lose out as well as the automotive repair industry.

But that is a long term scenario and surely the same thing happened to the horse and cart

industries when the ICE vehicles arrived; blacksmiths, wheelwrights, horse breeders etc.

Clearly something has to change as ICE vehicles will not be available post 2035 yet the local motor vehicle manufacturers and organisations such as the RMI remain deathly quiet pending discussions with government. This sector employs many thousands of workers and while the conversion to EV's won't happen overnight, it will come and it would be nice to know that we are prepared and have a plan. After all, we are good at producing plans in this country, but sorely lacking at implementation.

Eish.

The disinfecting muscle of UV and Ozone



Chetan Mistry,
Xylem Africa.

IN 1861, one man changed the world. Louis Pasteur published his theory on microorganisms, opening a new front in the battle against tiny creatures that cause humans great agony. Pasteur, along with many contemporaries, opened our eyes to

a world beyond our sight and the means to reduce its harm. Today, food lasts longer, and a minor infection is no longer a death sentence.

Ironically, one of the greatest germicide defences known to the world was discovered 60 years prior by Johann Ritter: ultraviolet (UV) light, and in the 1930s, William F. Wells noted that UV attacks airborne diseases. A decade after Pasteur, Cornelius Fox realised that ozone gas is a potent disinfectant.

Today, public utilities use both technologies broadly to manage microorganisms in water. According to Chetan Mistry, Xylem Africa spokesperson, the rapid modernisation of these technologies is elevating the

management of public utility water to new levels:

"UV and ozone are very potent, but the technologies had admittedly been demanding to implement and sustain. Consequently, water treatment relies heavily on chlorine, which is highly effective and inexpensive. But it has drawbacks, such as chemical contamination, corroding infrastructure and requiring special facilities and skills to stockpile and operate at scale. What we're seeing in the market is water treatment managers are adding UV and ozone systems to reduce chlorine reliance, and use these systems where chlorine isn't feasible."

For example, Xylem deployed its Wedeco

UV and ozone systems to eliminate bad tastes from water served by the Anderson Regional Joint Water System, which provides potable water to 14 water utilities in Upstate South Carolina, USA. Similar projects were successfully deployed in Algeria and Singapore, to name a few.

Rather than ripping and replacing existing purification systems, the Wedeco additions helped improve results without adding more management overheads. The self-contained systems often reduce the cost of established chemical purification regimes.

In situations where using chemical disinfectants are impractical – such as cleaning public areas, including hospital rooms or taxi



ranks – mobile Wedeco ozone and UV systems are highly effective. Wedeco has developed these technologies for over 40 years, an investment that is paying out handsomely for Xylem customers, says Mistry: "Xylem's Wedeco

brand has transformed the industry by drastically reducing the carbon footprint of water treatment plants around the world with highly-efficient, reliable and environmentally-friendly technologies. We are very

proud of the brand's strong heritage and look forward to future milestones as we continue to lead the way in helping customers to efficiently treat drinking water while reducing the use of chemicals."

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SOME RANGES NEVER GO OUT OF STYLE THEY JUST STEP UP THEIR GAME

In the later - 2000s, BOVA changed the game in South African Safety Footwear engineering, with the launch of their TRAX Range. Designed in partnership with our expert podiatrist, it combined superior safety and comfort like never before. Now we're putting our best foot forward again by re-engineering and expanding the entire Trax range. We've enhanced all the great features it's known for and added a whole lot more to make sure we stay a step ahead of the rest.



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5-13

Accreditations
EN / ISO 20345



ALPINE 21019



Size
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Ready to take the next step?

To find out more about the Trax range, we've got all the information and more on our website www.bova.co.za.



Advertorial

Lemaitre expands into new terrains

DRIVEN by passion, dedication, and a commitment to high-quality products, Lemaitre has always been a brand committed to keeping those who build South Africa safe. For 30 years, we have helped build a nation with the toughest workforce.

Lemaitre's launch of new styles with modern designs and a refreshed look appealing to a wider audience and targeting new sectors.

That's why we are proud to announce the addition of new styles to our range of safety shoes, designed to offer you more support, comfort and performance in the toughest environments.

Raptor range

Our Raptor range is synonymous with torsion control and keeping you sure-footed in environments where uneven terrain is prevalent, such as construction and agriculture. We've expanded our offering in this range with the **Osprey Hiker** and the **Falcon shoe and boot**.

The Osprey Hiker has a full grain genuine leather upper for enhanced comfort and durability and is perfect for the agricultural industry. The Falcon shoe and boot also made with a genuine leather upper, with TPU inserts in the arch of the foot with enhanced ladder grip

design. Their Dual Density PU sole unit and TPU inserts allow for an aggressive grip and torsion control.

Parabolic range

Our Parabolic range comes with a durable polyurethane midsole and is perfect for workers who need extra support when spending a lot of time on their feet. The Concorde shoe and boot are our latest's offerings in this range, with an S3 rating, provide comfort and alleviate fatigue for workers who spend long hours on their feet in industries such as manufacturing. They also come standard with an anti-penetration mid-

sole (APT) to prevent sharp objects from penetrating the boot.

Maxeco range

Our iconic Maxeco range, a legacy of South African safety footwear, has built-in arch support and is designed for all-around safety. The redesigned Maximus gives you the all-around safety with the addition of a memory foam insole and reflective strip. It has a lightweight sole unit, wider fit and improved ergonomics. The square cleat design of the shoe improves the slip resistance rating and provides better stability and reduced shock impact.

Apollo range

The Apollo range with SRC slip-resistance rating offers maximum slip-resistance and is suited for environments where slip potential is a high risk. The two new styles added in this range are the Clog and the Ben. While the Clog has been designed to provide superior slip-resistance to those working in kitchens and hospitals, the Ben incorporates the benefits of the Apollo sole as well as no metal or hard plastics on the upper which minimises the risk of scratching metal and other smooth surfaces. It is ideal for industries such as manufacturing and automotive.

Inyati range

New to the Lemaitre range is the Inyati range which offers high heat resistance, cut and abrasion resistance and SRC rated slip resistance and has an injected PU/Rubber sole which provides all-round safety and protection in hazardous working environments. The two new styles to this range are the Dodge and the Urban.

The Dodge has a stylish leather upper and comes with a TPU support system on the outside counter for reinforced support.

The Urban boot is S3 rated and boasts a genuine duo-tone leather upper with

additional padding on the collar and tongue for enhanced comfort. An anti penetration insole board comes standard with this style.

Our range of products offers a variety of features and benefits for all-round protection, comfort and performance.

As a proudly South African brand made for workers, by workers, we understand what is needed to carry you safely through tough industries and working environments. With the expansion of our new range and styles, Lemaitre expands into new terrains.

Lemaitre, from one worker to another...

Not a cheesy investment

PAN-AFRICAN alternative investment firm, EXEO Capital's new food sector investment vehicle, Nurture Foods, has announced its recent investment in The Fairview Cheese Company.

Riël Malan, Executive Chairman of Nurture Foods and Partner at EXEO Capital, says that a strong brand like Fairview sets the tone and lays the foundation for the establishment of Nurture Foods as a very focussed investment platform that provides investors exposure to the defensive convenience and functional food sector. "We are also excited that the transaction will enable the empowerment of Fairview Workers Trust to benefit from the anticipated growth of the brand, through the establishment of a goat milk supply company, owned by the workers of Fairview.

"Globally, the trend towards greater convenience, functional effects of food and consumer support of artisanal and ethical brands, is gaining momentum. Nurture Foods aims to partner with artisanal brands



Well known sight at Fairview.

such as Fairview. To achieve greater market penetration and efficiency through technology application and generally to support the platform businesses in growing a larger domestic and export market."

Commenting on Nurture Food's investment, Louis Lourens, Managing Director of The Fairview Cheese Company says: "The

partnership with Nurture Foods will enable Fairview Cheese to expand its artisanal offer and develop valuable new export markets. We are very excited to take Fairview Cheese to a wider international market."

Nurture Foods was established by EXEO Capital through its Food and Agribusiness fund, Agri-Vie Fund II, as a vehicle

to drive longer-term investing in the growing convenience & functional food sector. Using EXEO's 13 years' investment experience in the food sector in Sub-Saharan Africa, Nurture Foods will be partnering with seasoned food-entrepreneurs to build a platform of synergistic businesses that will grow and develop this highly differentiated sub-sector.

The Fairview Cheese Company was established in Paarl in 1980 by the Back family. Over the course of the last 40 years, Fairview Cheese established itself as the leading artisanal cheese producer in South Africa, producing more than 50 cow's and goat's milk cheese varieties. The Back family retains a significant stake in the business.

EXEO's Agri-Vie Fund II is a private equity investment fund focused on the investment in the food and agribusiness sectors in Sub-Saharan Africa. Since 2008, this fund and its predecessor fund have invested over US\$150 million in the food and agribusiness sector.

Survey finds up to 30% of the future workforce will be independent contractors

The move away from permanent employment will suit smart workers and agile companies alike, says Johann van Niekerk, Managing Director, Outsized, South Africa



Johann van Niekerk.

WHEN companies begin to recall their workers to the office or move to hybrid models, some won't go. Many of the most talented and innovative will realise they can earn more money, enjoy a greater variety of work and have a happier lifestyle by becoming independent contractors. It's a choice that will appeal to top talent in fields such as actuarial, strategy, data science, programme management, business process management and digital marketing, amongst others.

A growing number of boutique companies are hiring and supplying skilled contractors for fixed-term or project-specific assignments, and platforms like Outsized are matching their talent to companies that need their skills in a service that removes the uncertainty and administration for both sides.

Companies need a smart response

As this desire for independence lures more experts away from their

current employers, companies will need to counter the loss of talent with a smart response. The smartest way is by tapping into this new but steadily growing pool of freelance skills to augment their fixed workforce.

A recent survey by Outsized found that many business leaders are open to this idea of a 'blended workforce' to help them become more agile and efficient. They expect that 15-30% of their future staff will be short-term or project-specific hired hands rather than full-time employees. That backs up research by McKinsey in September 2020 which found that 70% of global executives expect to use more freelancers in the future. A 2020 survey by Forbes found that 49% of hiring managers rate access to highly skilled talent as the main reason for adopting this model.

Another benefit is an influx of fresh thinking from people determined to prove themselves, compared to full-time workers who may have lapsed into secure complacency.

A shift in thinking

An Outsized survey of 200 South Africans with university degrees and at least five years of work experience found that 81.5% are interested in turning freelance, with the main attractions

being a better work-life balance, the potential to earn more, flexible hours and the chance to gain wider experience.

For this new model to succeed, managers must adapt their thinking. They will no longer be overseeing close-knit teams around the table, but both permanent workers and those who choose to work from home in the hours that suit them. Some freelancers may work in the office as temporary team members, or come in occasionally, but if the talent you need wants to work from home, or lives in another city, managers must learn new ways to engage with them.

Human resources departments will also need to shift away from traditional recruitment and onboarding methods to handle more flexible or fixed-term arrangements. They will need to learn where to find and how to curate these workers – or liaise with a talent-finding partner that already has those skills and an essential database of knowledge workers.

Right now, companies and their employees are still in a state of flux and uncertainty, but since this blended workforce model will benefit both sides, this inevitable trend is already becoming a more prominent part of the employment landscape.

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Extending the life of long-travel energy chains

NEW components have been developed for polymer energy chains that can easily be installed to extend their service life in long-travel applications in a wide range of applications.

The energy chains, manufactured by the world's foremost producer of polymer energy chains, igus, are used extensively within the country's ports, logistics centres, mines and other industries where they are able to safely guide cables and hoses to reduce damage and abrasion, as well as provide a neat and safe environment around the equipment. The company's carefully engineered polymer energy chains have become the standard for energy

chains used in industry and the company's E4.1 energy chain system is also widely used in long-travel applications.

The addition of advanced new glide pads and roller chain links for quick retrofitting now enable users to expand the service life of the chains quickly and cost effectively, especially where they are used in abrasive environments, very high speeds or extreme travel lengths.

Igus South Africa managing director, Ian Hewat, says more than 25 000 igus energy chains move over long distances every year, whether indoor or outdoor cranes, mobile cranes, storage retrieval units CNC applications,



Advanced new glide pads and roller chain links have been developed to extend the life of igus E4.1 energy chains

tripper cars, linear robots, Ship-To-Shore cranes, storage and

retrieval units or linear robots. In all these areas of application,

customers worldwide rely on the tough and modular E4.1 energy

chain system from igus.

"The energy supply system has an undercut design and thus a high torsional rigidity. It is quiet and variable in heights and widths. In 90 per cent of gliding applications, the E4.1 is the universal solution. To extend the service life of the energy chain, especially in abrasive environments, igus has now introduced glide pads with which the chain can be easily upgraded. The wear-optimised sliding elements can be easily placed on the chain links in the inner radius. They are made of a highly abrasion-resistant igumid polymer.

"Rollers on the new igus energy chains reduce the push/pull

forces on long travels and ensure a significantly longer service life of the energy supply system. Their use is particularly worthwhile at high speeds of up to 10m/s or very long travels where the roller chain links reduce the drive power by up to 37 per cent, saving a significant amount of energy.

The new roller chain links and glide pads provide a customised energy supply system for every special application from 50mm to 1km travel.

igus South Africa, Ian Hewat, managing director, Tel: (011) 312 1848, Fax: (011) 312 1594, Email: ihewat@igus.de, Web: www.igus.co.za

Women-owned SMMEs push for change



Koni Maliehe.

FOR South Africa's women entrepreneurs, the quest for empowerment is not restricted to one day or month each year – it's ongoing.

Women make up

less than 20% of business owners in South Africa; and 59% of women-owned businesses operate in the sectors hardest hit by the pandemic, such as

restaurants and retail.

These statistics come from the latest Mastercard Index of Women Entrepreneurs, which analyses how women in business are progressing across 58 global economies. The index also shows that female small business owners in South Africa are increasingly staking their claim: they are as well educated as their male counterparts and have almost the same access to financial services. Cultural perceptions of women entrepreneurs are improving fast.

But with gender inequalities and other challenges – not least the COVID-19 pan-

demic – persisting, more than lip service is needed to ensure women reach their potential in helping to drive the country's economy.

Never stop asking tough questions'

Things are slowly changing, but the wine industry is still male-dominated, says Koni Maliehe, owner and founder of Western Cape-based Koni Wines.

Being faced with both gender and race barriers tends to push women entrepreneurs to embrace creativity to drive business success. "We need to be

assertive. We can still be compassionate while driving hard results."

Maliehe, who had already been selling her wines online before the pandemic, switched her focus and increased her social media presence when COVID-19 and the resultant levels of lockdown hit the wine industry hard.

"What I've learnt over the past 17 months of the pandemic is to focus on what I can control, and give it my best attention while continually finding winning ways to improve the business."

She has learnt to be resilient in the face of adversity – two years before the virus

changed everything, she found herself in a "dark place" when funding was not forthcoming and she needed her inner strength and some luck to pull through. That difficult time also showed her that interpersonal and networking skills are vital to run a successful business.

"Results inspire and motivate me. Each milestone, each step towards reaching the goal is fulfilling."

She believes mentorship for young women wanting to enter business is vital. "As I grow in business, transferring my knowledge to the upcoming generation of younger women

is crucial. I will continue to volunteer my time and collaborate with other women – together, we can do more and reach more women."

Her tips for young women entrepreneurs? Be open to learning, be able to embrace failure and "never stop asking tough questions".

* The small business featured here is supported by insurer Hollard's Big Ads for Small Business initiative that aims to help small, medium and micro-enterprises thrive, to their own benefit and that of their communities and the broader economy.

International climate deal could solve SA's energy and economy crisis

Some of the world's richest nations recently met with South African cabinet ministers to discuss a climate deal that could see billions of dollars put toward ending the country's dependence on coal.

THE delegation tried to hammer out an agreement that can be announced at the COP26 climate talks.. Two people familiar with the talks said. The discussions with South Africa – the world's 12th-biggest emitter of greenhouse gases – included representatives from the US, UK, Germany,

facilitate the transition to cleaner energy. Developed nations may also need to find a way to address the challenges faced by South Africa's state-owned power utility, which is burdened by R400-billion of debt.

The envoys met with South African ministers including Pravin Gordhan,

industry minister, the people said, asking not to be identified as a public announcement has yet to be made. Talks will be held with South Africa's politically powerful labour unions, business leaders and the Presidential Climate Change Coordinating Commission, three people familiar with the arrangements said.

The South African ministers pressed for details on what finance was available, but the envoys favour an incremental approach and more commitments from South Africa, the people said. While Gordhan urged support for Eskom, other options such as transitioning South Africa and its car industry toward electric vehicles were also discussed, they said.

Albi Modise, a spokesperson for the environment ministry, confirmed that a group of ministers met with the envoys but declined to comment further, saying a statement will be issued later.

Some senior members of South Africa's government are pushing hard for climate mitigation measures. President Cyril Ramaphosa chairs the climate commission he created last year and its more ambitious emissions reduction target was adopted by cabinet this month. Crecy has said developed countries need to boost energy transition and climate-adaptation funding to developing nations.

"South Africa is well-positioned to obtain concessional finance both for the



country-wide climate transition and the electricity transition in particular," Gordhan said in a response to queries before the meeting.

Still, the pivot from coal faces opposition within South Africa. Gwede Mantashe, the country's energy minister, has advo-

cated for the construction of new coal-fired power stations. Mantashe, the former head of the National Union of Mineworkers, is the politically influential chairman of the ruling African National Congress.

