

PROJECTS

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Schwarzwald-Sprudel goes oil-free and saves energy with the ZD High pressure compressor

Atlas Copco Surface Rock Drill – Solid as a rock!.

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Super-efficient XRHS 650 PACE air compressor from Atlas Copco puts drilling through its PACES

The XRHS 650 PACE, part of Atlas Copco's industry-leading XAS boX range, delivers an unparalleled air compressor solution for blast hole and water well drilling applications in the mining and quarrying sectors in terms of performance, efficiency, reliability, versatility and serviceability.

These optimised size-to-flow XAS boX air compressors deliver a size, flow and fuel efficiency trio that is unequalled in the market. The design of this range is focussed on a strategic triangle with Atlas Copco making sure that they excelled on not one or two, but on all three areas so that there is absolutely no wasted excellence.

But Atlas Copco did not stop its pursuit of efficiency there. "With the introduction of PACE (Pressure Adjusted through Cognitive Electronics) technology we have raised the efficiency bar even higher," says David Stanford, Business Line Manager for Atlas Copco Power Technique. "As the name suggests, this intuitive electronic pressure regulation system, which is programmed via a digital controller, brings a wider operating pressure range and allows multiple pressure and flow combinations within a single compressor, further optimising compressor efficiency, especially at partial load or idle status.

"This smart PACE technology enables customers to cost-efficiently cover the application needs of, on average, three fixed pressure compressors with only one machine, subsequently increasing utilisation, improving fuel economy as well as autonomy!" emphasises Stanford. "Furthermore, the versatility of three machines in one package reduces both CAPEX and OPEX delivering lowest overall total cost of ownership to end customers." In addition to the XRHS 650, PACE is also available on the XAHS 400, XAVS 600, XAHS700 and XATS850 machines in the XAS boX range.

When it comes to ruggedness, these machines are simply second-to-none. Featuring a standard operating temperature range of -10° to +50°C, high altitudes of up to 4 500m and dusty, hot or cold environments present no challenge for the XRHS 650 PACE; its efficient, optimal and reliable performance remains uncompromised.

Machine serviceability for optimised utilisation is another primary engineering focus point for Atlas Copco. The XRHS 650 PACE boasts an impressive service interval of 1000 hours for the compressor and 500 hours for the engine. In addition, a simple vessel cover and easy-to-reach components further facilitate servicing and maintenance, keeping downtime to an absolute minimum.

Boasting one of the smallest footprints in the market, the compact XRHS 650 PACE is easy to transport and manoeuvre around the job site, boosting uptime and productivity.

"Incorporating ten years of continuous R&D in air technology, our innovative XAS boX range signifies the company's forward-thinking philosophy of anticipating and even exceeding customers' future needs without compromising our environmental principles," says Stanford. "Subsequently, these best-in-class air compressors are exactly what customers are asking for when it comes to their compressed air requirements; highly efficient and reliable compressed air delivered by a straight forward, compact, robust and versatile machine," he concludes.

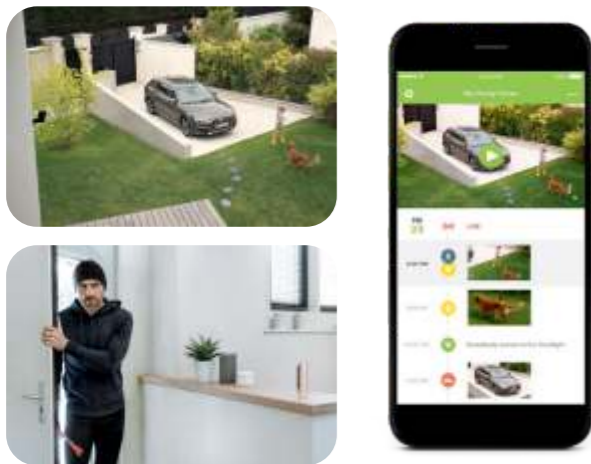




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MARQUIS APARTMENTS PROJECT

FREEDOM

Hayer One, the internationally award winning developer of 'The Address' presents 'The Marquis'. This residential gem is also an international award winner, featuring stunning 2, 3 and 4 bedroom luxury duplex penthouses. Each with ample domestic quarters, exquisite layouts, and the finest imported fittings, and world-class security systems. The home of your dreams sits majestically in a park-like setting, with Unobstructed views over leafy suburbs all the way to Ngong Hills. So close to the city, yet so far. Here, the living is easy. Extra breathing room is also provided when it comes to financing.

This one-of-a-kind property comes with a one-of-a-kind 'off-plan' lending facility of up to 80%. We will be more than happy to help you do the math.

INSIDE

As our many awards will attest, Hayer One has become synonymous with properties built to



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Contributions

The editors welcome news items, press releases, articles and photographs relating to the Construction Industry. These will be considered and, if accepted, published. No responsibility will be accepted should contributions be lost, damaged or incorrectly printed.

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international standards. Consider floor tiles from Spain. Authentic Kenyan Mahogany Wood on the doors, and secure glass balcony balustrades. Exquisite modern Kitchen with lacquered finish cabinetry, with appliances. All bathrooms come with top end American brand fittings and stylish glass shower cubicles, while the window frames are imported from Greece from the Greek manufacturer, Alumil and fitted with glass.



The well thought out floor plans create family-centric, multi-functional living zones. And be assured the workmanship throughout your new home will be of the highest order.

OUTSIDE

While you relax by the infinity pool drinking in the spectacular view, listening to the gentle stream flowing beneath you, children are laughing and playing on the swings and Slides that make up space set aside for them. Sharpen your putting stroke at the mini golf. Take a pleasant walk along the trails in the dedicated 'Green Park.' Try to name the Birds you spot in the trees. Surrounded by nature, so tranquil, you may ask yourself, "Am I at home or on holiday?"

IN BETWEEN

This feeling of well-being is enhanced by the number of unmatched amenities to be enjoyed. Take a yoga class, excellent for the body, mind and spirit. Get fit in the well-equipped Gym, or just chill. Take a dip in the Jacuzzi after your stint in the steam room, of course. Grab a cappuccino from the cafeteria before you pick up the kids from the onsite Day-care centre.



Catch up with friends in the social hall, even book a business meeting there. More than a home, 'The Marquis' is a community. And you're going to love it here!

**CLUB HOUSE
RECREATIONAL AMENITIES**

WESTERN TOWER

1. MANICURED GARDEN
2. JOGGING TRACK
3. CHILDREN PLAY AREA
4. TODDLER PLAY AREA
5. DAYCARE CENTRE
6. COFFEE SHOP / CONVINIENCE STORE
7. OUTDOOR EATING AREA
8. STEAM / SAUNA - MEN
9. STEAM / SAUNA - LADIES
10. EQUIPPED GYM
11. OUTDOOR SEATING AREA
12. YOGA, AEROBICS / DANCE HALL
13. AMPHITHEATRE - OPEN TO SKY

EASTERN TOWER

14. POOL DECK
15. INFINITY POOL
16. CHILDREN'S POOL
17. MEETING ROOMS
18. MANAGEMENT OFFICE
19. MEETING NOOKS
20. SOCIAL HALL OPENING TO POOL DECK



21. SOCIAL HALL KITCHEN
22. COMMUNAL RESTROOMS
23. INDOOR GAMES AREA
24. VIEWING DECK
25. MINI GOLF AREA

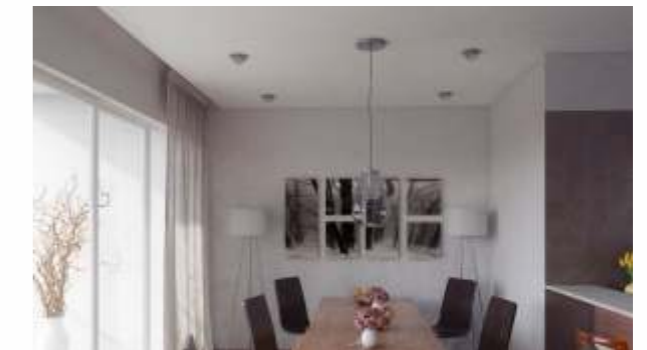
JOGGING TRACK LEVEL

Fountain with Sculpture
Toilet
Jogging Track Level



DESCRIPTION

The Marquis is equipped with a 196 Meters long jogging track, 1.7 Meters wide. High quality cabro finish, well drained with kerbs all round Well-manicured Lawn with bandas, pergolas and relaxation seats overlooking the Kischwa river set upon a five senses garden theme Dedicated flower gardens and a water fountain



LEGEND

- A. Jogging Track
- B. Pergolas
- C. Banda
- D Flower Garden
- E. Manicured Lawn
- F. Outdoor sitting/Rest Area
- G. Fountain with Sculpture
- H. Toilet

AREA COVERAGE

737.4 SQM2



THE MARQUIS

DISCOVER AFFORDABLE LUXURY



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WE ARE PROUD TO BE ASSOCIATED WITH
INNOVATIVE PLANNING & DESIGN CONSULTANTS [ARCHITECTS] IN THEIR MARQUIS APARTMENTS PROJECT



DETAILS

Structure

RCC framed structure

Masonry block walls

Elevators

Total of 6 elevators; 3 in each block with stops at each parking level

Modern cabin with elegant design,

Tiles

1st Grade Full Bodied Porcelain & Rectified Spanish made Tiles

Balcony: Non slip vitrified, Matt finish anti-skid

Bedrooms: Nogal wooden natural Matt finish

Yard, DSQ: Beige matte grazed



Bathroom Floor: Natural Matt finish

Bathroom Wall: Natural Matt finish

Kitchen

Exquisite modern Kitchen with imported Cabinetry and appliances

Appliances include: hob, oven, extractor and microwave for all units



Dishwasher (in bigger units) and Refrigerator (in penthouses)

Granite countertops

Doors

Authentic Kenyan made Mahogany Main door and flush internal doors

Windows and Doors:

Aluminium Windows and Sliding doors from the Greek Manufacturer, Alumil

Bathrooms American Brand Kohler, Sanitary and bathroom fittings

Shower screen in bathroom



Wardrobes and balcony:

Wooden fitted wardrobe

Balcony Glass Balustrade

Security

Access control for vehicles

Access control on every parking lift lobby through biometric devices

Intercom system for guest access to each apartment

CCTV monitoring for all common areas

Manned security from a reputable security company

Complete electric fencing and perimeter wall

Others

Backup generator available

Internet, Tv and telephone electrical points provided

Individual KPLC meters provided for each apartment

Sufficient power outlets and light points

Bore well



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Access Control Systems in Kenya



Access Control Systems

Electronics access controls are a great replacement for key based systems and can save money in many situations, while adding security and control. We install and maintain a wide range of Access control systems in Kenya, Tanzania and South Sudan for both domestic and commercial clients.