The move to reduce South Africa's reliance on coal comes as Chi-

nese demand pushes prices toward record highs. The dirtiest fossil fuel, which was struggling against cleaner energy sources, is now seeing its biggest comeback ever, complicating international climate talks.

<https://greeneconomy.media/>

Story update:

It was announced at COP26 in Glasgow that South Africa would receive R131bn over the next 3-5 years.

France and the European Union.

While South Africa is under pressure to cut its dependence on coal, which accounts for more than 80% of its power generation, it needs finance to

the public enterprises minister whose portfolio includes oversight of power utility Eskom Holdings, Barbara Crecy, the environment minister, and Ebrahim Patel, the country's trade and

Anti-riot hydraulic scraper



SVI Engineering, specialist manufacturer of armoured products, has been contacted by its clients in the mining and security industries for a solution in clearing road barricades during riot action. Designed from scratch, the SVI anti-riot scraper more than meets the require-

ments by enabling standard vehicles, like the Toyota Land Cruiser 79, to safely clear a path through the debris to allow security and medical personnel access to critical locations.

Design and operation

The SVI anti-riot

scraper and hydraulic power pack come as a unit for easy installation in a couple of hours. The mass of around 100 kg is comparable to a standard bulbar and winch fitted to many off-road vehicles.

Functioning as a normal bumper in the raised position, it can be hydraulically lowered (and raised) by pressing a button inside the cabin. Different angles of attack are available depending on the obstacle that needs to be moved.

A fire-extinguishing option is available that can be fitted to the blade to extinguish burning objects as the vehicle approaches them.

Application

The first unit is now available for the Toyota Land Cruiser 79 (and its MAX 3 derivative) but SVI can adapt the system for many other vehicles upon request. SVI is currently developing a version for the Toyota Hilux and Ford Ranger bakkies.

Manufacturing and cost

The SVI scraper takes four weeks to manufacture from order and installation is completed in less than a day.

The retail cost for the Land Cruiser 79 is R 64,995.00 ex VAT.

Combating fraud with AI



"SINCE the onset of the COVID-19 pandemic early last year, financial institutions have accelerated their digital transformation programmes. Many customers have embraced using online channels for everything from applying for loans and buying goods, to performing international transfers and other high value transactions. This has seen branch visits and ATM transactions reducing considerably over the past 18-months," says Marcin Nadolny, Head of EMEA Banking & Insurance Fraud at SAS.

Cyber fraud, digital payments fraud, identity theft, and employee embezzlement are all on the increase. In fact, the pandemic has seen the fraud and financial crime landscape shifting to become even more technology-driven than in the past. Cybercrime-as-a-service, digital fingerprints for sale, SIM swapping, social engineering, malicious use of AI, and digital skimming even when cards are not present are just some of the new styles of attacks.

Data and analytics have become key tools to combat the surge in financial-related crimes. AI, and specifically machine learning, can provide financial institutions with automated algorithms that incorporate a cross-

channel view of customer behaviour, help to spot complex fraud trends and reduce false positives in parallel. Information about devices, the geolocation of users, and even behavioural biometrics are playing the role of additional fuel for analytics.

Grozdana Maric, Head of CEMEA Fraud & Security Intelligence at SAS, agrees that fraud detection and investigation can be significantly supported by AI and machine learning technologies.

"Fraud risk is escalating for financial institutions and other business. Using the technology and analytics to address all types of fraud becomes an increasing need, allowing for more sophisticated detection and investigation methods, reduced costs, and increased efficiencies," she says.

"But this does not mean introducing more authentication. Instead, it is about incorporating stronger authentication into the

environment. Admittedly, it is becoming more complex to authenticate users without causing delay in the convenience consumers are seeking from digital channels. Things like 3D Secure authentication, one-time passwords, biometric security measures, and tokens can all be considered to increase security without impeding the flow of the customer experience," says Maric.

Exploring connections and interactions between people to catch more fraud becomes increasingly important in the connected landscape. Through this network analytics driven by AI and machine learning, organisations can better identify suspicious communities, organised crime groups, collusion between employees and customers, and even direct and indirect links to known fraud cases.

More information can be found on SAS for Fraud, AML and Security Intelligence.

Finding the right words to describe civil service corruption

Jacques Moolman, President of the Cape Chamber of Commerce & Industry is outraged, yet again and with just cause.

ONE in six senior civil servants has engaged in activities "that pose potential conflicts of interest" is disconcerting, according to the Public Sector Commission's annual report to Parliament.

Such delicate – almost Victorian politeness – will not trouble the guilty unless they are confronted and suffer consequences commensurate with their high pay grade.

To be fair, elsewhere in the Commission's report shows a little more backbone. It places the responsibility of fixing the problem with the men and women at the top of the civil service tree and calls on them to lead by example.

Unfortunately, it is yet another way of being ultra-polite and unlikely to hasten remedial action.



The tone remains timid, as in this example: "Executive authorities need to strengthen their resolve in enforcing full compliance with the regulatory provisions under all circumstances and to deal decisively with defaulting heads of departments. This would help in setting the tone from the top."

Setting the tone might help. Or it might not. So many of those breaking the rules of good governance could not care less what the PSC says. The report complains that only 9 792 of the 10 032 financial disclosure forms it sent out came back. The 240 who did not bother were all senior managers.

The entire State Security Agency (SSA) ignored the PSC request. Others that refused included five director generals and four heads of departments.

Data received by the rest painted a picture of serious rot lower down the Civil Service pecking order. The Commission found that 3 048 senior managers had an interest in companies.

Some 400 senior managers did not disclose their interest in companies. Among them were 15 directors general or heads of departments, 35 deputy directors-general, and 120 chief directors.

"Disconcerting" does not cover this appalling situation. Nor does it augur well for any action being taken to stop the corruption.

Such tippy-toeing around corruption by using polite words sends yet another signal that South Africa is not a place where potential investors should risk their money to build new factories to employ more people.

It is no secret that our civil services at all levels of government have been politicized to a greater or lesser extent to the detriment of the country and the private sector economy in particular.

The PSC has at least quantified the number of civil servants who see their employment as an opportunity for self-enrichment rather than to provide a service to citizens.

It is unfortunately clear that without strong action against corruption in the civil service in all its guises we risk not state capture, but state collapse.

Energy Council of South Africa launched

THE Energy Council of South Africa was launched 03 November by founding members from across the energy value chain, both public and private. The Council will play a leading and collaborative role in the development and transition of the country's energy sector.

The initiative is led by CEOs from Anglo American, Central Energy Fund (CEF), Eskom, Exxaro, Industrial Development Corporation of South Africa (IDC), Sasol, TotalEnergies South Africa and naamsa, who will serve

on the interim board.

"The Energy Council's purpose is to serve as the collective and unified voice of the energy sector in South Africa. We aim to play a leadership role in driving stakeholder and policy alignment, and assist in addressing major issues across the energy landscape, to promote the sustainable supply and use of energy for inclusive economic growth. With the founding member companies on board, we look forward to welcoming new members as we progress devel-

oping the enabling infrastructure required to effectively run the Council," said Fleetwood Grobler interim Chairperson, Energy Council of South Africa.

The Department of Mineral Resources and Energy (DMRE) is a key stakeholder of the Council and Mr. Gwede Mantashe, Minister of Mineral Resources and Energy, said:

"I congratulate all the companies involved in taking the initiative to establish this Council. There will now be one voice for the energy sec-

tor, and I look forward to working with the Council in developing a vision for the sector and a clear path to collectively realise this vision."

While the Council will, in its initial stages, be focused on setting up legal and governance structures, the founding members will actively engage the DMRE on policy matters to develop optimal pathways to grow the energy sector's contribution to the South African economy.

For more information visit: <https://www.energy-council.org.za/>

Crude Oil climbed too high, vulnerable to a correction

By Alex Kuptsikevich, the FxPro senior market analyst

SINCE the end of September, we have seen Brent crude oil regularly update its highs from 2018, and its price has exceeded \$85 almost daily since the beginning of last week, where even in 2018 it only spent a few hours.

For the US Oil, WTI, since the beginning of October, it has been close to \$85 and has been rewriting highs since 2014 on an almost daily basis. In both cases, the RSI indicator on the weekly charts exceeded 70, entering the overbought area. This situation makes you look for signs of an impending correction, although it is not a sell signal yet.

The history of the RSI indicator is related

to the weekly timeframes and the commodity market, so it is considered a very reliable signal. Traders should keep their fingers on the pulse because the sell signal in Oil on this index will come when the weekly decline under the 70 mark.

"Among the fundamentals, bears should keep an eye on the Dollar: a rebound in the Dollar is negative for the price."

However, beware of the bears. As in the case of gas in recent weeks, the reversal is often preceded by a sharp intensification of the trend, which takes out the margin calls.

Among the fundamentals, bears should keep an eye on the Dollar: a rebound in the Dollar is negative for the price. In addition,

the next meeting of the OPEC+ monitoring committee is coming up, where an increase in production quotas will be considered.

Interestingly, despite hot energy prices, Oil, particularly US production and drilling activity, has been slow to recover, helping the price to climb. That said, the end of the auto season is helping to stabilise and support the rise in crude stocks, which have increased by 12.6m in the last four weeks.

A new batch of data is expected to show a further 2M barrels increase in inventories over the past week. A larger growth has the potential to be a trigger for a correction in Oil. However, a more serious and long-term effect should still be expected from OPEC+ actions and comments early in the month.

Cummins appoints new dealers in the Southern Africa region

CUMMINS has implemented its Dealer model in Angola, Mozambique and Zimbabwe, with the appointment of six new Dealers.

"We are committed to serving our customer base in the Southern African region through our new channel partners giving them the capability to provide end-of-mile support," explains Racheal Njoroge, MD of Cummins South Africa. Cummins utilises this partnership model globally, with thousands of Dealers appointed around the world, "hence it is not something new we are introducing to the region."

"The Cummins Distribution Business spans over 190 countries globally," comments Patrice Ndzana, General Manager: Cross Border Business Southern Africa. "The focus is to ensure that efficient and reliable product supply and support is offered to our customers while extending our footprint, enabling territory coverage and capable networks."

Cummins' main path to market is through its distribution channels, fully or wholly owned entities, joint venture partnerships, independent distributors, or Dealers. "In terms of these three countries, we are now transitioning to that Dealer sup-

port model," highlights Njoroge. From a footprint perspective, Cummins is not reducing its coverage as a result. "It is very important for our customers to understand that we are not exiting these countries."

All the new partners have been provided with the necessary training to familiarise them with Cummins' processes and procedures. Parts availability and technical training are critical elements of Cummins' superior service, which the Dealer will continue to provide, in addition to escalated support being available from the Cummins technical team. "This allows for a smooth transition in terms of customer support," stresses Njoroge.

Two local Dealers have been appointed for each of the three countries to ensure that Cummins has an extensive and flexible network suited for local market requirements and will allow for future growth. Mining and power generation remain the biggest growth markets for Cummins in the region, followed by marine, oil & gas, construction and automotive. "Such diversification has stood us in good stead in the Southern Africa region, where our strategy has been to continue to service our customers,

despite any prevailing volatility or uncertainty in the region," highlights Ndzana.

The Southern Africa region is serviced by the Regional Distribution Centre (RDC) in Johannesburg, which oversees the supply chain for the entire Dealer network, from parts to filtration and whole goods (engines and gensets). In addition, the Master Rebuild Centre is a critical pillar of Cummins' 24/7 support and back-up operation for the mining industry, reinforced by the training centre which ensures that all Cummins technicians are fully trained and up to date with the latest technology.

The new dealers appointed in the Southern Africa region are as follows:

- Angola
- Namib Diesel CC
- Máquinas e Tractores de Angola, Lda dba M.T.A
- Mozambique
- S.A Tube & Honing (Pty) Ltd T/A TSM Engineering Sociedade Unipessoal Limitada
- Equator Equipamentos, SA
- Zimbabwe
- Applied Diesel & Power (Private) Limited
- Machinery Exchange (Private) Limited

Mini-substations for motor plant boasts dry-type transformer

DRY-type transformer specialist Trafo Power Solutions will supply two custom-engineered mini-substations to a significant motor plant expansion near Pretoria.

The two units will be located outdoors, serving to power the lighting system and security requirements of the facility, as well as other loads. While most mini-substations are equipped with conventional oil-cooled transformers, these units have dry-type transformers – delivering a number of benefits to the customer.

David Claassen, managing director of Trafo Power Solutions, says these include security and environmental factors.

"Used by both the private and public sector, mini-substations must often be located in unprotected areas, making them vulnerable to vandalism and theft," Claassen says. "The oil-cooled transformers are often targeted for the copper in their windings, as well



Mini substation housing built for outdoor application with 500kVA cast resin transformer.

as the oil for the cooling system."

The dry-type transformer's windings, by contrast, are cast in resin so the copper or aluminium cannot be readily accessed. There is also no oil to harvest, further reducing the incentive for criminals to destroy the structure.

"In terms of environmental considerations, the dry-type transformer does not require any additional

protective structure like walls or bunds to contain leaking oil or fire," he says. "These units also require very little maintenance, easing the managerial and technical burden on the owner."

While these two transformers are manufactured in TMC Transformers' world-class facility in Italy, the design and manufacture of the balance of the mini-substation is carried out in South

Africa. This gives Trafo Power Solutions a high level of control over the quality of the final product, says Claassen.

"This also allows us to fully test the equipment locally before it is delivered, installed and commissioned on site," he says. "We embrace the opportunity to manufacture locally as much as we can, to support local industries and enhance job creation."

Moody's affirms ADB AAA rating, stable outlook

The bank's liquidity buffer is among the strongest within the AAA-rated peer group, with liquid assets covering 101% of net cash outflows over an 18-month horizon

MOODY'S Investors Service ("Moody's") has affirmed the African Development Bank's (www.AfDB.org) Aaa long-term issuer and senior unsecured ratings.

The outlook remains stable.

In a rating action note dated 28 October 2021, Moody's said the key factors underpinning the affirmation include robust capital buffers, combined with superior risk management which contain the challenges associated with low development asset credit quality amid a difficult operating environment; very strong access to funding which supports the bank's ample liquidity buffer; and very high support from regional and non-regional shareholders to support the African Development Bank's development mandate.

"The stable outlook reflects Moody's expectations that African Development Bank's capital and liquidity buffers will remain in line with Aaa peers and that prudent risk management practices will maintain nonperforming assets at low levels despite a challenging operating environment," the note further said.

The outlook is also based on expectations that the Bank's shareholders will continue to provide substantial support, through regular capital increases, and when necessary, the provision of support beyond contractual obligations.

The note also commented on the Bank's solid capital position. "After several years of rising leverage, AfDB's leverage ratio improved slightly to 295% in 2020, compared with 298% in

2019. This reflected a combination of a slower pace of lending growth and the first contributions made under the latest general capital increase, GCI VII, which was approved by AfDB's board in 2019." Moody's expects further paid-in capital contributions from shareholders to prevent a deterioration in leverage over the next several years.

Non-regional member countries account for 40% of the Bank's capital subscription, including a number of highly rated sovereigns like the United States (Aaa, stable), Japan (A1, stable), Germany (Aaa, stable), Canada (Aaa, stable) and France (Aa2, stable), highlighting the ability and willingness of shareholders to support the African Development Bank's development objectives.

THE entire run of 250 issues of the South African investigative magazine, Noseweek, was donated to the Stellenbosch University (SU) Library and Information Service by Open Media Trust earlier this year.

The donation includes physical copies of the magazine as well as a complete digital archive.

Published by Chaucher Publications, Noseweek sadly published its last print issue in March this year. The publication ran monthly from June 1993, with Martin Welz as editor.

The publication describes itself as "South Africa's only investigative magazine and features irreverent, independent, inside information about business, the professions, politics and society in South Africa [...] it is essential reading for anybody interested in what's going on in the rainbow nation" (Noseweek, 2021).

The forerunner of the publication was titled nose and was established by Martin Welz in 1983 with prize money he received as Parliamentary correspondent of the Sunday Express for an exposé of "the corruption of doctors and public health services

by a major pharmaceutical group" (Welz, 1996). Nose was run until 1987 from Welz's garage and importantly, some of these early typed and stapled issues form part of the physical collection donated to the Library.

The Noseweek collection is undoubtedly a rich resource for research on contemporary South African history, politics, government, society, business and journalism. According to Prof Lizette Rabe, Chair of the Department of Journalism, SU, "It is thanks to journalism, especially investigative journalism, that South Africa's brittle democracy has been safeguarded. Noseweek will provide rich material for further research thanks to the courageous work of Martin Welz over so many decades – from pre-democracy's dark days of apartheid, and, since the dawn of democracy, the incredible range of corruption, fraud and state capture".

The collection also enriches our manuscript collections which have over the last few years been diversified by the addition of more contemporary collections such as the Frederik van Zyl Slabbert Collection, the IDASA collection and

the digital Vrye Weekblad collection. Most recently, we received the South African Debt Crisis 1985/1986 Collection, launched on 7 May this year. This critical collection is one very significant piece of the puzzle in terms of the road to democracy in SA and the end of Apartheid.

As an independent publication, Noseweek had "unashamedly taken up the cause of the underdog, spoken truth to power and managed to survive the odds with good humour for 28 years" (Welz, 2021). The magazine often featured the line-drawing cartoons of Gus Ferguson (1940-2020), celebrated poet, publisher, cartoonist, and pharmacist.