New electronic Access Control systems are a great replacement for old key based systems for controlling access to buildings. Access Controls provide higher security, ease of control and lower running costs. Here are a few types of access control systems that we regularly install:

Password based (Mechanical or Digital Keypad on the door) Magnetic Card based (Swipe a card) Key fob or token (Touchless Access technology)

Biometric Access Controls (Swipe finger print)

Installation of Access Control Systems
We supply and install all types of Access Control Systems in Kenya, Tanzania and South Sudan for homes and businesses Across East Africa. Our competent access control installers can design, install, repair and commission the system to your satisfaction.

Benefits of Access Control Systems

Easy to manage staff and buildings
Easy to monitor behaviors and movements of people
Opening and closing doors is much easier
Added security and more control
Lower running cost.

Our Systems

We have relations with various manufacturers and distributors of Access Control equipment world wide and can advise you on which type/brand to suite your application best.



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WHY ACCESS CONTROL? GLAD YOU ASKED!

Access control allows you to monitor the movement of everyone who has access to your building, which means you control who can go where and at what time, allowing you to keep access into restricted areas limited to authorized personnel only. It also gives you a log of all movement across access points, providing your security team with valuable evidence in the event of an intrusion into a secure area.

Access control systems also improve employee productivity by monitoring punctuality and can be integrated with your payroll systems to auto-generate attendance records, which certainly come in handy on pay-day!

In terms of security, access control is an effective long-term, cost-saving strategy for businesses. Clients can request that the system be configured to request for additional credentials (such as a PIN code) before being granted entry, which then negates the need to have all checkpoints manned by guards.

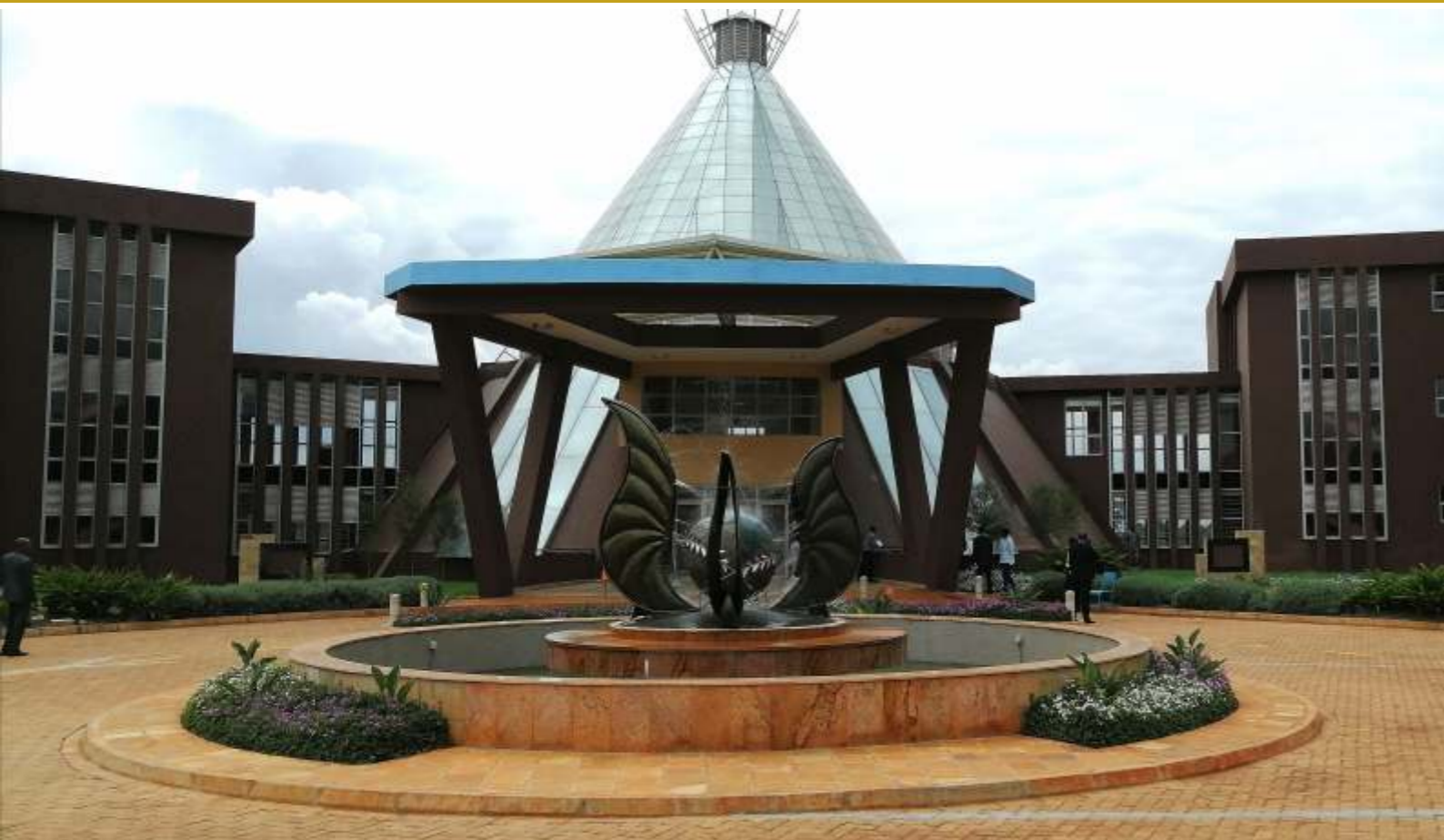
And while keys are easily lost, your biometric fingerprint is intact for life. In the case of proximity cards, it is as easy as deactivating any lost or stolen cards rather than having to replace locks in the case of the traditional lock-and-key solutions.

Lastly, our systems can also be integrated with CCTV and intercom software to ensure that you have all your bases covered!





Amazon Consultants Ltd is a leading Kenyan Quantity Surveying and Project Management firm founded in 1998 as a partnership and later incorporated in 2007. The Directors are supported by a team of well-trained Quantity Surveyors, Project Managers and dedicated support staff.



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Africa Autoclaved Aerated Concrete Market, Size, Share, Opportunities and Forecast, 2020-2027

Africa Autoclaved Aerated Concrete Market is segmented By Product (Blocks, Panels, Glue and Mortar, Lintels, AAC Tools), and By End-User (Residential, Commercial, Industrial) – Share, Size, Outlook, and Opportunity Analysis, 2020-2027

Market Overview

The Africa Autoclaved Aerated Concrete Market is expected to grow at a CAGR of 6.2 % during the forecasting period (2020-2027).

AAC has several advantages over other building materials. Some of them are:

- High strength,
- thermal Insulation,
- environment-friendly/go-green nature,
- sound-proof,
- energy efficient,
- pest resistant,
- fire resistant,
- water barrier, and
- Cost-effective

Market Segmentation

The Africa Autoclaved Aerated Concrete market report is segmented-

By Product into Blocks, Panels (Wall Panel, Floor Panel, Roof Panel, and Cladding Panel), Glue and Mortar, Lintels, and AAC Tools.

By End-User, the market consists of three segments namely Residential, Commercial, and Industrial.

Geographically, the market is segmented into South Africa, Mozambique, Zimbabwe, Botswana, Namibia, and Other African Countries.

Market Trends

AAC blocks segment is the most significant part of African autoclaved aerated concrete market share.

The reasons for this are their high strength to weight ratio, stability to variations in temperature and humidity, low thermal conductivity, and resistance to fire.

Based on End-user, Residential Construction is the largest market segment.

As AAC is cost-effective, it reduces the building cost and improves quality of residential buildings.

Besides, the rising demand for green and soundproof residential buildings leads to increase in demand for Africa Autoclaved Aerated Concrete in residential buildings.

The competitive scenario of the Aerated Concrete Market

Some active players of Africa Autoclaved Aerated Concrete Market are:- AAC-Africa, Limestone Group, AAC Mining Executors Group, UltraTech Cement Ltd, and AKG Gazbeton.

Recent developments in this market

In July 2016, UltraTech Cement partnered with Jaypee Group to acquire its cement assets worth INR 161.89 billion.

In August 2016, Tarmac acquired 11 ready-mix concrete sites from Breedon Aggregates and Hope Construction Materials based out in the United Kingdom.

Market growth

AAC's advantages in construction are its quick and easy installation. The material can be routed, sanded and cut to size on site using standard carbon tip band saws, hand saws, and drills.

AAC has the potential to avert 200mn tonnes of CO2 emissions, saving 20 billion every year. The demand from end-user industries such as residential, commercial and industrial is

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Our team has extensive experience in architectural design, environmental design, master planning, interior design and contract administration. It has a wealth of experience in handling projects of varying sizes and complexities in the Kenya and the greater East African region.

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increasing thereby boosting the growth of Africa autoclaved aerated concrete market size.

The growth factors for Autoclaved Aerated Concrete panels segment are high flexibility and low-cost building solutions.

Features of this research report

This report covers factors impacting the market, Porter 5 Forces, Africa Autoclaved Aerated Concrete Market Share Analysis, Price trend analysis, Product Benchmarking, and company profiles.

The report profiles companies like AAC-Africa, Limestone Group, AAC Mining Executors Group, UltraTech Cement Ltd, AKG Gazbeton, Eastland Building Materials Co, SKT Machinery Co. Ltd, Italcementi, Tarmac, and Pravin Buildtech Pvt. Ltd

Key takeaways from this report
 Visualization of composition of Africa Autoclaved Aerated Concrete Market across each indication, in terms of type

and applications, highlighting the key commercial assets and players.

Identification of commercial opportunities by analyzing Autoclaved aerated concrete market trends and co-development deals.

This report is the most comprehensive study on Autoclaved Aerated Concrete Market till date.

Excel data sheet with thousands of data points of the market – level 4/5 segmentation

PDF report with the most relevant analysis cogently put together after exhaustive qualitative interviews and in-depth market study

Product mapping in excel for key products of all major market players
 Professionals who can derive maximum benefits from this report