According to radio journalist John Maytham, Noseweek has "broken many major stories which subsequently appeared often without credit to Noseweek in mainstream media and [played] an invaluable role in our media ecosystem". He also described it as an "idiosyncratic important publication that marches to a different drum" (Maytham, 2021).

Prof Janis van der Westhuizen, Chair, Department of Political Science, describes the importance of the

resource as follows: "A vibrant and active civil society constitutes the lifeblood of a democracy, with a free and independent media sector playing a key role holding state leaders accountable to the people. As a small but vocal outlet, Noseweek played a critical role in exposing corruption and the abuse of power during South Africa's recent history. As such, it made a considerable contribution to the creation of what the philosopher Karl Popper, described as an 'open society' in South Africa. In as much, as one is saddened by the closure of small, independent media outlets, such as Noseweek it is heartening to know that the entire collection of Newsweek will now be available to researchers and future generations through SUN's digital media collection."

The Library is honoured to make this journalistic jewel freely accessible to researchers and the wider public by hosting the digital collection on our digital heritage repository, SUNDigital Collections. The collection can be accessed at <http://digital.lib.sun.ac.za/handle/10019.2/16692>, where all 250 issues can be searched and viewed in PDF format.

Noseweek lives on

An innovative alternative to mechanical seals

BMG's range of Garlock sealing products includes a versatile sealing system that replaces mechanical seals in industrial pump applications.

Garlock's Hydra-Just system is a reliable, leak-free rotary sealing system, which consists of a minimal number of components and comes completely split, eliminating the need for a costly dismantling process or backup equipment. Machinery can be serviced without having to uncouple the motor.

"Because this system provides cool, dry operation, with no product dilution, overall water consumption is significantly reduced. Unlike mechanical seals, this sealing system can withstand fluctuations in water pressure and is more effective in high pressure/low flow conditions," explains Michael Bissett, Operations Manager, BMG's Seals and Gaskets division. "Conventional packing must leak to perform,



BMG's Garlock Hydra-Just system is a reliable, leak-free rotary sealing system.

and common system upsets adversely affect the performance of mechanical seals. With this system, which uses braided rings in conjunction with other high-performance materials, a truly leak-free rotary seal is created, with no risk of catastrophic failure.

"This means users are able to optimise uptime and schedule maintenance around production needs, rather than re-scheduling production around seal failures." These low maintenance Hydra-Just seals, which are easy to install, can go any-

where that a single mechanical seal is currently being used. This sealing system has high abrasion and chemical resistance which means efficient operation, even in demanding environments.

Important components of this system are the flowmeter, needle valve and pressure gauges that regulate and measure the pressure of seal water. The barrier pressure ring efficiently directs seal water pressure in such a way as to maintain equal force on the inboard and outboard seals. No additional equipment is required with this system – just 13 – 45 l/h of pressurised seal water.

Because these seals do not use a machined seal face, this system can tolerate moderate amounts of wear in the stuffing box.

Garlock products are supported by BMG's technical advisory and 24 hour support service throughout Southern Africa.

XJ 900 awarded Product of the Year

SULZER is proud that its latest addition to the submersible pumps family, the XJ 900 submersible dewatering pump, has won the Product of the Year category in the Pump Industry Awards programme.

These awards are regarded as one of the leading industrial events, having recognized excellence for twenty years. The finalists were selected by a judging panel including independent experts and representatives from the press and sponsoring companies, as well as open voting through the organizer's website and various social media outlets.

Like all Sulzer submersible drainage pumps, the new XJ 900 offers an economical and reliable option for dewatering applications. Whether working in mining, tunneling or construction, the pumps are a valuable asset in handling water ingress with reduced energy usage



"The new pump includes several outstanding design features including the innovative and state-of-the-art hydraulic design which allows for easy conversion between high-head and high-flow applications without having to change impellers."

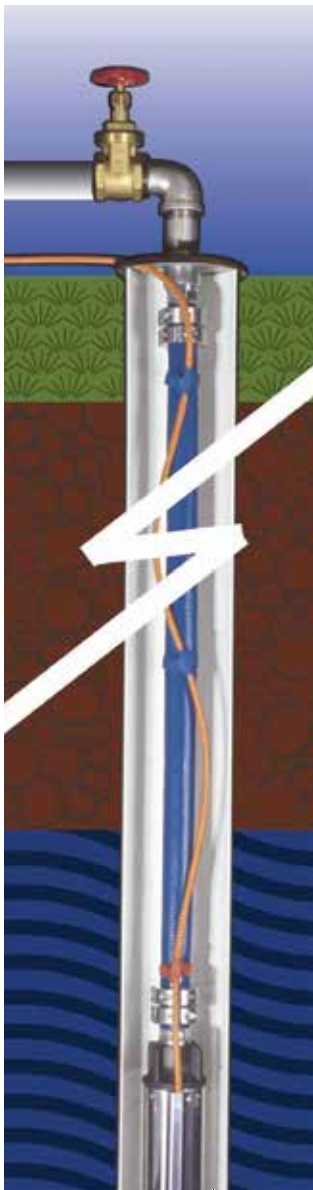
and downtime. The new pump includes several outstanding design features including the innovative and state-of-the-art hydraulic design which allows for easy conversion between high-head and high-flow applications without having to change impellers.

The XJ 900 underwent rigorous field testing in different critical applications and was exposed to some of the severest operating conditions, exceeding all expectations.

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Brewer pumps for efficiency



Raymond Makgoga, Grundfos associate sales engineer, in front of the water recovery plant at the brewery.

THE installation of Grundfos pumps and related equipment as part of an international beer brewer's expansion in Gauteng highlights a common commitment to water and energy efficiency.

A range of Grundfos submersible pumps, smart digital pumps and vertical multistage centrifugal pumps are installed at this Sedibeng-based brewery's wastewater plant and its water treatment plant.

The installation, which is in line with the brewer's commitment to conserve water as a precious resource, included the installation of a water recovery plant, allowing the operation to further optimise water use within its facility.

The expansion also saw the upgrading of the water treatment plant, where clean 'raw' water from the municipality is further purified for brewing purposes. After the beer is produced, beer residues and water used for pipe cleaning is treated to meet regulated environmental discharge limits. This can also be re-used for cleaning, reducing the need to draw on the municipal supply.

According to Raymond Makgoga, Grundfos associate sales engineer, three Grundfos submersible wastewater pumps were provided to transfer water from the brewery to the water recovery plant. After the sedimentation process, water is pumped to the reclamation plant for final treatment. In this circuit, around 6 000 m³ of water is pumped daily, with the pumps being driven by 15 kW high-efficiency motors with IE3 rating.

Saving energy

Energy efficiency is also an important factor, considering the significant energy consumed by wastewater treatment plants. Some 28% of the Sedibeng facility's energy is consumed by utilities, which are therefore the first port of call for energy saving efforts. Large pumps in the system transfer about 1,750 m³ of water per hour around the brewery, for instance, pumping 24 hours a day. To monitor and conserve energy, he says the company uses a Utilities Benchmark Model (UBM) which compares the electricity used with the kilograms of water treated and chemical oxygen demand (COD).

The use of IE3 energy efficient motors in the Grundfos pump installations has assisted in reducing energy consumption to about 1,3 kW per kilogram COD treated, from a level of over 1,9 previously. These statistics are tracked daily, and the new equipment helps to facilitate this data tracking as the operation works towards even more demanding energy saving targets.

According to Nancy Khumalo, service sales at Grundfos, energy savings can be modelled in advance to indicate how Grundfos pump installations can improve energy consumption.

"This allows our customers to consider how the Grundfos pumps could contribute to reducing their carbon footprint and their actual electricity costs," says Khumalo. "We are also able to provide an estimation of the capital payback period based on these savings."

Up-skilling

As part of the package Grundfos provided training and support to operator-level employees at the brewery. This allowed the plant staff to 'take ownership' of the equipment and understand more about its functioning.

"Grundfos has been proactive in embracing our sustainability vision, and is now guided by our Grundfos Strategy 2025," he says. "Focusing on people and water, we share the same passion as our customers to impact positively on our global future through high-value, technology-driven solutions."

Accurate dosing

"In the water treatment plant, a number of Grundfos Smart Digital S and Smart Digital XL pumps are installed, mounted on dosing skids," says Makgoga. "These must accommodate a range of chemicals from sodium hydroxide and sodium hypochlorite in the reverse osmosis circuit, to citric acid and anti-scalant in the ultra-filtration circuit."

Makgoga describes this function as a critical part of the brewery's operation, and comments on the value of Grundfos control systems.

"These systems give a high level of control, communicating vital data between the pump and the PLC so that chemical dosing is accurate and appropriate," he says.

"This eliminates over-dosing and ensures that chemicals are not wasted; the Grundfos pumps are able to measure the volumes of water flow and then dose in proportion."

The dosing pumps were supplied with the complete package including Grundfos's CIU 500 interface. The CIU 500 is a standard interface for data transmission between an industrial ethernet network and a Grundfos pump or controller, making data exchange possible between Grundfos pumping systems and a PLC or SCADA system.

New perfluoroelastomer product for oil and gas applications

DUPONT announced it is launching Kalrez OG193 perfluoroelastomers, a 95 durometer, FFKM compound that exhibits an excellent balance of properties for oil and gas applications. Kalrez OG193 combines best-in-class Rapid Gas Decompression (RGD) performance and chemical resistance with good low temperature and thermal stability. It passes the acceptance criteria for multiphase sour ageing according to ISO23936-2 and scores the highest rating at the Rapid Gas decompression test. It is an ideal fit for various applications in both upstream and downstream, such as oilfield production/completion equipment, wireline and drilling tools, pumps, mechanical seals, valves, compressors and more.

"Kalrez OG193 is the perfect choice for all energy applications

where compromising perfluoroelastomers' performance is not an option," said William Braule, application engineer for Kalrez. "With this product, we can welcome a new era in Oil & Gas sealing performance that enables our customers to continue to innovate and meet evolving performance expectations in the most extreme environmental conditions."

With oil production being pushed into more extreme conditions and harsher environments, there is limited margin for error, considering the high costs associated to unplanned downtime. Manufacturers, contractors and well operators need to operate with equipment purposefully developed to resist harsh environments and offer a margin for safety. Choices must be made around selecting perfluoroelastomers based on



their high chemical resistance vs. low temperature performance. Kalrez OG193 Perfluoroelastomer offers versatility without compromise for a variety of key parts including O-rings, packers, bonded seals, chevron stacks, T-Seals, and many other applications including production and completion equipment, pumps, valves, compressors and mechanical seals.

"We are excited to continue to expand our

best-in-class Kalrez products into the energy sector," said Donna MacSwain-Santos, Global Marketing Manager for the Industrial Segment. "We are committed to developing innovative products for the Oil & Gas industry that also support our customers' transition into alternative energy production."

Kalrez OG193 Perfluoroelastomer is now available for sampling and sale.

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High pressure slurry knife gate valves



DYNAMIC Fluid Control, manufacturers, designers and distributors of high-performance valves used in mining, water and power generation sectors, has launched the SKG-High Pressure series of slurry knife gate valves, designed in house and manufactured at its Benoni plant.

The SKG-HP was developed and refined in response to customer demand to solve problems typically experienced in harsh mining conditions where valve installations with lower pressure ratings are not sustainable. High pressure valves are ideal in instances where the pipeline is required to accommodate larger volumes of media being transported.

The valve is based on the same engineering principles as

DFC's current range of SKG valves with the exception that the new series can handle pressure over 51 bar. It is designed for multiple high-pressure and high-cycle applications in environments exposed to abrasive, scaling and corrosive slurries, sludge, liquids and bulk solids.

The packingless and robust design, heavy duty construction and replaceable elastomer sleeves makes the SKG-HP ideal for applications where high abrasion resistance is needed.

The valve's compact design leaves no seat cavity for solids build-up that could potentially block full gate closure. Moreover no metal part is in contact with the flowing media when the valve is in the fully open position. The design can accommodate manual, pneumatic, electric or

hydraulic actuation for easy conversion in the field.

The SKG-HP offers precise control over the flow as the valve when fully opened has two identical elastomer sleeves push against each other to form a cavity free, bubble tight seal to contain the line pressure. These sleeves are easily replaced without disassembling the valve. An integrally moulded encapsulated stiffener ring maintains the rounded shape of the sleeves under heavy shearing forces associated with high pressure applications. SKG's elastomer sleeves are designed to maximise rebound resilience and elastic recovery to improve abrasion resistance and sealing performance in mineral processing slurries.

The valve has been reinforced with stronger materials to withstand the pressure of mining slurries. This combined with bi-directional flow and shut-off reduces downstream leakage to negligible levels. The valve is also available in a version that is coated with Ziroflex, a hard chromium coating that not only improves wear and acid resistance but also has superior corrosion and heat resistance.

First complete SIL 3-certified valve assemblies

EMERSON has introduced the first valve assemblies that meet the design process requirements of Safety Integrity Level (SIL) 3 per the International Electrotechnical Commission's IEC 61508 standard. These Fisher™ Digital Isolation™ final element solutions serve the needs of customers for shutdown valves in critical safety instrumented system (SIS) applications.

Without this solution, users must specify all the individual valve components, procure each one, and assemble it into a working whole. Even if these steps are done correctly, this type of custom assembly will still not provide all the benefits of the Digital Isolation assembly.

"We were excited to work with Emerson to accomplish the first certified valve assembly," said Loren Stewart, exida evaluating assessor for this project. "By providing a complete SIL solution for valve assemblies, Emerson is reducing unknown variables while helping ensure safety is

always paramount."

Engineering a safety shutdown valve is a complicated task. The normal and upset process conditions must be carefully evaluated and understood when choosing valve and actuator components. In addition, the proper combination of solenoids, brackets, couplings, and other critical hardware must be specified and carefully matched to the selected valve. Each of these components must function individually and in concert to operate.

Emerson addresses these and other issues by providing an engineered Digital Isolation shutdown valve assembly, designed for each particular process. The various components are specifically selected to satisfy the application requirements. The entire assembly is sold as a fully tested and certified unit, with a single serial number and associated documentation delineating the details of every part of the assembly.

Because the assembly is built as a complete solution in



Emerson facilities, it boasts a significantly improved probability of failure on demand (PFD) rate. In some cases, the failure rate of the assembly will be up to 50% less than the combination of the same valve components purchased individually and assembled by an end user.

This improved PFD results from the assembly being certified as a whole system by exida, a global leader in product certification and knowledge, to meet their rigorous Remote Actuated Valve Assembly requirements. By using this certified assembly, SIS designers may realize a substantial reduction in dangerous undetected failure rates.

In one example, an Emerson customer was

hoping to achieve a six-year test interval for a SIL 2 safety interlock. When they performed a component SIL calculation on a standard shutdown valve, they could only achieve a SIL 1 level reliability at a six-year test interval. However, the Digital Isolation assembly exceeded SIL 2 requirements using the same components. This allowed the plant to safety extend their run time to six years, generating millions of dollars in additional revenue.

To learn more about the Fisher Digital Isolation Solution, please visit: <https://www.emerson.com/en-us/automation/valves-actuators-regulators/control-valves/digital-isolation-solutions>

Unprecedented demand for stainless steel pumps

SOUTH African submersible and vacuum pump supplier, Integrated Pump Technology, has reported an unprecedented demand for Grindex stainless steel pumps from customers on the Zambian and DRC Copperbelt.

As a result, the company has replaced cast iron and aluminium pumps with these

stainless-steel units across a range of operating applications, and on remote mines in the region. It says the poor water quality in the region has seen acidity levels increase and pH drop. Operating conditions in areas experiencing acid mine drainage can put excessive strain on pumps not suitable for highly corrosive applications.

Grindex stainless steel pumps are engineered to operate reliably in contaminated water and handle corrosive slurries with abrasive solids. The Grindex Inox plug and play range is manufactured from acid-proof stainless steel and operates in pH levels from 2-10, making it suitable for use in mining applications on the Copperbelt.

The cast acid-proof stainless-steel impeller ensures pumping capacities in corrosive slurries, while the diffusers in the drainage pumps are rubber-lined and adjustable to maintain optimum pumping performance. In the sludge pumps, the rubber-lined pump housing is highly abrasive resistant and oil-resistant for longer life.

Runxin valve range extended

ALLMECH, manufacturers of boilers and supplier of water treatment components, is the sole official agent in South Africa for Runxin water treatment systems. The company has decided to extend the range of Runxin softener and filter valves it stocks to accommodate projects with budget constraints as well as smaller plants that need to minimise installation costs.

"These valves are ideal for residential softeners, smaller boiler softeners, ion exchange systems and for RO pre-treatment

softeners," explains Lynette Morrey, Business Development Administrator at Allmech. "Stocking these items will help us to serve a greater segment of the market. We're now able to offer products for smaller applications, a cost-effective option for cash-constrained customers, as well as continuing to offer top-spec Runxin products to larger operators."

All Runxin valves are made from durable and

flame-retardant materials, ensuring they are impact and heat resistant. Their ceramic core components are wear and corrosion resistant, increasing

their longevity.

"The ceramic ball valve range is also chemical resistant, which saves on replacement of expensive brass fittings," says Morrey."