Raw Material Suppliers/ Buyers

Product Suppliers/ Buyers

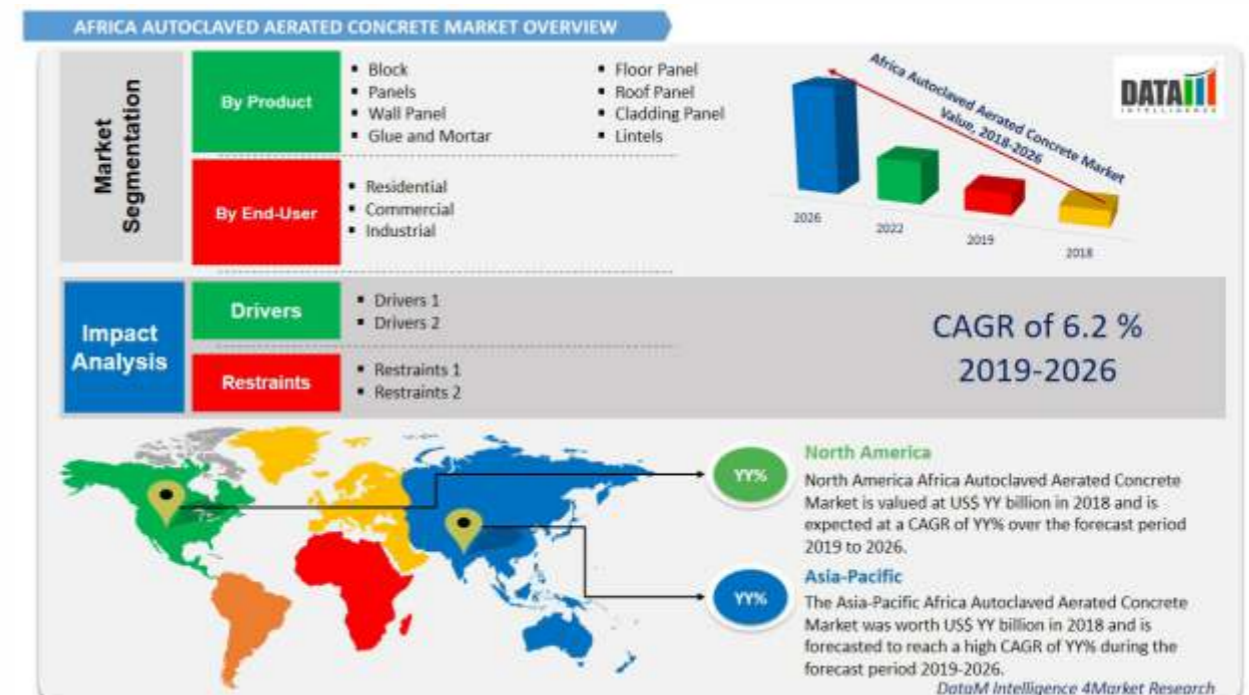
Industry Investors/Investment Bankers

Education & Research Institutes

Research Professionals

Emerging Companies

Manufacturers



Upgrading of Tippler project for Saldanha Iron Ore with total drive solution from Bauer

Bauer Geared Motors, a business division of Hudaco Trading (Pty) Ltd. Company, is delivering a total drive solution that includes five large sized 750kW industrial gearboxes and two 185kW units for the Tippler upgrade project at the Saldanha Iron Ore Export Plant.

Weighing up to 15 tonnes each, the 750kW gearboxes are the largest machines ever supplied by Bauer to date. Bauer has been a market leader in electric drives since 1984, initially specialising in geared motors. The Hudaco power transmission division later diversified, expanding its portfolio to include industrial gearboxes and transmission solutions. Bauer joined the Hudaco group in 2002 and, in the same year, became a supplier to Saldanha providing slew and bucket wheel drives. Bauer upgraded these drives after ten years of operation and in 2020 supplied a third slew drive with planetary gearboxes, and an overland conveyor.

When Derek Gilmore joined Bauer as Managing Director - Drives and Motors, in June 2019, the Tippler upgrade project for Saldanha Iron Ore port fell under his auspices. Derek explained that the company responsible for overseeing the project favoured a total solutions supply chain through a single sourced provider.



“The fact that Hudaco is a listed supplier to the Saldanha Port operation paved the way for Bauer, as part of the Hudaco group, to put in a bid on the drive requirements for this project.”

Bauer proved compliance on design and all critical criteria as specified by the main consulting house. The full scope of supply from Bauer includes industrial gearboxes, medium voltage electric motors, drive base plates, high and low speed couplings, brakes, actuators, parts and spares as well as condition monitoring. “We will also be responsible for torque arm and complete drive assembly,” adds Derek.

“Our industrial gearboxes are manufactured by India-based OEM, Elecon Engineering Company Ltd., one of the largest manufacturers of industrial gear units in Asia,” continues Derek. These rugged and reliable gearboxes boast a service factor >2 and 100 000 hours design life.

The 750kW gearboxes, two parallel drive systems and three parallel and tandem drives, will be installed on a sacrificial conveyor and a 283m long overland conveyor respectively. The 185kW units will drive an adjustable shuttle conveyor.


Compliant with necessary and important thermal criteria, the 750Kw gearboxes are equipped with a cooling and forced lubrication system with dual oil pumps, one serving as a backup unit. Derek explains that in addition to machine longevity, this system is also a safety feature, keeping the drive temperature to below a safe-touch of 70°C.


Bauer will also be responsible for providing the condition monitoring sensors to facilitate remote monitoring of the gearboxes including motor speed and motor windings temperatures,



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brake wear and temperatures, oil levels and flow pressures, as well as bearing wear and vibrations. “Early detection allows for a planned shutdown to do the necessary maintenance, thereby avoiding critical failure and costly downtime,” notes Derek. He adds that Bauer is also supplying large 710mm diameter hydraulic disk brakes for the sacrificial and shuttle conveyors in collaboration with supply partner, Magnet Service Binder.

While the main contractor for the project will be responsible for installation and commissioning of the drives in conjunction with Saldanha Port authorities, Bauer will supply consumable spares such as filters, oil, etc. required during the commissioning process. “During commissioning, we will call on supplier partners like Magnet Service Binder to assist with training on brakes,” notes Derek. “We will offer support during and beyond warranty, including the supply of critical and five-year running spares and will assist with operator training.”

Alongside local assembly, service and repair capabilities on all its products, Bauer also has the capabilities to service and repair competitor gearboxes to OEM standards. “Our industry-leading 24-month warranty bears testament to our suppliers’ commitment and provides ultimate customer peace of mind, assured of superior quality, reliable and efficient products.”

Bauer received the order for the complete drive solution for the Tippler upgrade project in early May 2020 when the first wave of the Covid-19 pandemic was sweeping over the Northern Hemisphere. “This set us some tough

challenges, forcing us to come up with innovative solutions,” states Derek. “It was most fortunate that Elecon was able to continue operating although output was understandably affected, with subsequent delays.”

The next challenge was how to conduct witness testing at the Elecon factory in India given that the pandemic prevented travel. “We realised that we had to tackle this from a completely different angle. Making full use of digital technology, we held technical discussions, viewed instruments and meter readings as well as actual tests on video clips and images, even finalising factory acceptance tests, all via e-meetings.” Derek points out that by having a permanent digital record, they can conveniently reference this electronic library from anywhere at any time. “In addition to saving money in terms of travel costs, we also saved loads of time and subsequently realised a much quicker turnaround.” Knowing that they can efficiently do this type of work remotely and taking into account all the benefits, Derek encourages this approach going forward.

When the gearboxes were ready for shipment from Mumbai to Durban harbour, Derek and his team faced yet another challenge, finding space on a vessel for their 20 ft and 40 ft containers as the pandemic forced shipping lines to reduce their fleets. The shipment finally left Mumbai on 28 October 2020, reaching Durban harbour 14 days later. “High winds delayed docking for a further five days, putting us under immense pressure to get the drives up to Johannesburg for assembly and presentation to the customer for inspection, within our promised end-November 2020 deadline,” says Derek. “But the Bauer and logistics support teams managed to pull a rabbit out of the hat and got all the prep work done so that once the units arrived, they were off loaded immediately.” Ready for delivery to site at the end of March 2021, the gearboxes are currently being stored at Tomco Rewinders. Derek explains that they selected Tomco as a business partner as their facilities, conveniently located around the corner from Bauer, are well equipped to handle and conduct no-load testing on large sized gearboxes.

According to Derek, they see a great deal of potential in large sized gearboxes in the mining industry across the SADEC region. “Our success in supplying large gearboxes to the Tippler upgrade project at Saldanha Iron Ore showcases our capabilities and competencies to realise our ambition of entering this space.” Derek reveals that Bauer recently signed a sole distributor agreement with the Elecon Group, adding sole supply of the Radicon industrial worm gearbox range. “We already have an installed base of smaller sized industrial gear units at Rustenburg gold and platinum mines, where we have a strong foothold, as well as in the SADC region and beyond into Egypt, Eritrea and the DRC. In line with this new agreement, the welcome addition of the Elecon range of power transmissions up to massive 9MW drives further opens up the large gearbox market for us. Moreover, we are also perfectly positioned to supply our customers in these regions with new bevel helical Elecon drives or drop in retrofit solutions for older gear units. We add further value by offering local content, assembly, testing and commissioning.”

Wrapping up Derek says that they are extremely proud of this out-of-the box drive

solution at the Saldanha Iron Ore Tippler upgrade project. “Despite facing numerous challenges, we found creative ways to get the job done while adhering to all Covid-19 protocols.”

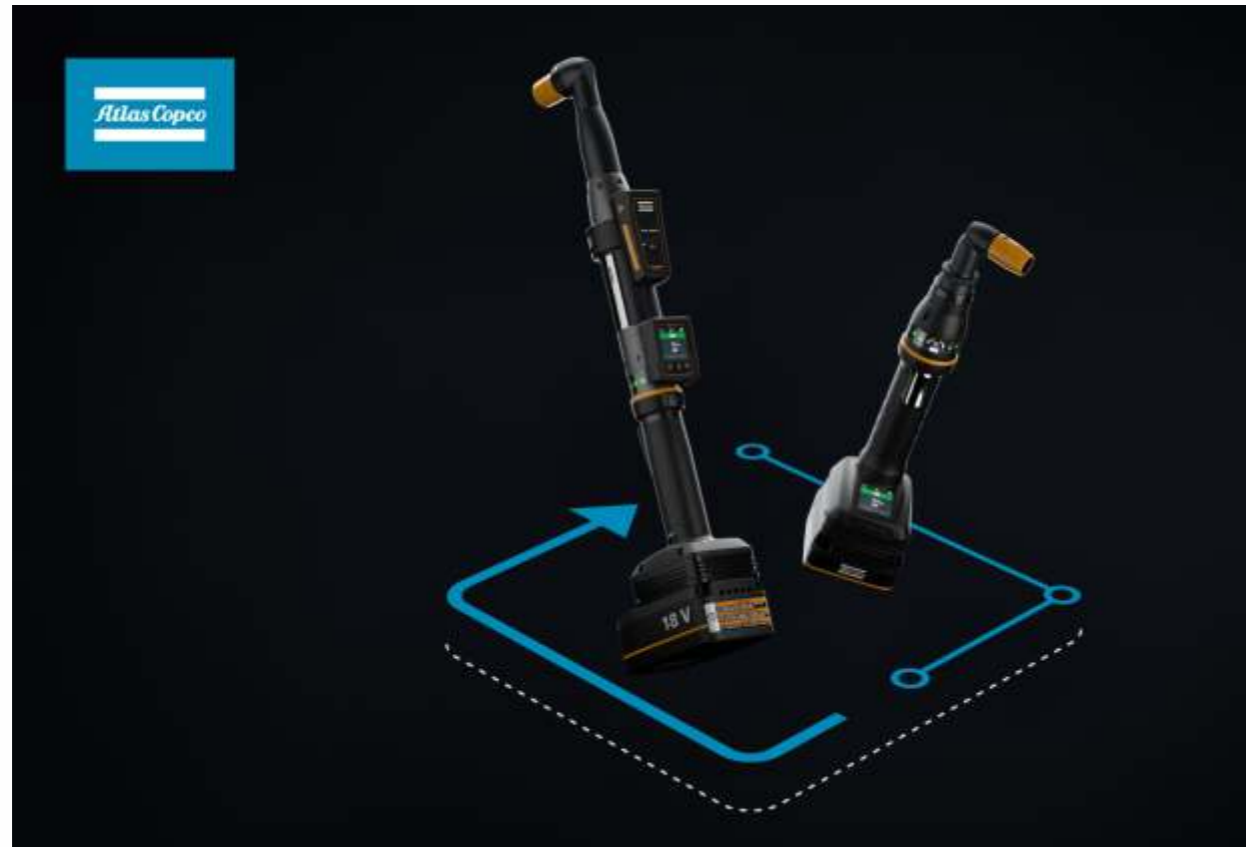
Derek extends a sincere thank you to the dedicated Bauer management, Elecon, the main contractor and their supportive team including supplier partners, as well as the end customer for their commitment and contribution to ensuring a positive outcome and achievement with all associated challenges.