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"No matter what industry your business operates in, if you use vehicles or moveable assets, then Ctrack can help. During Ctrack's 30-year history, we have developed cutting edge tracking and fleet management hardware and software solutions. We can also tailor-make analytics to aid with short and long-term decision making," comments Hein Jordt, Managing Director of Ctrack SA.

A comprehensive fleet management solution ensures that elements including safety and security risks such as dangerous driving, safety, driver fatigue, theft, hijackings and area management can be mitigated.

Improved productivity is guaranteed when business owners know how their vehicles are being used. Efficient fleet management will ensure the avoidance of unnecessary costs incurred by factors such as speeding, accidents, fuel consumption and harsh driving.

Bespoke solutions for every industry

Whether your fleet consists of motorcycles or mining and yellow equipment or whether you operate within airports or the agricultural sector, Ctrack has developed and perfected bespoke tracking and fleet management solutions for a wide variety of industries. Compact, battery-operated tracking devices mean that anything can be tracked, from combine harvesters to small packages.

"Ctrack's continued emphasis on researching and developing next-generation products ensures that we remain ahead of the market, meeting demands for value-added, flexible, feature-rich, and cost-effective technology that keeps everything. Always Visible no matter your industry of operation," said Jordt.

Ctrack also provides integrated solutions with third parties and products that are not normally seen as true tracking products. This one-stop-shop for fleet managers provides solutions such as a state-of-the-art camera solution, Ctrack Iris, where transport and asset managers can view live camera footage of dash-cams and up to six cameras fitted to trucks, trailers and inside cargo bodies. In-cab devices that assist drivers with multi-

tasking and route management are a result of years of development of software reports that are easily accessible via mobile devices and cloud-based platforms.

Using data effectively

Ctrack can help any business, big or small, take the guesswork out of running fleets.

Realtime, weekly or monthly reports analyse the data and highlight where an action or decision needs to be made, whether that is regarding driver behaviour, route optimisation or vehicle maintenance.

Ctrack's Bureau Service is the complete outsourcing of fleet control room activities,

backed by highly proficient hindsight, insight and foresight data analytics and reporting.

Furthermore, easy to use software solutions include Ctrack's Driver Centric Mobi application. Using Ctrack Mobi, assets can be monitored from almost anywhere using a smartphone or tablet with an internet connection.

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How robotic logistics are the key to automated warehouses

Robotic logistics are the future of supply chain management, according to Yaskawa Nordic Sales Director Lee Moulder.

IN 2018 American companies spent approximately \$1.5 trillion on logistical expenses. It's a jaw-dropping number that underpins the importance of supply chain management to businesses. At the heart of any logistics system is the warehouse.

"The food and beverage industry, for example, often consists of mixed case warehouses," says Moulder. "These are the centres to distribute pallets to the different stores, and they house various products and items under the same roof."

Moulder explains that each store has its own unique set of requirements and not all of them will order the exact same items from the warehouse. As a result, the centres will need to pack different orders every day for the various stores. It's a complex process, especially when you consider the importance of kosher products being packed separately and even the specific number of goods requested



by each store.

In the past, most of these warehouse tasks were done manually by workers. As businesses demand more efficiency and accuracy, however, there's been a shift towards automating processes and uncovering smart solutions.

Thanks to the pairing of robotics with intelligent warehouse software like WSR Server, the process is now simplified. It takes away the manual

process of having to do everything by hand where not only is it laborious but human error is also a greater possibility.

"Using the combination of robotics and software like IPS, you'll be able to create the perfect pallet," Moulder says. "For instance, a retail store requires wine, tinned food, and chips. IPS groups the order and sends it to the warehouse control system. The individual pallets

containing the specific items will be picked out and brought to a depalletising station where they are de-layered depending on how much you require. From there, the items are picked/buffered then off to the mixed palletisers to prepare for shipment."

Apart from reducing the complexity of the process and need for manual intervention, the use of robotics in warehouses has other benefits too. Moulder explains further:

"First, it helps to reduce the number of items that stores order from a warehouse. In

the past, they would have to order complete layers or an entire pallet, which would impact storage space on their end. Second, the orders are packed more efficiently. There won't be crushed or damaged items, reducing the need to send back the goods. And finally, the accuracy of robots is unmatched. There's no more guessing game as you know exactly what went out, how much, and when."

While the benefits are clear, many businesses fear that introducing robotics into your operation will require a drastic overhaul of your current equipment and processes. Moulder reveals that isn't the case since robots are designed to integrate into other systems. They are even flexible enough to adapt to existing warehouse

spaces, fitting in where you need them.

What will be necessary, though, is training on two levels. The first is the standard maintenance training that'll help identify potential faults before they happen. The second is operator training, which includes the basic principles of robotics as well as onsite cell and application-specific training. Both types of training are provided by Yaskawa to their customers.

Seeing powerhouses like Alibaba and Google invest millions in robotic logistics is an eye-opener for every business. With the global market for warehouse robotics expected to reach \$22.4 billion by the end of 2021, it's abundantly clear that there's a new dawn in supply chain management processes.

The right data is critical to clean 'line of sight' into the entire supply chain

By Andrew Dawson,
MD at MACmobile



'LINE of sight' in the supply chain has taken on a new meaning in the age of Artificial Intelligence (AI) and Machine Learning (ML). Rather than simply tracking stock movements and using this data to attempt to influence the end consumer to buy a product, there is now massive investment in trying to 'own' the retailer from a data perspective. The focus has shifted to tracking everything retailers sell and who they sell to, preferably in real time. However, while this may work at a formal retail level, in the main market there are challenges that often obscure 'line of sight' due to missing data. Addressing this 'missing link' and obtaining the right data from throughout the supply chain is key in gaining clear 'line of sight' and realising the true value proposition of data.

The South African challenge

Understanding stock movements at a retail level as well as the behaviour of retailers is valuable data. However, the only real way of achieving this currently is through specialist point-of-sale devices, and this is where the market focus currently lies. The problem is the human factor, in the main (informal) market, spaza shop owners tend to be selective of what they run through these point-of-sale devices, for a number of reasons.

Many spaza customers are unbanked and retailers run on a cash basis, making it easy to bypass these devices. In addition, they may not wish for their true revenue to be identifiable, or they may not want the manufacturer or wholesaler to see their pricing and stock movements. This then obscures 'line of sight', since the data is incomplete and potentially inaccurate. The view into the ecosystem is noisy, and the insight into the end of the supply chain is not necessarily a true reflection. Decisions made based on this data therefore cannot be trusted at face value.

The missing element

While trust in point-of-sale data may improve

as retailers gain confidence and reassurance around the technology, currently this is not the ideal way of obtaining clear 'line of sight'. Instead, it needs to be reinforced at a distributor and wholesaler level. At this level, it is possible to gain insight into stock holding, rate of sale and "sales in" numbers for the various retailers, including the informal sector. Through invoicing and delivery data, a comprehensive and clean version of stock numbers moving into main market trade can be obtained.

Efforts to obtain the missing element of 'line of sight' into the main market needs to take on a new focus. Not only is data from the wholesaler and distributor leg already available, they have existing relationships and community engagements within the main market. The key to gaining clear 'line of sight' is through these robust last mile distribution mechanisms, but a multi-fold approach is required.

We need to look at embedding systems and platforms, but also at improving the financial literacy at wholesaler and strategic distributor level, as a first port of call in improving smaller retailers,

spazas and the communities they serve.

Maximum 'line of sight', maximum value

'Line of sight' in the supply chain takes on a different view when you understand the role of the wholesaler and distributor, particularly in the South African context. When this first step is in place, then AI and ML can be harnessed to leverage real-time revenue opportunities. This includes understanding when the rate of sale of a product exceeds stock holding, or when the stock holding is in excess, or when the product is not represented across the retail universe. These are all scenarios that translate to revenue opportunities.

The key is that different communities and areas have different requirements, and wholesalers and distributors need to be able to cater to this to maximise efficiency and profits. Having an AI platform backed by clean data generated through a clear 'line of sight' can automate this and generate benefits throughout the supply chain. However, it all begins with the data and with identifying opportunities to maximise supply chain 'line of sight'.

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Solar project aims to produce 14 000 MWh pa

As part of their strategic cooperation agreement, a solar energy project is launched; Over 14 000 MWh of electricity will be produced per year on eight sites; The reduction of CO₂ emissions is part of Deutsche Post DHL's Sustainability Strategy.

DHL Global Forwarding, the leading provider of air, ocean and road freight services, and TotalEnergies have signed a contract for a solar energy project in Dubai. It is in continuation with their Strategic Cooperation Agreement signed in 2019. TotalEnergies will solarize eight of DHL's sites in Dubai to cover the equivalent of over 46 000m² of photovol-

taic panels. The solar system will save more than 6 000t of CO₂ the first year. The project complements Deutsche Post DHL Group's sustainability roadmap to achieve zero-emissions logistics from 2050 onwards.

"With an annual average of 8.7 hours of sunshine per day, Dubai has a clear advantage in terms of solar energy. I am all the more pleased that we can use this asset to advance our sustainability goals further", says Amadou Diallo, CEO DHL Global Forwarding Middle East and Africa. "With TotalEnergies, we have a partner at our side, not only to drive forward the use of alter-

native fuels but also to optimize our overall energy consumption. In this way, we are going step by step to achieve our ambitious target to reduce all logistics-related emissions to zero by the year 2050."

The whole solar system will produce over 14 000 MWh per year, enough energy to power over 16 000 homes yearly in the UAE. In addition to supplying the sites with solar power eight electrical vehicle charging stations will also be installed. Thus, DHL Global Forwarding contributes to the Group's goal of electrifying 60% of its fleet by 2030.

Hamady Sy, Managing Director at TotalEnergies Renewables

Distributed Generation Middle East and Africa, declared: "We are delighted to support DHL Global Forwarding with their green initiatives in the UAE of which solar will play an important part, and look forward to helping them reducing their carbon footprint in the region and beyond".

Not only does the solar system produce more sustainable energy, but the program also includes that 85% of the solar modules are recycled. Furthermore, they are produced exclusively in Landfill Free certified factories. All this contributes to making the entire product cycle more sustainable and saves more than



150 000 tons of CO₂ over the contract duration.

In keeping with its policy of "burn less – burn clean", DHL Global Forwarding is consistently optimizing

the carbon efficiency of its transport network, its fleet and its real estate. In order to achieve its sustainability goals, Deutsche Post DHL Group is investing

EUR7 billion in climate-neutral logistics solutions through 2030, by which point at least 30 percent of its fuel needs should be met by sustainable fuels.

The hydrogen economy needs adequate investment into new skills

By Yershen Pillay, CEO, CHIETA- The Chemical Industries Education and Training Authority

THERE is ongoing excitement in South Africa about the prospect of the Hydrogen Economy – we are one

of just two African countries gearing up for it. The ability to turn chemical energy into electrical energy without emitting greenhouse gasses is certainly something to be celebrated and invested in. At the same time, with the global hydrogen market expected to record

a value of US\$184.10 billion in 2025, the economic opportunities open to the wider hydrogen value chain are a good news story amidst the narrative of South Africa's poor economic outlook. However, most important for unlocking the hydrogen econ-

omy will be our ability to foster the new skills required by this sector.

If we are to enjoy the jobs created by the hydrogen economy, it is vital to have an appropriately skilled workforce to fulfil these new roles – many of which we are probably yet to imagine.

Along with the diversified business growth we are hoping to see, we will need new talent and new skills to match.

I predict that these skills required will range from hard and soft skills, from technical skills to management skills. We will require a new breed

of installers, electricians, chemical and electrical engineers, plant managers and materials handlers – all equipped with up-to-date knowledge and understanding of hydrogen and hydrogen-related products. From high-school graduates to post-Doctoral can-

didates, the Hydrogen economy will provide something for everyone.

The Hydrogen Economy is within our reach, but we will need collaboration across large corporates, tertiary education institutes, and training authorities to make it happen.

DIESEL ELECTRIC SERVICES, DYNAMIC ENGINEERED SOLUTIONS

Kevin Donaldson purchased the generator sales division of the old Meissner company in 1993 with the specific agreement that for two years, the only focus will be service, maintenance and repairs to diesel generator systems. During this time, Diesel Electric Services has grown from strength to strength with the initial specialization in service, maintenance and repair and from there taking the knowledge and experience gained to introduce this into the manufacturing of complete diesel generator systems.

E-Media

Diesel Electric Services was appointed as the back up generators contractor for the design, manufacture, factory testing, delivery, installation, commissioning on site of 2 x 1000kVA generator in a sound attenuated plantroom with generator control panels, 2 x 1000kVA dry type stepdown transformers, power cable installation as well as a 23000 litre bulk tank installed in a chamber with suitable fuel polishing system to treat the fuels by running a circulation, fine particle filtration and water capture function in a 24 hour cycle.

What makes this installation so memorable is this is the first implementation of the new Kirloskar DV16 1000kVA diesel engines in Africa. Kirloskar has been operating in South Africa since 2010, the DV16 series introduced into the market in 2018.

As Diesel Electric Services we have proven our inhouse capabilities and knowledge to complete specifically engineered solutions in both new buildings and existing infrastructure modifications, taking into consideration the importance of uptime for end users.



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Installation of MV board minimises downtime



IN a process that minimised disruption to the customer's plant, Zest WEG has supplied one of its locally manufactured MTW05 Medium Voltage (MV) switchboards to a gold producer in Gauteng. According to Zest WEG executive Bevan Richards, the choice was based on the panels' compact dimensions, safety features and internal arc classification. With a 17.5 kV voltage rating, basic insulation level (BIL) of 95 kV and a fault level rating of 31,5 kA, the switchboard also has a high internal arc classification of 31.5 kA BF ALR 1sec.

"The changeout was facilitated by an extension of the substation

to allow both the existing panel and our new MTW05 MV panel to be accommodated in the same room," says Richards. "This allowed for our panel to be installed and energised, so that loads could be moved from the existing panel to the new panel at opportune moments."

The customer was able to complete the termination of cables from the national utility, from the standby generator set and from numerous feeder overhead lines in this phased approach. This avoided hours of downtime, Richards explains, which would have cost the customer dearly in terms of lost produc-

tion. The job was conducted after detailed engagement with mine management, to arrive at an optimal solution within the operational demands of the plant.

"The project consisted of numerous phases, including the addition of a MV power factor correction (PFC) system," he says. "With the plant planning a number of upgrades, the new state-of-the-art panel provides a safer solution that will accommodate all the required modifications and extensions going forward."

The order included the supply of a battery tripping unit (BTU), a cabinet for tools and equipment, and a new distribution board, as

well as the completion of internal control cabling. Zest WEG also supplied, installed and commissioned a fire suppression system inside the MV substation and PFC room.

"Another element of our solution was to give the customer enhanced monitoring capacity, by fitting the incoming panel with a power quality meter with GPS and GPRS capability," says Richards. "This allows for the off-site monitoring and recording of power quality and energy consumption, so they can pick up any spikes in the grid supply that might expose the plant to damage in the long term and determine the cause of power outages."

Turnkey natural gas power plant



R Schmitt Enertec G500 genset.

LOAD SHEDDING, unreliable power supply and increasing electricity costs are realities that businesses in South Africa must contend with. This was a key factor in the decision by an international manufacturer to consider its own power generation using natural gas.

Supplier of high-end and specialised equipment to the oil and gas industries in sub-Saharan Africa, Energas Technologies are delivering a complete turnkey project. It entails the supply and installation of a new gas reticulation pipeline; gas engines (gensets); a new gas-fired steam boiler; a waste-heat boiler which will use exhaust heat from the engines to produce steam; interconnecting piping; a new gas engine building and associated electrical infrastructure.

Complete solution

The gas pipeline, explains Energas Product Manager, Laetitia Jansen van Vuuren, will take gas from a new high-pressure customer metering station to the gas generator sets and steam boilers. The R Schmitt Enertec (RSE) G500 gensets will be installed in a new building that Energas will also supply.

The exhaust heat from the engines will be the energy source in a waste heat boiler. This free steam will result in a substantial annual saving in the gas bill. Projections show that a substantial saving can be realised,

compared with importing electricity from the grid in the first year of operation. The accumulated saving over 10 years, based on inflation and price assumptions, is substantially more than the project value.

"With the equipment offered, the supplier and Energas can monitor the operation of the engines to ensure the most efficient operation. Very few plant operation and maintenance staff are required to oversee the gensets and steam plant," says Van Vuuren.

"We are convinced that the solutions offered will reduce the overall energy cost to the customer, meet environmental requirements and ensure efficient operation. Our team is capable of executing the project successfully, and we are set to complete the project in December this year," she adds.

Talking points

"The previous coal fired boiler will now be replaced with a waste heat combination steam boiler whose energy source is heat recovered from the engines exhaust but also has a gas burner. When more steam is required than what could be recovered, the additional steam will be supplied with gas as fuel source. When the waste heat boiler is being serviced or the engines are not working, there is a standby gas boiler to ensure continuous supply of steam to the

plant," she explains.

Redundancy is achieved by having four smaller engines (4x 500 kW) instead of a single large engine (1x 2 MW) which will provide a continuous power supply to the plant. When one engine is serviced, the other three can still operate. Or if the plant's usage is low, adds Van Vuuren, one or two engines can be switched off while the others operate at a higher and more efficient load.

Why Energas?

The company has been a supplier of equipment and solutions to industry since 2001, when natural gas was introduced in South Africa via the 800 km + pipeline from the northern Mozambique gas fields.

Van Vuuren urges businesses to consider the natural gas energy route because of the documented benefits. "We believe several industries should consider own power generation with natural gas. It will reduce their energy costs and also make them more independent from the grid, especially when combined with heat recovery.

They can save millions of rand over a few years and ensure that their production is not affected during load shedding," she concludes.

For more information contact Energas Technologies: Laetitia Botha: Tel: +27 (0)11 397 6809, Email: laetitia@energastech.co.za; Web: www.energastech.co.za

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Improvements in construction and building materials sales encouraging - SEIFSA



WHILE the year-on-year uptick in demand for construction and building materials is from a low base, it is a welcome development for the Metals & Engineering Sector (M&E) as it indicates a steady increase in economic activity as the country adjusts to living in a pandemic," the Steel and Engineering Industries Federation of Southern Africa (SEIFSA), have said.

Wholesale trade sales data released by Statistics South Africa (StatsSA) recently showed an increase in sales of 10.3% in June 2021 compared to June 2020, to reach R155.7-billion in con-

stant terms, with a month-on-month decline of 5.1% in June 2021, when compared with May 2021, and a 13.8% increase year to date. The main contributors to the increase were construction and building materials, solid, liquid and gaseous fuels and related products and other intermediate products, waste and scrap.

Sales of construction and building materials declined slightly in June 2021, to R11.6-billion from R13.2-billion in May 2021, with year-on-year growth of 29.6% in June 2021. This is mainly attributable to discouragingly rising costs that

reduced activity in the residential segment.

According to SEIFSA Chief Economist Chifipa Mhango, the improvement from last year is mainly due to increased building and construction activity this year. He said the increase coincides with a rise in M&E production sales to R81-billion in June 2021 from R78.9-billion in May 2021. In the first six months of 2021 to June, total building and construction activity reached R69.9-billion, thus representing a growth of 69.2% when compared to the first six months of 2020. Mr Mhango said increased activity in building and construction bodes well for the M&E industry. "The resulting increase in demand for M&E products is welcome, though we do urge the Government to partner with us to find ways to sustain the recovery of the industry, which has been struggling due to, among others, rising electricity and transport costs," he said.

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FORMED in 1909, The South African Institute of Electrical Engineers (SAIEE), a voluntary non-profit association, has grown to approximately 6 000 engineering professionals. Our members are professionally engaged in the full range of engineering activities, including academic research, manufacturing, electronics, telecommunications, measurement and control, mining, and power infra-structural services. Members make meaningful contributions to the quality of life in communities and the steady advancement of technology. Their efforts are acknowledged in many countries worldwide.

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As a practising engineer, the Engineering Council of South Africa (ECSA) requires registered engineers to earn at least 5 Continual Professional Development (CPD) credits per year, derived from Category 1, 2 and 3 to maintain their professional registration. For this reason, we have launched the SAIEE Training Academy in 2019, offering engineering professionals a cost-effective training solution.

We offer both online and face-to-face training by lecturers who are experts in their respective fields of specialisation. The SAIEE Training Academy also offers group bookings, and training discounts



apply to five or more delegates from the same company. With this offering, not only do companies save on training costs but they are assured of quality courses to maintain their employees' industry competency. We encourage interested parties to register early, as spaces in our classroom and online platforms are limited.

SAIEE Members receives excellent discounts, and non-members do receive value for money with our very competitive rates. Our classroom course fees,

offered nationwide in South Africa, includes breakfast, lunch, and training material. Interested parties in rural areas can earn CPD credits via our online platform. All SAIEE Training Academy courses can be presented as In-house training courses both face-to-face and online. These training courses can be customised to suit the customer's requirements.

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Cementing a reputation



CEMENT producer Métier's shift into the Western Cape market could not have been better timed.

CBN reported in August that the group – controlled by Sephaku Holdings – was planning to compete in the keenly contested Western Cape market. Last month Sephaku confirmed Métier's had opened its new cement plant in Bellville.

Not long after that announcement the

Treasury Department issued a circular effectively banning imported cement in government-funded projects from 4th November.

In recent years importers of cement have increased market share due to the marginally higher pricing from local manufacturers from the additional, non-negotiable costs for legislative compliance such as carbon tax.

Treasury's circular prescribes that all gov-

ernment institutions at all legislative levels and state-owned enterprises must stipulate in tender invitations that only South African produced cement will be permitted on all public sector construction projects.

In essence, the cement has to be produced with locally sourced raw materials - which are a condition that eliminates competitors that import clinker. Sephaku reminded

that government's infrastructure fund had already submitted four projects - collectively valued at R21 billion - for national treasury approval, and was apparently finalising four more projects - worth some R85 million - for submission in 2022.

Whether any of these will benefit the new Bellville plant remains to be seen. In the meantime Sephaku said Métier's Bellville plant had already started supplying customers, and believed sales were expected to grow in the coming months.

Importantly, Sephaku noted the expansion costs have been minimal because the subsidiary transferred under-utilised assets to penetrate the Western Cape market.

The group stressed: "Métier will be prudent in its approach to securing market share by leveraging its superior technical knowledge and service capabilities".

Managing construction waste is part of a greener future

CLIMATE change is now everyone's concern, and Concor's efforts to operate more efficiently and sustainably include the way it deals with its construction waste.

According to Leah Nwedamutswu, quality assurance and quality control (QA/QC) officer at Concor, the company's commitment to Zero Harm embraces staff, the community and the environment. Growing awareness of climate change imperatives has led the company to develop performance strategies to carefully manage water use, energy consumption and process waste.

"This includes preventing pollution emanating from our industrial processes, which means spreading this message to all staff



Leah Nwedamutswu, quality assurance and quality control (QA/QC) officer at Concor.

and subcontractors on our project sites," says Nwedamutswu. "Our critical environmental standards are in place, and we actively assess and manage our risks and opportunities."

The environmental management plans (EMPs) and authorisations of Concor's clients are also embedded in the daily work processes, ensuring that the company can play its role in supporting the client's compliance responsibilities.

This commitment has recently been expressed by Concor at its projects in the Oxford Parks mixed-use precinct in Rosebank, Johannesburg, where it is proceeding with its sixth Green Star-rated building. Nwedamutswu highlights the company's waste hierarchy system, which it has applied over the years to ensure that waste is effectively reduced, reused and recycled.

"We have a detailed and ongoing focus on the natural resources that we consume in construction, and recognise that these are finite and precious," she says.

"The care with which we manage our waste also enhances health and safety on site."

The waste management system prioritises separating the waste at source, and dedicates human resources to ensure that building rubble, wood, steel or plastic is properly sorted and placed in the right containers or skips.

This prevents contamination of the various waste streams,

allowing each stream to be more efficiently and cost effectively recycled.

"Implementing our system requires both discipline and education, especially as we employ many smaller companies as subcontractors, who may not initially give the same priority to environmental protection," she says.

"We therefore actively communicate our policies and requirements, and expect our partners on site to be as serious about waste management as we are."

Specialised recycling service providers play an important role in Concor's waste management supply chain, as they help to optimise the levels of waste that can be recycled.

Dumping in landfill is considered an absolute last resort, and this must be kept to a minimum. Even building rubble can be pulverised and re-used in certain applications, as long as it is not contaminated by other materials.

"Our strict policies require that we also monitor the integrity of our waste supply chain, to confirm that the various streams of waste actually go where they are supposed to," says Nwedamutswu.

"This is done by double-checking the weighbridge documentation we receive from our waste service providers, and these must match our own records of waste leaving the site."

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Celebrating 30 Years of “Lighting Your Way”

2021 marks a special milestone for Eurolux (Pty) Ltd as the company celebrates its 30 year anniversary. Founded in 1991 in Cape Town by the Mirlas family, what started out as a small family business importing lighting and incandescent bulbs, has now grown into a company with a substantial Sub-Saharan Africa footprint, supplying over 8 000 products to 2 300 distributors across the African continent.

Eurolux was purchased from the Mirlas family in March 2002, by current directors Peter Willig, Steve Palframan and Shaun Bouchier. Their first major decision was to establish a Johannesburg operation based in Linbro Business

Park, Sandton, which commenced trading on the 1st of July 2002. The timing of this move proved to be immensely successful and April 2004 saw Eurolux JHB moving, literally just up the road, into their own purpose-built 8 500m² building.

Just two years later, in June 2006, the Cape Town Head Office moved into their own designed new 8 000m² building in Milnerton, thus creating the perfect platform to take the Eurolux brand to another level of growth and subsequent market acceptance as a major player in the lighting industry.

In 2011 ARB Holdings Limited purchased 60% of the company.

With the financial backing of this JSE listed group, the company was able to expand into new markets, launching their electrical division, project department and ‘Euro Nouveau’ concept, which represent some of Europe’s most prestigious lighting design companies.

A further growth opportunity arose with Eurolux purchasing Radiant Lighting in January 2019, collectively forming the Eurolux Group. The start of 2020 saw both businesses move under one roof in Cape Town, at the Eurolux Head Office building in Milnerton, with the Johannesburg branches later combining at the existing Radiant Lighting

premises in Wynberg.

2020 also heralded the opening of a new concept lighting showroom in Umhlanga, providing a modern and upmarket facility for their KZN clientele, housing lighting fixtures from all three of the Eurolux Group brands.

Acting as an importer and distributor, Eurolux has always had its finger on the pulse of global industry trends and movements. By maintaining strong business relationships with their business partners, they have been able to both understand and meet the needs and preferences of their clients, thus ensuring a product offering of world-class quality and variety.

Eurolux’s upward tra-



jectory over the years has also allowed them to invest in the wellbeing and empowerment of the community, with a special focus on healthcare and education. The company mantra “Lighting your Way” has proved to be a driving principle in all of their

social initiatives, from the lighting of schools and healthcare facilities, to making sandwiches for the children of crèche’s located near their Cape Town headquarters.

The last thirty years have given Eurolux plenty of reason to cel-

ebate this anniversary milestone and they look forward to continuing their pursuit of excellence; from building sound client and supplier relationships, to offering premium quality lighting products sourced from around the globe.

New GM builds on 40 year success

BEKA Schröder, a foremost supplier of locally manufactured luminaires and GRP poles announces the appointment of Daniel Kasper as the General Manager of BEKA Schröder. Daniel took up this position from the 1st of October 2021.

Since joining BEKA Schröder in 2007, Daniel has held leadership positions in Product Management, Product Development, and most recently Operations Management. Daniel holds a Master of Science (M.Sc.) at the Technical University of Karlsruhe in Germany, specialising in Electrical and Information Technology, and Optical Engineering.

“Our market strength means customer orientation. We strive to meet our customer expectations while we have the lighting expertise of over 40 years locally and over 110 years globally. We live a strategic culture of innovation.

My passion for lighting and innovation has always been one of my core strengths and I am therefore confident that I can lead the fantastic BEKA Schröder Team into the future and continue to transform and innovate to meet the market needs of today and tomorrow”, states Daniel.

Daniel is also the current President of the IESSA – the Illumination Engineering Society of South Africa.

Recent successes

The company has enjoyed considerable local and international project success

recently completing supply contracts for projects in:

- Hermanus – High Street LED lighting upgrade and solar LED installation at Hermanus Harbour.
- APLI Fruit Terminal, Port of Coega – outdoor lighting solution
- Cape Town - Beachfront solar installation
- Cape Town - Green Point Athletics Stadium, retrofit with high power LED floodlight solution.
- Cape Town - LED streetlighting solution for the N2/M3 intersection at Hospital Bend
- Gaborone, Botswana – LED streetlight installation at Sir Seretse Khama International Airport Special Economic Zone project
- Kinshasa, DRC – FIFA standard LED floodlight installation at the National Football Stadium including BEKA Schröder’s latest sports lighting control system
- Cape Town – LED streetlight retrofit of the N7 and the Koeberg interchange
- Hout Bay – LED lighting solution for the harbour

BEKA Schröder’s first products in manufacture were corrosion-resistant Glass Fibre Reinforced Polyester (GRP) Poles and Public Lighting luminaires that continue to provide long-term solutions for the hostile coastal and inland

environments. Their products are used in many infrastructure developments, such as roads and highways, residential and commercial areas, and town centres as an integral part of urban renewal programmes. BEKA Schröder products are exported into almost all African countries, as well as the Middle East, South East Asia, Europe, South America and Australia.

BEKA Schröder’s focus is on designing sustainable LED solutions. They understand the importance of renewable energy solutions and provide various solar-powered indoor and outdoor lighting products.

Quality is the company’s hallmark, and they offer an extensive range of high-quality LED luminaires, most of which are locally designed and manufactured, making them the best suited for African conditions. Their local content in their products and supply chain are of utmost importance to them, thereby assisting the local economy.

Furthermore, they have an applications department which assists with creating lighting designs for projects. This is important to ensure that the correct luminaire is used for the application, providing the right amount of light where it is needed, and avoiding spill light. This ensures a complete, sustainable solution.

The community is important to BEKA Schröder and is involved in various socio-economic development projects. One

such project was the one in Chintsa East in the Eastern Cape, where they donated 160 LED streetlights,

lighting up the streets so women and children can walk around freely at night, kids can play soccer under the

streetlights, and everyone feels safer.

This is the first streetlight installation for Chintsa East.

For further information, please contact contactinfo@bekaschreder.co.za



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Vocational training key, as youth unemployment ‘out of control’

“SA faces shortage of skilled and qualified artisans needed for facility maintenance”

NEWS reports that South Africa now has the highest unemployment rate in the world (34.4%) sent shockwaves throughout the country recently. According to the latest data that was released by Stats SA, 7.8 million citizens are jobless – topping the global list of 82 countries monitored by Bloomberg.

“I believe that South Africa’s Facility Management sector has the potential to make a significant contribution to addressing the country’s spiralling unemployment rate by stimulating and cultivating entrepreneurial growth and creating employment for South Africa’s youth in a sustainable manner,” says Lydia Hendricks, Business Development Director of FM Solutions.

The importance of artisanship and vocational training

“It is a sad reality that South Africa is grappling with a youth

unemployment rate of 64.4% of those aged 15 to 24 and 42.9% of those aged 25 to 34. At the same time, we are facing a serious shortage of important vocational skills such as plumbers, painters, handymen, technicians etc. In 2018 South Africa already recorded a shortfall of 40 000 qualified artisans. Today, this outlook looks even worse owing to the ravaging effects of COVID on an industry where the average age of artisans is 60 years old. The demand for these scarce skills will become only greater over the next few years as the generation of skilled craftsmen enter retirement,” Lydia predicts.

Facilities Management is focussed on creating workplace environments that are safe, well-maintained and fully operational in order to boost their productivity. Many of these vocational jobs are therefore incorporated into the facilities



ties management space where much-needed technical skills in plumbing, air-conditioning, maintenance and installations can be transferred.

“The youth wrongly believe that only a university or college degree will allow them to be gainfully employed. School leavers tend to pull up their noses at the thought of working with their hands. The harsh reality is that the world desperately needs well-trained and experienced individuals who

have specific and practical skills to offer – regardless of their race or gender,” Lydia says.

Developing career paths and employment opportunities

The FM Solutions business model is built on the belief that they hold the power to transform individuals, businesses and communities through their service offering.

“The entire process is carefully managed with clear Service Level Agreements (SLA’s)

and a dedicated HR team which supports the project from start to finish,” Lydia explains.

Once staff’s competence levels, skills and training needs have been assessed, a career path is developed and job descriptions become linked to measurable KPA’s. This has allowed the FM Solutions teams to develop cashiers into station co-ordinators, empower station co-ordinators to work their way up the career chain to become functional area managers, and junior techni-

cians qualifying and registering with their relevant bodies.

Harnessing the power of Public-Private Partnerships

“As with most of the problems facing our country, workable solutions can most often be found in forming successful public-private partnerships. The built environment, where we operate, has the potential of being a major employer and can create many jobs that allow young people to gain much-needed work experience, such as when FM Solutions assisted the Department of Public Works with an Expanded Public Works programme,” Lydia says.

However, over a period of four years (2015-2019), FM Solutions focussed on SMME development, skills development and job creation for the youth of the City of Cape Town.

FM Solutions selected and trained 1

180 learners (roughly 200 per year) with a specially developed skills programme aimed at developing future artisans. They were afforded valuable hands-on experience by working in many of Cape Town’s most well-known buildings, such as Parliament and other historical structures where maintenance is seen as an important priority. The majority of these young people were fortunate to go into full-time employment after their apprenticeship and training period, while others were able to start their own businesses.

“Government cannot solve the growing unemployment crisis alone. The private sector has a major role to play in restoring the dignity and offering a glimmer of hope to South Africa’s youth and struggling SMMEs who are fighting for survival and a future,” Lydia concludes.

For more information, visit www.fm-solutions.co.za

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Through partnering with clients, FM Solutions Technical ensures compliance, increased client satisfaction, reduced costs and potential environmental impacts.

With clients spanning across the public and private sectors, FM Solutions Technical renders professional maintenance services to a range of contract types and sizes, including electrical services, building fabric services, HVAC maintenance and repairs and utility services.



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Measuring instruments for bulk storage in the petrochemical industry

South Africa's first crude oil refinery was commissioned in 1954, and since then the petroleum production in the country has gained momentum. Global energy conglomerates have invested in the development of downstream operations in the country, in both crude refining and synthesis processes.

overspill safety-interlocks and pump protection. The level portfolio also encompasses bypass chambers, sight-glass level gauges and external chambers that can be used for mounting of guided-wave radar transmitters.