Weblines
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The Tensor IxB platform by Atlas Copco revolutionises the Smart Factory



Stockholm, Sweden, April 16th, 2021: Atlas Copco continues to evolve their Smart Connected Assembly. The Tensor IxB family is a collection of hand-held cordless tools which share an integrated controller platform. This is the first generation of Atlas Copco tools with integrated controllers – all innovatively designed to enable future requirements of customers. With the Tensor IxB platform, customers get a tool family which is lighter, faster and smaller, yet has the same, powerful performance of cabled tools.

Atlas Copco first presented Smart Connected Assembly in 2017, as its contribution to Industry 4.0 and the Smart Factory. The concept, comprising of how Atlas Copco smart tools and solutions continuously collect data and create values to support our customers, has attracted major attention from industry

professionals and the media. The Tensor IxB platform follows the footsteps of this digital transformation. The Tensor IxB platform is already successful in several sectors of the Manufacturing Industry, such as Automotive and Aerospace.

With the Tensor IxB platform, Atlas Copco is reinventing the assembly process. This will increase efficiency, reduce the need for hardware and equipment, as well as reduce energy consumption. It will be easier to set up new stations and rebalance existing ones.

“As the functionality of the physical controller, with all its intelligence, is moved into the tool itself, it can be integrated directly to the production system. Thus, performance and efficiency are enhanced,” explains Mathieu Legars, Vice President Marketing at Atlas Copco



Motor Vehicle Industry. “We are already collaborating with customers to design Smart Factories, and this with great success. Major car manufacturers are already today witnessing a huge contribution towards increasing the flexibility of the assembly process.”

The Tensor IxB family comes in two main tool ranges, and a variety of tool accessories. The tools are designed to improve the ergonomics for factory operators, as well as to increase the quality of the final product.

“We are continuously looking to improve our products. With the Tensor IxB platform, we ensure that industry professionals involved in, for example aerospace production, are given the best experience. The wireless connectivity and light battery make it a versatile tool which really is easy to use. Within the Tensor IxB family, we have tool heads with a rotation of a 360° angle. Therefore, parts in cramped areas can be effortlessly reached. This solves ergonomic issues and improves the results for

critical tightening,” confirms Marcelo Mantovani, Vice President Marketing General Industry.

The Tensor IxB platform is part of the future in Smart Factories and is a great contribution to how employed data creates value for customers.





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Schwarzwald-Sprudel goes oil-free and saves energy with the ZD High pressure

Schwarzwald-Sprudel in Wildberg, Germany, produces and uses its compressed air in a particularly efficient manner thanks to the compact Atlas Copco oil-free medium pressure compressor and high pressure piston booster combination (ZD high pressure compressor) with energy-saving VSD option. The plant currently employs 60 people on the two bottling lines, who fill approximately 160 million PET bottles each year - with volumes of 0.5, 0.75 and 1.5 litres.

Preforms made of polyethylene terephthalate, better known as PET, are blown into drinks bottles using the stretch blow moulding method, which requires a lot of compressed air at high pressure levels.

The compressed air supply at Schwarzwald-Sprudel in Wildberg is based on three Atlas Copco ZR screw compressors, two of which are equipped with speed regulation (VSD - Variable Speed Drive), as well as two speed-regulated high-pressure oil-free air boosters. These components supply the two bottling lines with compressed air. The scale of the system is illustrated by the fact that there is almost 1,000 kW of installed power even if the machines never run all at the same time.

The compressed air for the stretch blow moulding process is first compressed to around 8.5 bar by a screw compressor, before being further compressed to 29 bar by one of the boosters.

Oil-free compressed air is guaranteed as all of the components used to produce compressed air operate entirely without oil. For example, the DN 160 type booster piston compressor and the ZR screw compressors both deliver oil-free air in accordance with ISO 8573-1, Class 0 (2010).

The Atlas Copco compressor and booster combination ensures sustainable energy management with heat recovery. Schwarzwald-Sprudel Plant Manager, Bernhard Griesau, explains: "We set the system in such a way that for six

months of the year over winter, it is primarily the new ZR 250 VSD FF with heat recovery that is running; in this way, we are able to reuse as much heat as possible for heating tasks."