WIKA's flow portfolio consists of a com-

prehensive range of primary flow elements, ranging from basic orifice plates to the advanced HHR-ProPak that can be used for inventory monitoring.

The pressure portfolio consists of the industry leading mechanical and mechatronic pressure gauge models for

absolute, relative, compound and differential pressure measurement. The pressure measurement portfolio extends to a wide offering of electronic pressure measurement, which now includes the DPT-EL, a new model by WIKA for electronic DP measurement.



WIKA, this year celebrating 75 years of providing measuring instrumentation globally, are proud that its instrumentation has been in use for decades at each of these major refining sites in South Africa. WIKA products are trusted to handle the most demanding process applications ranging from distillation to bulk product storage and all Refining Process Units (RPU's) in between.

Bulk product storage in tank farms is an essential component in the downstream value chain, and it is the objective of petroleum companies to ensure that these tank farms use accurate, repeatable, reliable, safe, and efficient instrumentation. This is crucial to ensure the safety of the environment and plant personnel as well preventing product loss and theft. Traditionally measurement methods such as the use of dipsticks or dip-tapes have been used for level measurement. Although these methods are still in use today, they are time consuming and the margin for error remains high compared to using modern instrumentation. With the advancement of process instrumentation, parameters such as Pressure, Temperature, Level, Flow and Density are measured, allowing for detailed monitoring of product in bulk storage tank farms. This instrumentation can provide a field display and also transmit the measured value to a control or supervisory system.

WIKA have a comprehensive instrumentation portfolio with the necessary approvals for use in bulk-storage tank farms and in the petrochemical industry in general. The Models TR-12x or TC-12x offer single point temperature measurement in bulk storage tanks, whilst custom-engineered probes such as the TC-9x are suitable where multi-point temperature measurement is required. WIKA boasts a diverse range of float-based level instrumentation, for both continuous and point level measurement, used for level monitoring, high and low level alarms,



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Part of your business

Global rig count shows exploration pressures

A snapshot of mineral exploration drill rig use in major mining regions globally has revealed Australia, the United States and parts of South America are nearing capacity, as the surge in exploration continues unabated.

The survey, by leading global mining-tech company IMDEX, provides a rare global overview of rig utilisation.

In a market update ahead of a presentation to the Macquarie Emerging Leaders Conference, IMDEX said rig utilisation in Australia was “nearing capacity” at 79 per cent, and 72 per cent in North America.

IMDEX Chief Executive Officer Paul House said the company was able to produce the snapshot because of its global presence in major mining regions.

Mr House said global rig utilisation had only just returned to or exceeded pre-COVID 19 levels.

The March snapshot showed rig utilisation was at 37 per cent in Europe, 38 per cent in South America, 30 per cent in Africa, and 55 per cent in Canada.

Activity in Canada would be significantly higher in the northern summer drilling season, Mr House said.

Some regions in South America were stronger than others, but overall there was room for growth.

In regions nearing capacity, delivery times for new rigs had increased and labour shortages were adding to the pressure.

“We believe the industry is willing to invest and spend but may not be able to move



as fast as it would like,” Mr House said.

“The industry drivers of depleted reserves, strong commodity pricing and the trend towards decarbonisation, are driving substantially increased

industry exploration budgets.

“However, delivery against these targets will require time and investment in labour, drilling rigs, and other supply chain pressures that are a current constraint.

“When S+P says exploration will grow by 15 to 20 per cent in a year and we see that the areas that are most active are running at maximum rig utilisation, and we know the lead time for new rig

orders has blown out to nine or 10 months, we believe that increase won’t happen in that timeframe.

“A lack of rigs places even more importance on using the best technology to drill more metres with the rigs that are available.”

Mr House said the long-term outlook for mining-tech was strong.

The snapshot comes as consultants BDO in its latest quarterly report said that ASX-listed exploration companies had raised \$2.37 billion in the March 2021 quarter, up 7 per cent from the \$2.21 billion in December.

BDO’s Global Head of Natural Resources Sherif Andrawes said 81 per cent of companies had reported sufficient funds to support operations for more than two quarters.

“This may have negated the urgent need for explorers to raise funds in the March quarter, as companies turned their focus instead toward spending in the ground and investment,” he said.

He said the figures showed a flood of funding toward battery minerals and clean energy companies.

“We know that the battery minerals industry has been hot in recent times but the dominance of lithium and other battery minerals companies this quarter has taken us by surprise,” Mr Andrawes said.

Mr House said IMDEX’s integrated product offering was commodity agnostic, ensuring it was in a good position to service the market.

AEC urges OPEC to maintain crude oil production

GLOBAL oil supply and demand has seen significant fluctuations since the onset of the COVID-19 pandemic and subsequent lockdown restrictions. As economies begin to gradually reopen, demand for the resource has seen an upward trend, which, coupled with low wind levels and the ongoing gas crisis in Europe, has led to a significant price hike across the world as countries scramble for supply.

In light of this, the African Energy Chamber (AEC), as the voice of the African energy sector, urges the Organization of the Petroleum Exporting Countries (OPEC) member countries to maintain production levels and not react prematurely ahead of pivotal meetings to be held in November. Rather, by working together, OPEC member countries can ensure a mutually beneficial outcome in the

face of price increases.

The African continent has seen significant impacts from the COVID-19 pandemic, with the health crisis redirecting capital expenditure and leaving depleted government budgets requiring replenishment. As demand for oil increases globally, OPEC member countries and major producers in Africa stand to benefit.

“Africa needs its oil revenues to accelerate a post-COVID-19

recovery, now more than ever. In the face of increasing prices due to demand rebound, the continent needs to pursue a cooperative approach to ensure resources are monetized while demand is met. Instead of rapidly increasing production, OPEC member nations need to carefully and collaboratively navigate the challenging post-COVID context,” stated NJ Ayuk Executive Chairman of the AEC.

African Energy Week in Cape Town – promoting LNG

PROMOTING gas in Africa, GSL Gas & Power Limited (QSL-GP) CEO, Olakunle Olalekan Williams, will be a speaker at the forthcoming African Energy Week 2021 in Cape Town.

QSL-GP is an indigenous Nigerian energy company focused on integrating innovative technological solutions to natural gas distribution. Proactive within

the downstream value chain, QSL-GP works closely with the Nigerian Gas Marketing Company Limited, distributing natural gas for a range of industrial and power generation applications.

The company has been instrumental in Nigeria’s gas sector, serving as an enabler of the country’s gas expansion. Under the guidance of Williams,

QSL-GP has transformed from a small-scale distribution company to a key driver of Nigeria’s gas industry. At AEW 2021 in Cape Town, Williams will promote how gas can and will transform Africa. With over 10 years’ experience in the energy sector and having worked as a consultant and energy advisor for Deloitte and the Nigerian National Petroleum Corporation, as well as technical advisor to the Managing Director of the Nigerian Gas Marketing Company, Williams is well positioned to lead the discussion on natural gas in Africa.

Representing Nigeria but with demonstrated interests in the wider region, Williams will introduce critical discussion points on downstream gas opportunities, advocating for the increasing utilization of gas within multiple sectors in Africa. AEW 2021, in partnership with South Africa’s Department of Mineral Resources and Energy DMRE, is the AEC’s annual conference, exhibition and networking event. AEW 2021 unites African energy stakeholders with investors and international partners to drive industry growth and development and promote Africa as the destination for energy investments.

For more information about Africa’s premier energy event visit www.AEW2021.com or www.EnergyChamber.org

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Welding fumes - health risks update

WE all know welding fumes are dangerous, but how much risk is there really in welding? And how is this likely to affect your business?

In October 2017, the International Agency for Research on Cancer (IARC) concluded that exposure to welding fumes causes lung cancer and possibly kidney cancer in humans. The research studies this decision was based on showed that the cancer risks did not differ between mild steel and stainless steel welding, but were related to the total welding fume. Lung cancer risks occur at very low exposure levels; below 1 mg/m³ and perhaps as low as 0.1 mg/m³, averaged over a working lifetime.

The current Australian and New Zealand workplace exposure limit for general welding fume is 5 mg/m³ TWA (Time Weighted Average).



Compare this to countries which have already changed their welding fume TWA in response to the latest findings, e.g. exposure limit of 1.25mg/m³ in Germany, 1 mg/m³ in Netherlands.

In November 2019, a further review was published. It concluded that exposure to welding fumes increases the risk of lung cancer regardless of the type of steel welded, the welding method (arc vs gas welding), time welding and independent of exposure to asbestos

or tobacco smoking. Increased risks persisted regardless of time period, geographic location, study design, occupational setting, exposure assessment method and histological subtype.

The risk of welders developing lung cancer was assessed as high as 43%. To put it bluntly; **THERE IS NO SAFE LEVEL OF WELDING FUME.**

The risk to welders is both real and significant. In NZ, WorkSafe are reviewing their existing

guidance on welding fume and will also be reviewing the Workplace Exposure Standard for welding fume. NZ businesses can expect regulations there to be tightened, as has happened internationally. In the meantime, WorkSafe will continue with workplace inspections focused on fume levels, ventilation and RPE (personal respiratory equipment).

While you can help the workplace environment to reduce fume production, for example, by correct surface preparation, or using low fuming consumables, the exposure levels will still be too high given what is now known of the risks. Local exhaust ventilation (LEV) to remove fumes will be required in most workshops. If LEV is not practical, or testing shows there is still fume present, Personal Respiratory Equipment

(RPE) should be worn.

In fact, in Britain now the HSE (Work-safe equivalent) states that employers should provide appropriate RPE even when welding outdoors. It remains to be seen as to whether WorkSafe in NZ will take it this far.

Given the knowledge and awareness of the risks to their health, most workers are happy to wear RPE. Comfortable, well-fitting positive air respiratory helmets with clear vision and optimum respiratory protection will make breathing easier, faces cooler, and keep WorkSafe happy as well.

Ed: Attempts to find out the general welding fume limit in SA have been fruitless with no response forthcoming from authorities. Any assistance from readers will be appreciated – email: Robin.Hayes@cbn.co.za

Rethinking what plasma cutting can do for metal fabricators

PLASMA cutting technology has advanced to the point that it has forced metal fabricators to rethink its usage. High-definition plasma cutting provides a squarer edge-cut than previous generations of the technology. On 6 mm mild steel, plasma torches can reach cutting speeds of more than 2,5m/min. Plasma systems also can deliver bolt-ready holes that help to minimize secondary machining activities once the plate parts leave the table.

Even with those advancements, plasma cutting technology manufacturers continue to put money into research and development. Laser cutting systems are becoming more powerful and cost-effective, so more shops are using them to cut thicker materials more regularly. Waterjets remain a suitable way to

cut very thick materials, and steps have been taken to improve productivity on the machines. That leaves plasma cutting technology companies trying to defend their turf as the cutting method of choice for heavy-duty fab shops and service centres.

These companies have used the time wisely. Thinking of a plasma cutting table as a tool to process only 6 mm- to 50 mm mild steel does not reflect the current reality of the technology, especially as it relates to cutting thick nonferrous materials. Fabricators and service centres would be wise to ask themselves what plasma cutting systems of today can do—and maybe what they might be capable of tomorrow.

Reprinted from The Fabricator

Preventing contamination during and after welding

IDENTIFYING and using the correct abrasive product, whether for cutting, grinding or blending, is core to the successful completion of any job. Besides the safety risk involved when using incorrect products and the potential harm this may cause, the effect on production lead times and final finish of parts or items being manufactured should also be considered.

Material contamination like oxidation and rust, is a major cause of component and weld failure and occur either through – direct contamination when using the incorrect abrasive products, cross contamination when using the same abrasives on multiple materials; or general

contamination due to improper processing of the materials in the work environment.

A common misconception is that stainless steels steel cannot rust. The same is often true for aluminium. While the actual oxidation process is different to “normal” steels, these metals can still oxidise (rust) if not handled and processed correctly. With stainless steels, normal oxidation creates a thin barrier or film like layer on the surface, called chromium oxide. Unlike mild steel rusting, the chromium oxide layer sticks to the metal, thereby protecting it. If this layer is stripped off, the metal will rust. High quality grade stainless steels steel, with higher chro-

mium content will have better protection from this unwanted oxidation.

Direct contamination occurs when conventional cutting and grinding discs for steel are used for applications on stainless steels or aluminium. Abrasive cutting and grinding discs, as well as coated abrasive flap discs, are designed and manufactured with various components that make up the final product. Some of these components like fiber reinforcing, are added to provide structure and support to the final product for strength and support to avoid breakage and damages when in use. Together with these components, other additives are also

added into the mix to provide better results, usually by increasing the oxidative and corrosive effect in mild or carbon steels. However, such oxidative and corrosive compounds (iron, sulphur and chlorine) can cause major issues down the production line when used on stainless steels Steel or aluminium applications. If the work piece is not thoroughly cleaned of these compounds, should it become contaminated, subsequent welding processes will also be influenced and might cause welds not penetrating well, or porosity that will lead to weak welds that can cause catastrophic failures if not resolved.

To avoid cross contamination, care

should be taken to avoid using abrasive products on mild or carbon steel, and then on Stainless steels Steel or Aluminium. Even though abrasive products are manufactured to be free of contaminants, unwanted iron, sulphur and chlorine compounds will be introduced when used on mild or carbon steel, which will be transferred to stainless steels or aluminium upon contact.

Grinding Techniques locally manufactures specialised abrasive products free of contaminants which are perfectly suited to applications on Stainless steels Steel, like the Superflex INOX Ultra and the Premium Aluminium range, specifically manufactured

for use on aluminium. With its Superflex range, easy selection of a dedicated product suitable for various materials avoids cross contamination. Where this is not possible and only a limited product range is used, care should be taken to keep the products quarantined from the other materials. If a disc or wheel has been used on one material, it should be marked as such or stored in a manner that operators will know not to transfer it to another material.

It needs to be noted that general workspace contamination can also contribute to contamination of various materials. Ideally, a floor layout should be planned in such a way

that different material types are processed at opposite ends of a factory. This will ensure (to an extent) that swarf created during cutting, blending or grinding operations will not come into contact with stainless steels or aluminium materials in the vicinity, thereby eliminating the possibility of contaminating materials.

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Skimping on boiler maintenance creates costs down the line

A comprehensive boiler maintenance programme not only keeps your boiler up and running reliably, but also ensures equipment longevity and improves safety for employees. However, many companies try to save costs on water treatment to reduce operating costs and meet production demands. While this can save money in the short term, it may have the opposite effect in the long run.

According to Lionel Maasdorp, MD at Allmech, a South African manufacturer of boilers and supplier of water treatment components, a total water treatment programme should pursue the following goals:

- Maintenance of free caustic corrosion potential
- Minimise caustic deposit formation due to scale and suspended solids by chelation and sludge conditioners, so that blowdown

will remove potential problems

- Eliminate oxygen content through de-aeration or other mechanical means
- Prevent carry-over and foaming
- Promote the effective use of fuels

He adds that a complete water treatment programme will generally include monitoring sludge build up, checking pH levels, removing oxygen, treating condensate and maintaining correct alkalinity levels.

"The first aspect of stopping scale formation is to have a good idea of the makeup water that is feeding your system," he says. "Pre-softening the water before feeding it to the boiler is generally the first step in eliminating scale formation. Even if you have soft water, you'll still need chemical scale inhibitors inside the boiler."

Proper water treat-



Corrosion after just six months.

ment ensures there's no efficiency lost and negates tube damage. It requires the right balance of chemical treatment and control.

"If one considers that the annual cost of water treatment chemicals and services on industrial boilers, it's a small percentage of the cost of the equipment itself," he says. "It makes sense to rather foot the bill for water treatment than risk lower production or even equipment failure in the long term. There are also other hidden costs of skimping on

water treatment. For example, as a rule of thumb, one millimetre of scale build-up can increase fuel consumption by 2%. If you have 5mm of scale build-up on the boiler tubes, you might be paying an extra 10% on your monthly fuel bills."

As an example, a coal-fired boiler producing 10 tons of steam a day would require (under normal conditions) 1.3 tons of coal per day.

Over a period of a month, the normal requirement would be 28 tons of coal. Due to

the scale build-up the operation now requires an extra 2.8 tons of coal for the same boiler performance. At average cost of R1 100/ton of coal, the company spends an extra R40 000 for the year – just on extra fuel.

"The cost of removing scale from boilers is also high and results in longer inspection times, leading to loss of production," says Maasdorp. "Over time, it affects the material integrity of the boiler. By maintaining the correct water treatment regime and by adhering to the basic principles of looking after your boiler and the water treatment plant, the cost of the water treatment services and chemicals

should be covered by your savings on downtime and cleaning the boiler. Of course, the major saving is the longer lifetime for your boiler, as that's the biggest capital expense."

Aside from scale, another issue that proper water treatment can mitigate against is boiler corrosion. This is caused by the interaction of water chemistry, the environment of the facility, operation procedures, and materials used in the construction of the system. Dissolved gases in the boiler, such as oxygen, carbon dioxide and ammonia, will aggravate corrosion.

"Oxygen is the most aggressive gas in a boiler," says Maasdorp. "Internal water

treatment using chemicals in the feed water and raising the temperature are ways to remove oxygen in the water."

Water treatment is also vital in ensuring correct pH levels are maintained (to avoid failure of safety equipment due to foaming).

"Improper and non-existent feed water treatment is a major cause of boiler failures, which ultimately results in boiler downtime and costly repairs. The better you maintain your boilers, the less energy they'll need to operate, resulting in cost savings from lower energy consumption," concludes Maasdorp.

For more information, visit www.allmech.co.za.

Improving boiler performance

BOILER controls are the devices used to turn on and to control the burner operation. It is important to consider the impact of boiler performance when selecting which controls to use on your boiler. This article will cover the types of controls used and the benefits of each, focusing on steam & hot water applications with modulating firing.

What are boiler controls?

Boiler controls consist of a system of devices used to sense the operating condition within the boiler, provide safety interlocks and increase or decrease the burner output to maintain a desired temperature or pressure.

The most basic systems consist of a Flame Safeguard and Temperature/Pressure sensing device. The temperature/pressure device can either directly control the burner actuators, or for better control, a microcontroller or PLC-based computer may be used to manage the firing rate more accurately.

What are my options for boiler controls?

Basic: Linkage-based controls with direct acting modulating motor

These controls are reliable and simple. The downside is they rely on linkage and cams which decrease the accuracy of Fuel/Air mixing and increased the cost of fuel.

- Temperature/Pressure controller
- Flame safeguard

and appropriate interlocks/limits

- Modulating motor to move the burner control linkage.

Better: Parallel positioning with independent actuators and smart controller

The downside is the fuel/air is set at the time of commission and does not follow changes in operating conditions. This control is a great improvement and can typically result in 3% savings in fuel cost compared to a basic linkage system. The Honeywell FARC was a popular boiler control choice in this category. It has since been obsolete. If your boiler currently functions on this control, you might consider updating it. The uncertainty of readily available replacement parts could put you in a bind. An example of this is the Siemens LMV Boiler Control.

- Same basic controls with the addition of Independent actuators for each fuel and air damper.

Best: PLC Controls Parallel Positioning, O2 Trim and VFD

These controls provide the same benefits as the

parallel positioning system, but it is controlled by a much more powerful industrial PLC. PLC-based controls include a colour touchscreen HMI. This system provides precision actuators and adapts to the excess O2 utilizing an O2 sensor to optimize combustion. VFD (variable frequency drive) control is available to optimize airflow and reduce electricity. The PLC-based control system offers the best performance with an excellent graphical interface for ease of use. Also, it offers the same 3% savings in fuel cost compared to a basic linkage system plus 1-2% O2 Trim savings. An example of this is the Cleaver-Brooks' Hawk Boiler Control.

- PLC controller and (including a Flame Safeguard & sensors)
- Colour Touchscreen (HMI)
- O2 Trim (Oxygen trim)
- VFD (Variable Frequency Drive)

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Extracting full value from data

FIVE guiding principles can help equipment OEMs and industrial equipment users to design a successful data-driven maintenance transformation that extracts full value from the data their equipment generates, argues Adrian Bostock. Today's industrial environment is a warehouse of data, with many pieces of equipment cranking out vast amounts of information about the way they have been working thanks to a growing suite of sensors and infrastructure that captures and collects data.

Most companies do a good job of collecting this data to figure out what happened, but then what? Many original equipment manufacturers (OEMs) are incorporating data capture and collection capabilities in their equipment and others are complementing this architecture with data repositories and advanced analytics layers.

Despite the access to these data, to extract full value from them – in particular reducing Total Cost of Ownership (TCO) and the impact of unplanned downtime – big steps still need to be made. Similarly, among their industrial customers there is a wide range of end users.

Early adopters have identified which value drivers matter most and use sensors to define the maintenance regime that minimises TCO and losses, whereas other companies with large legacy asset pools have not started assessing the value that can be extracted from the data or investing in pilots to discover and scale the data-driven benefits. In many cases, maintenance is still having to jump in to put out fires when they pop up.

So, why focus on data describing the past when the value from data lies in the future operations? This is where machine learning (ML) and artificial intelligence (AI) come in: ML/AI can discover patterns leading to failures based on many historical data that the human cannot detect due to the large number of variables that affect the health of the equipment.

It's time to take back control over the equipment

In addition, more stable assets means that employees can spend more time finding ways to improve the equipment's performance rather than looking

back to figure out why it failed — creating a culture of innovation.

Five ways to launch a data-driven maintenance strategy:

- Focus on creating value and identifying the most important assets. Start with a value driver tree
- Assess the granularity and robustness of your data. Is the data from your equipment

for operations, and determine which assets are most important when it comes to factors such as total cost of ownership and avoiding unplanned downtime.

- Iterate, refine, and

actually giving you information that you can use to make different decisions? For example, does it differentiate between planned maintenance activities and the reactive ones? Is the data collected in a way that is unbiased?

- Iterate, refine, and

scale. Think big, start small, and scale fast. Take an agile approach, using a multidisciplinary team that can develop resilient solutions. Take small steps with many iterations. Striving for perfection from day one will almost certainly

end in failure.

- Engage stakeholders at all levels. The most successful digital and analytics transformations are a partnership that is led from the top—the very top—and executed by the shop floor.
- Improve your data architecture. Have

models, policies, rules, and standards that govern which data is collected, how it is arranged and integrated, and where it is used.

Applying these principles will increase the chances of success for your data-driven journey.



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Dressing a stainless steel weld with a PFERD POLIFAN CO-FREEZE INOX flap disc.

Buy reputable - choose quality, safety and consistency

IN tough economic times, it's easy for businesses to fall into a culture of buying cheap, using, discarding and replacing. However, the short-term benefit of this strategy can have detrimental consequences in the long term for a business's bottom line.

In the words of Benjamin Franklin, "The bitterness of poor quality remains long after the sweetness of a low price is forgotten". But why does one brand cost more than another even though both have similar features and benefits? The first reason is the

manufacturing process, built quality and the quality of the raw materials used. Secondly, premium products go through rigorous testing, various accreditations and quality checks. This way the company can ensure the product will perform as intend-

ed—in a safe and consistent manner.

Why buy from brands you know?

Peace of mind
Reputable manufacturers spend enormous amounts of time, money and energy to ensure

their products consistently deliver positive user experiences. Being trustworthy means customers have peace of mind because they know the product will perform as previously experienced.

Provide safety

People are creatures of habit who generally avoid risk and seek safety. Trusted manufacturers offer just that—a predictable product where customers know what to expect. Buying from a well-known brand is a safe option with overall risk reduction.

Added value included

Purchasing products from a trusted brand, customers receive more than just the product. Included is years' worth of research, development and innovation that has led to the development of solutions that get the job done cost-effectively, with less effort and in a shorter space of time.

Save time on decision-making

When you have confidence in your experience with a brand you are familiar with, decision-making is simple because less research is required. You know the brand delivers on their promise; therefore, you can choose and use their product(s) with confidence.

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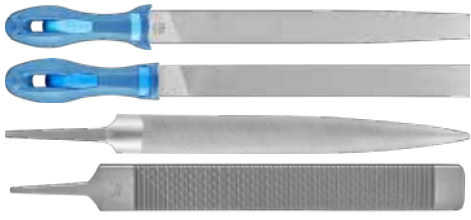
Numerous industries use PFERD tools daily to manufacture various products, goods and equipment. Manufacturers of stainless steel process and storage tanks for the food and beverage industry, as example, rely on the quality, safety and consistency of PFERD tools in order to produce their vessels without the slightest compromise.

As a founding member of the Organisation for the Safety of Abrasives (oSa), PFERD is committed to ensure their products adhere to the highest safety standards and performance requirements.

For additional information, or to arrange an on-site product evaluation, please contact PFERD South Africa. Tel : 011 230 4000; E-mail: info@pferd.co.za; Website: www.pferd.com

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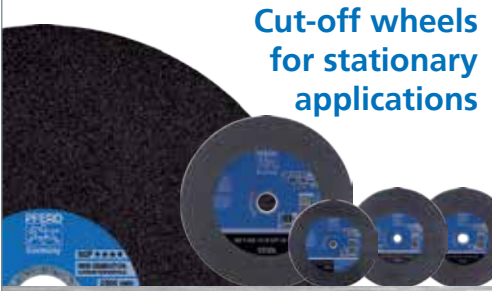
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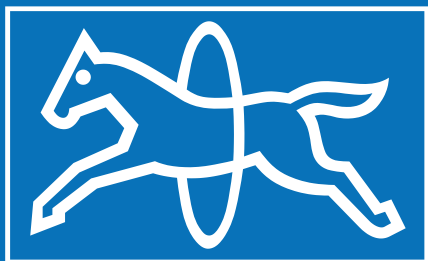
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Level 2 achieved



From left: Audrey Kgampe, B-BBEE Coordinator, Ruth Black, Group Human Resources Executive and Joanne Danster, Transformation Manager, Engineering Solutions Group (ESG).

INVICTA Holdings Limited's Engineering Solutions Group (ESG) - distributors of engineering consumables, automotive components, technical services and related solutions - has achieved recognition as a Level 2 contributor to Broad-Based Black Economic Empowerment (B-BBEE).

ESG has been formally assessed by Ingkazi, an accredited B-BBEE verification agency that bases ratings on the Codes of Good Practice and Gazetted Sector Charters.

"ESG's B-BBEE strategy has had a powerful impact on the expansion and improvement of business operations and we believe our new status will be a sound springboard for future growth of group companies," says Ruth Black, Group Human Resources Executive, ESG. "This evaluation involves the company's compliance to empowerment factors identi-

fied by the DTI, which include ownership, management and control, skills development, enterprise and supplier development, as well as socio-economic development.

"ESG is committed to an integrated B-BBEE strategy, continually seeking ways to improve all aspects of the scorecard and strategically linking socio-economic investments to skills development and progressive employment equity, to ensure sustainable business performance.

"Our latest verification certificate and newly accredited Level 2 status means ESG customers can claim B-BBEE procurement recognition of 125 % against all purchases."

The company believes in sustainable development and instils in its team a responsibility for health, safety and the environment, as well as empowering local communities. Skills training is also important at ESG

and forms a critical part of the Group's investment in staff upliftment.

ESG has expanded its operation significantly and now incorporates BMG (Africa's industrial leader in engineering consumables and services), INDUSTRI Tools & Equipment, Screen Doctor (vibrating equipment and material handling solutions), OST-Africa (vibrator motors, tensioners and suspension systems), Rustenburg Engineers & Foundry (major players in the foundry industry) and Abrasive Flow Solutions (AFS - specialists in the design and manufacture of slurry related valves).

Group companies also comprise Universal Parts Group (ESG's reach into the automotive after-market), incorporating Autobax and Driveshaft Parts; Belt Brokers (manufacturers and suppliers of quality conveyor components), and ESG Exports (which exports group products into Africa and globally).

How AI is helping in the fight for safer factories

By Dr. Jau Huang who founded CyberLink Corp. in 1996, with a focus on developing world-class digital video and Internet technologies

IN manufacturing, safety has long been a top priority. More recently, modern workplace safety has undergone a tectonic shift to accommodate the exceptional challenges brought on by the COVID-19 pandemic. While many of us hoped to be out of the woods by now, the pandemic is once again surging, driven by the highly contagious Delta variant, along with others.

Enter artificial intelligence. Many manufacturers already leverage AI technology to anticipate and problem solve for unexpected obstacles such as machinery failure, defective product delivery, and more. According to a recent MIT survey, the top three use cases for AI in factories are improving product quality, achieving greater speed and visibility across supply chains, and optimizing inventory management. Beyond these core use cases, AI can and should be deployed to advance worker safety, especially in a pandemic. AI can help leaders improve factory security, accurate health checks, and build confidence among workers to ensure operational efficiency is never compromised.

Advanced AI facial recognition systems can recognize faces at high accuracy even when they are partially obscured by a face mask.

Factory Security

By certifying the only people to enter a space are in fact those with approved access, factories can limit the



risk of exposure to the virus while also reducing accidents and intellectual property breaches. In the past, factories have used fingerprint recognition to approve employee access to the floor. However, in today's workplace, workers are often required to wear gloves to limit bacterial exposure. AI, combined with facial recognition technology, can be deployed as a contactless solution for identity verification during COVID-19 to control employee access while allowing workers to maintain use of personal protective equipment, including mask wearing. 3D and 2D cameras with anti-spoofing technology offer an added level of protection against potential threats. Many factories employ several thousand people, with hundreds of them working in the same facility at the same time. Facial recognition technology performs factory security checks quickly and at scale, allowing workers to get to work faster, in a certified safe environment.

Accurate Health Checks

Beyond guaranteeing only authorized

personnel are entering the factory floor, manufacturers must be assured those employees are truly healthy. Here too, AI can support the mission through thermal cameras and accurate mask detection. The technology reads an employee's temperature while verifying their identity to determine whether they are displaying symptoms of illness and deny access if a worker appears to be running a fever. The same technology also determines if an employee is wearing a mask and wearing it properly. In some cases, especially in manufacturing, protective gear can interfere this capability. Limiting person-to-person contact during the pandemic continues to be a key practice in limiting the spread of the virus, making this contactless solution preferable to human monitors. It also limits the need to hire additional people to monitor employee health, cutting down on costs.

Worker Confidence

Enlisting technology to determine employee access and health builds confidence amongst employees and alleviates undue pressure.

Many factory employees feel burdened to come to work even if they don't feel well. In using AI to determine health status, and deny access if standards are not met, workers have no choice but to stay home when their temperature is high. In assigning the final decision to a neutral third-party, in this case technology manufacturers remove that pressure from their employees.

Additionally, everyone working on the floor can perform their work with the confidence that all their colleagues have also passed the initial safety check. This removes doubt and lessens fears, allowing workers to focus on the job at hand.

Manufacturing safety will continue to evolve, as it has for the past 100 years or so. The introduction of new technology, such as artificial intelligence and facial recognition, opens the door for additional safety improvements while keeping costs low and ensuring workers and manufacturing leaders have the necessary tools for seamless operations.

Reprinted from: <https://industrytoday.com/>

E+H achieves new ISO accreditation

ENDRESS+HAUSER has expanded its ISO certification by achieving the ISO:17025 accreditation for its calibration services. This means that the Endress+Hauser team now covers the full range of flow, temperature, pressure, and liquid analysis instruments - both ones that customers use at their own facilities and ones performed in the company's laboratories.

With this accreditation, Endress+Hauser's coverage of calibration needs now introduces these specific additions for clients:

- conductivity from 100 to 200,000 microSiemens per centimetre;
- pH calibrations from one to 14 pH;
- an increase in pressure calibration range

to 1 500 psig; and

- an increase in flow capabilities to 1 000 litres per minute, or 1 000 kilograms per minute.

Authored by the International Organization for Standardization, ISO:17025 accreditation allows laboratories to demonstrate that they operate competently and generate valid results, which promotes confidence in their work both locally and internationally. It also helps to facilitate cooperation between labs and other organizations by generating wider acceptance of results between countries. Test reports and certificates can be accepted between countries with no further testing required, and this boosts international trade.

A leader in high-quality calibration services, Endress+Hauser assures timely, traceable, and cost-efficient calibration that ensures high performance and compliance with customers' operating needs. Aside from instrument calibration, the manufacturer offers such value-added services as installed base analysis and maintenance optimization. Endress+Hauser remains a worldwide supplier of test and measurement services and solutions for industrial process engineering, including sensors, instruments and systems.

For more information, Endress+Hauser (Pty) Ltd, South Africa, Tel. 011 262 8000, Email: info.za.sc@endress.com

Vacuum-conveying technology benefits sugar company

FIRING Industries Ltd. supplies piab vacuum-conveying solutions, including the innovative piFLOW@p device. One manufacturer that yields high advantages from this product is M.B. Sugar, based in India, a company that makes sweeteners that come in stick packs for instant use by coffee/tea drinkers in Starbucks and five-star hotels.

M.B. switched from its previous bucket-elevator solution achieving better results with

this piab vacuum conveyor.

Easy to clean and maintain

The company faced several product-quality issues with the previous system. The open nature of the bucket elevator resulted in hygienic challenges and contamination with black dust in the product. This method also required manual inspection and removal of black particles, keeping employees busy for

hours with tons of sugar. In addition, varying operator skills led to differences in quality, resulting in more product loss.

In the current system, the piFLOW@p is installed atop a dryer and conveys sugar from the ground-floor hopper to the dryer in batches. Workers retrieve raw sugar in sacks and empty it into the hopper; once dry, the sugar is filled directly into the stick packs or other small paper packets for hygienic

delivery. Because the piFLOW@p operates as a closed system, it stops foreign material from entering the process. It is also easy to clean and maintain. The quick-release system of filters and gaskets enables fast yet thorough disassembly, cleaning, and reassembly of the whole conveyor for the next batch.

To learn more, contact Firing Industries' application-sales engineers at ddubuc@firing.com.

Quick-release couplings range reduces farm accidents

AS agricultural machine construction improves, the need for reliable coupling of lines on agricultural applications increases. There are risks however and maintenance personnel have to be extremely careful when connecting hoses and attachments to hydraulically powered tractors, implements and harvesters.

There is no substitute for the use of reliable, sturdy and efficient quick release couplings when connecting or disconnecting hydraulic lines.

Specialists in the field, Faster Couplings, confirms that the agricultural sector is the leading field of applications for quick release couplings. This is especially so for hydraulic lines and attachments regularly changed or switched for different tasks. They facilitate quick and safe connection, even with pressurised hydraulic connections. Certain ranges can be connected under residual pressure, minimising hydraulic lock when connecting the respective lines. Often the environment

is dusty and dirty, and other particles contaminating the hydraulic system and affecting operating efficiency.

With innovation driving towards greater modularity and flexibility, the capability to easily and quickly connect to and detach several differing attachments from a single machine has become a prerequisite. Faster Couplings has designed its range according to international standards that meet strict interchangeability specifications and performance.

Hydrasales

As the African distributor for Faster Couplings, Hydrasales carries its wide and extensive product range of agricultural couplings and the Faster range of MultiFaster connections. The company's depth of knowledge and experience provides support and technical back up for all coupling applications including harvesting.

These proven and tested products connect the hydraulic circuit to rear attach-

ments and to power them. Oil flows from the female couplings on the tractor to the male coupling on the attachment and returns per the application's design. These are interchangeable according to ISO 7241 part A. they are well constructed with significant features include sleeve retraction, push pull features and allow for a high flow.

Luca Robustelli, Faster's Export manager advises; "The retractable couplings incorporate a poppet valve shut-off system. The 3CPV series panel mounted female couplings are designed for installation and connection to flexible hoses. They can be

connected to male couplings under residual pressure."

The 3CFPV series can be screwed directly into valve ports or rigid pipes. These Push-Pull female couplings are connectible with males under residual pressure. The more sophisticated 6DNPV series are also Push-Pull female couplings for rigid mounting connectable with male and female under pressure and can be disconnected under pressure with little effort. The high flow series can accommodate a maximum flow rate of 250 l/min.

Flat face couplings

Faster Couplings has an extensive range of

flat face couplings specifically designed for 'Powerbeyond' applications for power beyond the rear attachments. The sizes of these flat face couplings vary in accordance with class 1 to 3 of the ISO 17567 standard. These attachments, which are interchangeable according to ISO 16028, allow tractors to regulate oil flow and optimize machine performance.

Hydrasales Agriculture product specialist, Lucas Thela says; "The couplings are of high quality with safety built into the design while reducing the possibilities of system leaks."

Multi Faster range

These products connect multiple lines allowing for an effortless connection even with residual pressure in the system. MultiFaster offers a complete range of high-performing flat face quick-release couplings that comply with the standard. Importantly, some of products in the range can be connected between pressurised hydraulic lines and are inter-

changeable due to the specific shape, easy to clean faces, strong connection with little or no spillage and corrosion resistant coating.

An exceptional development tool is the MultiFaster Configurator, accessible on the Faster Coupling website, which enables engineers to design and develop their very own specifications of the MultiFaster. Visit www.fastercouplings.com/multifaster/configurator.

Extensive inventory

Thela says, "There are many variations in the Multi faster range to cater for the needs of the agricultural sector. They have a different combination of elements, such as the numbers of lines, coupling sizes, lever and electrical connectors. The number of lines vary according to the functions performed by the tractor or harvesters' attachment". The design is compact with four lines and multi-installation options.

The unit's safety features prevent accidental disconnections and/

or partial unscrewing of the main sleeve, thus countering mechanical vibration. A further benefit is the capability to connect the hydraulic lines within the system, even under residual pressure.

There is also a trend towards hydraulic multi-connection systems that are completely integrated with the standard mechanical locking system of the attachment on the vehicle.

Diagnosis and maintenance

Faster have hydraulic connection solutions for diagnosis and maintenance applications, which are interchangeable worldwide (according to ISO 15171-1). The company's diagnostic quick-release couplings (DF series) have been specifically designed to make maintenance of hydraulic systems and checking of pressure within the circuit is easier, quicker and more effective.

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Data suggests oil giants are not looking very hard to find ways to reduce their carbon footprint



By Bob Yirka, Phys.org

A small team of environmentalists from the London School of Economics and the Political Science Organization for Economic Co-operation and Development has published a Policy Forum piece in the journal *Science* highlighting the lack of effort by the world's largest oil and gas companies to reduce their carbon footprint. In their paper, the authors claim that of 52 companies they looked at, just two of them have established science-based climate targets.

One of the biggest contributors of greenhouse gas emissions is the gaso-

line-burning vehicle. Cars and trucks the world over spew billions of tons of carbon into the atmosphere every day. And most of that gasoline is provided by oil and gas giants such as BP and Exxon Mobil. In recent years, these companies have been pushed by consumers and government alike to come up with plans to reduce their carbon footprints by reducing the amount of carbon-based product they sell to consumers. In this new effort, the authors suggest that the oil and gas giants have not responded to pressure as might be expected, and instead appear to be mostly turning a deaf ear.

To learn more about how the big oil

and gas companies have been responding to calls for a response to global warming issues, the authors obtained and analyzed data from 52 of the largest companies looking for evidence of a response. They found that just two of the companies had made any public announcements regarding plans to help reduce emissions to meet the goals of the Paris Climate Accord. Occidental Petroleum announced it had plans to help reduce emissions to meet the 1.5 degree Celsius benchmark, and Royal Dutch Shell announced it had plans to help prevent reaching the 2 degree Celsius limit.

The authors also looked at emission intensities, the CO₂ emissions from operations and use by customers, noting that only 23 of the companies listed numbers for customer use, which is, of course, the biggest contributor to emissions. They also looked at future emission intensity projections for all of the companies and found that just over half had released estimates. Those that did list them had unambitious goals, say the authors.

Overall, the authors found that the vast majority of large oil and gas companies are doing little to assist the effort to reduce greenhouse gas emissions, which in the end could be their undoing. As the world moves to alternative fuel sources, these giants could find themselves without customers.

Ed: Surprise, surprise. A case of greenwashing no doubt.

Carbon dioxide reactor makes Martian fuel

By Michael Miller, University of Cincinnati

UNIVERSITY of Cincinnati chemical engineering student Tianyu Zhang holds up a vial of graphene used as a catalyst to convert carbon dioxide into methane. Credit: Andrew Higley/UC Creative

Engineers at the University of Cincinnati are developing new ways to convert greenhouse gases to fuel to address climate change and get astronauts home from Mars.

UC College of Engineering and Applied Science assistant professor Jingjie Wu and his students used a carbon catalyst in a reactor to convert carbon dioxide into methane. Known as the "Sabatier reaction" from the late French chemist Paul Sabatier, it's a process the International Space Station uses to scrub the carbon dioxide from air the astronauts breathe and generate rocket fuel to keep the station in high orbit.

But Wu is thinking much bigger.

The Martian atmosphere is composed almost entirely of carbon dioxide. Astronauts could save half the fuel they need for a return trip home by making what they need on the red planet once they arrive, Wu said.

"It's like a gas station on Mars. You could easily pump carbon dioxide through this reactor and produce methane for a rocket," Wu said.

UC's study was published in the journal *Nature Communications* with collaborators from Rice University, Shanghai University and East China University of Science and Technology.

Wu began his career in chemical engineering by studying fuel cells for electric vehicles but began looking at carbon dioxide conversion in his chemical engineering lab about 10 years ago.

An experimental reactor uses graphene quantum dots as a catalyst to convert carbon dioxide into methane. "I realized

that greenhouse gases were going to be a big issue in society," Wu said. "A lot of countries realized that carbon dioxide is a big issue for the sustainable development of our society. That's why I think we need to achieve carbon neutrality."

The Biden Administration has set a goal of achieving a 50% reduction in greenhouse gas pollutants by 2030 and an economy that relies on renewable energy by 2050.

"That means we'll have to recycle carbon dioxide," Wu said.

Wu and his students, including lead author and UC doctoral candidate Tianyu Zhang, are experimenting with different catalysts such as graphene quantum dots—layers of carbon just nanometers big—that can increase the yield of methane.

Wu said the process holds promise to help mitigate climate change. But it also has a big commercial advantage in producing fuel as a by-product.

"The process is 100 times more productive than it was just 10 years ago. So you can imagine that progress will come faster and faster," Wu said. "In the next 10 years, we'll have a lot of startup companies to commercialize this technique."

Wu's students are using different cata-

lysts to produce not only methane but ethylene. Called the world's most important chemical, ethylene is used in the manufacture of plastics, rubber, synthetic clothing and other products.

Synthesizing fuel from carbon dioxide becomes even more commercially viable when coupled with renewable energy such as solar or wind power, Wu said.

"Right now we have excess green energy that we just throw away. We can store this excess renewable energy in chemicals," he said.

The process is scalable for use in power plants that can generate tons of carbon dioxide. And it's efficient since the conversion can take place right where excess carbon dioxide is produced.

Wu said advances in fuel production from carbon dioxide make him more confident that humans will set foot on Mars in his lifetime.

"Right now if you want to come back from Mars, you would need to bring twice as much fuel, which is very heavy," he said. "And in the future, you'll need other fuels. So we can produce methanol from carbon dioxide and use them to produce other downstream materials. Then maybe one day we could live on Mars."



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CAPE Business News

Chairman:

Rudi Leitner
rudi.leitner@hypenica.com

Publisher:

Robin Dunbar
robin.dunbar@cbn.co.za

Editor:

Robin Hayes
editor@cbn.co.za

Production Manager:

Elise Jacobs
elise.jacobs@cbn.co.za

Online Editor:

Jadine Gracie
jadine.gracie@cbn.co.za

Sales & Marketing Director:

Robin Dunbar
robin.dunbar@cbn.co.za

Sales Team:

Heather Ferreira
heather.ferreira@cbn.co.za
Shaun Austin
shaun.austin@cbn.co.za

Subscriptions:

subscriptions@cbn.co.za

Cape Business News

021 250 0400
sales@cbn.co.za

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The incredible lightness of taxes

SO there we were, peacefully minding each other's business at the local home of fine food and wine when Luke the Dude walked in. "Yes! Yes! Yes!" greeted he, "How do you feel about paying a skin colour tax?"

The convivial company of conversation-ists were, as per habit, congregating to interrogate the problems of our town and the world.

"Don't be ridiculous!" Bob the Book protested: "Such a racist thing wouldn't even be legal!"

"Legal?" wide-eyed Luke the Dude. "No less a personage than a highly learned judge says we must."

"Which judge," enquired Stevie the Poet, "John Hlophe?"

"Not even," grinned Luke, "Dunstan Mlambo, a front-runner to be our Chief Justice as we speak, that's who."

"Please elaborate," requested The Prof.

"Happy to Prof," bowed Luke the Dude. "Last month Stellenbosch University had its yearly 'social justice summit', where Mlambo flighted plans for inspanning the courts to sort out the haves. Wealth must be redistributed – 'social parity' for all."

"That one," frowned Jean-Jay, "fancy words for stealing from the rich to do very little for the poor. Right?"

"That would be a big improvement," observed Colin the Golfer. "Currently we have the ANC and EFF stealing from both the rich and the poor to enrich themselves, eh Boyo!"

"Quite so," nodded Miss Lily. "The result is that one in three workers have no job, the state machinery has been run into the ground and people live in squalor. I think we can all agree that South Africa must do better?"

All agreed.

"Hmmm," frowned Big Ben, "so where is

this tax on skin colour that Luke the Dude is blabbing about?"

"A ha!" blabbed Luke, "at the same 'social justice summit' Prof Tshepo Madlingozi, who deals in 'applied legal studies', explained the fancy words: Not mere redistribution; fully race-based redistribution. I have the quote from Daily Maverick: 'We need to be honest,' said Madlingozi, '... the idea that you can achieve social justice without white people losing something, is ridiculous.'"

"Happy Ben?"

"So," mused Bill the Beard, "the Radical Economic Transformation of the Zuma insurrectionists and Malema's EFF U, together with the ANC's land reform – which includes land theft – are alive and well in academia and the highest courts of the land. And making no bones about their targets being white."

"Let's think about it," contemplated The Prof, drawing slowly on his pipe (we were outside in the garden, Nkosazana). "The reality is that we live in a country where fellow citizens of all skin colours are unemployed, untrained and dirt poor. Many make do without running water, functional sewage, public transport, protection from crime ... solutions must be sought."

"Useless!" exclaimed Jon the Joker. "All of these problems are caused by the failed ANC government who ran a successful industrial economy into the ground with my-turn-to-eat greed and incompetence. People are unemployed – useless ANC labour policies. People are untrained – useless ANC education system. People have lost hope – dependence on hand-outs. Water, sewage, transport – all caused by ANC failure to deliver basic services, plain and simple."

"And how do they approach the problem? With fantasies about entrenched apartheid – three decades after apartheid ended. That

is moral and intellectual cowardice. The so-called solutions these learned judges and professors offer are stuck in the obsolete past: blame apartheid; make the whites pay."

"Let's just strip it down," resumed the Prof. "They pursue social justice – we can have a whole conversation just about that – by means of twin solutions. In plain language: Tax the rich to help the poor. Take from whites to give to blacks."

"The promoters of these solutions take it for granted that this will repair the tangled mess the ANC has made of our country. It won't."

"Fact is," agreed Stevie the Poet, "those interventions are already in force and have been for a long time. It's called progressive income tax. Really poor people pay no income tax. You start paying at earnings above R87'300 a year and then the rate is 18% – which goes up as your income increases. The highest rate is 45%, for people earning over R1.5 million. Add in VAT and all the other taxes, and the wealthy pay more than half their income to benefit the rest of us."

"So, there you have it: Taxing the rich to help the poor."

"True but useless," opined Jon the Joker. "The spanner in the piggy bank is having the ANC in charge of spending all those taxes; and we have seen them in action. Can't even be trusted with food parcels for the poor."

"Agreed," nodded Miss Lily, "you cannot punish the donors of the parcels for that."

"And the other leg, taking from whites to give to blacks?" challenged Bob the Book.

"I'll take it from here," insisted Luke the Dude, "I have Dave Steward of the FW de Klerk Foundation to thank for the figures: In 1992, as SA was preparing for transition to an ANC government, the IMF investigated the feasibility of a redistribution tax."

OPINION

ON THE CONTRARY

The columnist is a journalist and editor based in Onrusrivier. His awards for journalistic excellence include the Mondi and the Sanlam Awards.

Pieter Schoombee



They discovered that white South Africans pay 32% of their combined income to the taxman – while getting only 8.7% back in services like health and education. The IMF calls that a relative tax burden. At 23.3%, it was more than three times that of France and Germany and twice that of Canada, the second highest.

"Since then, this burden grew non-stop as the ANC introduced subsidies for black people, while whites increasingly covered their own schooling, medical expenses and security."

"So, there you have it: You are already paying a rather large skin colour tax, sir."

"This while our GDP keeps shrinking in the hands of the ANC," sighed The Prof. "And they think they'll get more loot with yet another tax. Greedy and incompetent governments repel investors: more jobs destroyed and more people in poverty."

"Instead of cutting a shrinking cake into ever more slices, the well-known secret of success is to bake a bigger cake – get out of the way of the bakers!"

And with that, dear reader, the convivial confederacy wish you a joyful festive season and a most fulfilling 2022!

E-mail: noag@maxitec.co.za

Sunlight-driven photo catalytic water splitting for hydrogen production at scale

By Shinshu University

LARGE-scale solar hydrogen production through water splitting using a powder photocatalyst is considered one of the most promising methods of producing sustainable fuels in the future. In 2018, this research group demonstrated that water-splitting photocatalytic panel reactor can be scaled up to 1 m² in size without compromising the solar water splitting activity of the photo catalyst. However, large-scale separation and collection of solar hydrogen beyond the laboratory scale had never been realized. It was necessary to review the design of the photocatalytic panel reactor and develop a system to safely separate the gas mixture of hydrogen and oxygen in an outdoor environment.

The joint research project involving NEDO, ARPCHEM, The University of Tokyo, Fujifilm, TOTO, Mitsubishi Chemical, Meiji University and Shinshu University (who was responsible for the photocatalytic water-splitting technology) demonstrated that in a large-scale outdoor area of 100m² it is possible to split water using a powder photo catalyst and solar rays to retrieve solar hydrogen from the generated hydrogen-ox-

ygen gas. More rigorous safety tests are still needed, but if a properly designed system is used, the highly explosive hydrogen-oxygen gas can be safely handled for long periods. Therefore, a system for producing a large amount of solar hydrogen at low costs through the improvement of the visible light responsive photo catalyst, the photo catalyst panel, and the gas separation module is within reach.

Achieving this feat required a lot of technological advancement and collaboration of experts from various fields. The development and demonstration of stable hydrogen separation of the moist hydrogen oxygen mixed gas regardless of the weather and sunshine conditions is an unprecedented breakthrough technology that is currently under patent review. Shinshu University's Associate Professor Takashi Hisatomi of the Research Initiative for Supra-Materials who is an expert on photo catalysis for water-splitting and hydrogen production states that "by demonstrating the entire process from hydrogen generation to separation on the world's largest scale, the realization of a solar hydrogen production system based on water splitting reaction using powdered photo catalysts has become more realistic and will be better understood by the general public."



The photo catalyst in this study uses ultra-violet light. A highly efficient visible light-responsive photo catalyst with a practicality level of 5% or higher solar energy conversion efficiency will need to be realized for real-world implementation. The group is also working to lower the cost and expand the scale of the photo catalyst panel. The current panel reactor is robust, but it is necessary to develop an inexpensive reactor that can be mass-produced while maintaining

durability and safety. The separation performance and energy efficiency of the gas separation process needs improvement because the separation membrane used was ready-made and not designed for this gas separation module. The separation performance of hydrogen from hydrogen-oxygen mixed gas was not sufficient. The separation process has no precedent, so there is no comparative example which means there is still room for improvement.