An ES 130 energy-saving system controls the entire compressed air system in such a way that the compressors run as closely as possible to their optimum operating point, in particular the speed-regulated compressors. In addition to the abbreviation VSD for speed regulation, the FF (Full Feature) in the compressor name stands for a range of equipment from the factory that comprises all the key components for compressed air treatment right through to heat recovery, meaning connection could not be simpler.

Heat recovery forms part of a sustainable energy management strategy. The general idea is that the power absorbed by the compressor during compression is converted into heat. This heat can be almost entirely recovered and used for heating water. "We use this method primarily to support the heating in the halls and, to a lesser degree, to heat process water," concludes Griesau.

When it comes to servicing the compressed air production system, Schwarzwald-Sprudel relies on the premium maintenance agreement. In addition to the necessary inspections and maintenance, this also comprises free repair for any damage that occurs, up to and including a complete general overhaul.



Atlas Copco's advanced GA55VSD+ FF compressor significantly improves efficiencies for leading South African face mask manufacturer

The recent installation of a new Atlas Copco GA55VSD+ FF air compressor at GreenLine Distributors' manufacturing plant has significantly improved efficiencies, created a more comfortable working environment and has future-proofed compressed air supply for this leading South African manufacturer of superior quality respiratory products.

GreenLine Distributors cc was established by Tom Price and Ben Smith in 2001 who identified a distinct need for high quality locally produced disposable respiratory products. Having invested twelve months in researching local industry requirements, the founders designed a disposable mask that today compares favourably with the best products available internationally. This proudly South African company believes in supporting the local economy by backing local companies and suppliers where ever possible.

The Springs-based company supplies a wide range of face masks offering varying levels of filtering capabilities to meet the different requirements by industries including mines, laboratories, and food & beverage to protect employees against the inhalation of dust, solid and liquid aerosols, smoke, and even more aggressive substances.

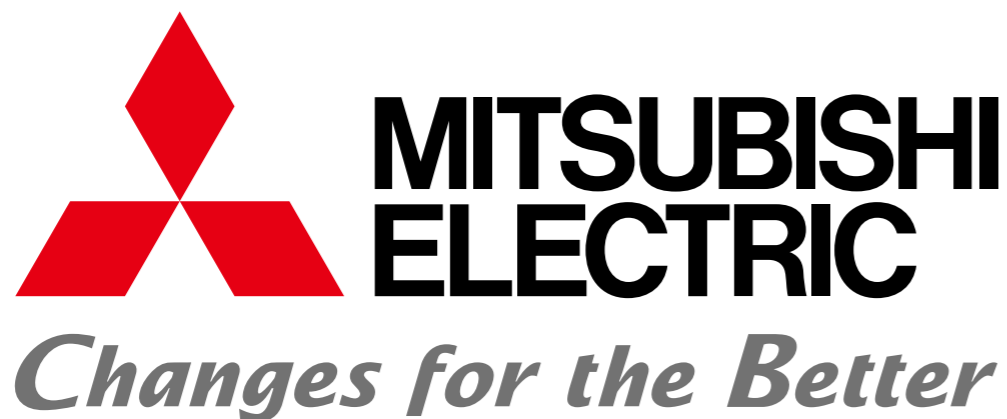
"All our masks are regulated and are subjected to rigorous testing in a laboratory under local conditions where they must exceed all required ratings," notes Deon Erasmus, Factory Engineer at GreenLine Distributors. "We comply with numerous stringent safety standards: Our factory is operated under an ISO 9001 system audited by the prestigious TÜV Rheinland and holds the SABS mark scheme certification. Furthermore, all our products are approved by the NRCS (National

Regulator for Compulsory Specifications) and we are a member of SAPEMA (Southern African Protective Equipment Marketing Association)." GreenLine also holds a Homologation Certificate for a type of respiratory protective device pursuant to SANS 10338:2009: 'Homologation of respiratory equipment' as required by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), and the Mine Health and Safety Act, 1996 (Act No. 29 of 1996).

GreenLine's large industrial pneumatic machines require clean dry air to perform various manufacturing processes such as compressing and cutting to produce in excess of 200 000 face masks per month. "However, our existing constant speed air compressor which has served us well over the years, was simply not efficient; it was generating a lot of heat and was also extremely noisy," states Operations Manager, Marko Rangiah. "It was time to replace old technology with a new state-of-the-art air compressor system in synergy with our drive to become more energy efficient and decrease our carbon footprint."

Having done their air compressor homework, Erasmus and Rangiah knew exactly what they wanted. While energy efficiency topped their list, they also needed a quiet machine with sufficient capacity to accommodate future expansion. "We decided to turn to Atlas Copco for an air compressor solution because this leading global company offers a brand renowned for quality across its product, technology and service portfolio," continue Erasmus and Rangiah. "This is the type of company we want to partner with over the long-term."

MELCO Elevator S.A. (Pty) Ltd



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P.O. Box 1328, Bramley,
Johannesburg, 2018

Atlas Copco's GA55VSD+ FF (Full Feature) ticked all the boxes for Erasmus and Rangiah. Part of the ground-breaking new range of GA oil-injected rotary screw compressors, this highly efficient and robust direct drive compressor reduces energy costs by up to 50% on average. This unmatched performance is driven by Atlas Copco's cutting-edge technologies including VSD (Variable Speed Drive), a powerful interior Permanent Magnet oil-cooled motor (iPM) and an in-house developed Neos inverter.

"Quality compressed air is the life blood of any manufacturing industry but the generation of compressed air is one of the highest energy consumers, accounting for over 40% of a plant's total electricity bill," notes Atlas Copco Compressor Technique Business Line Manager, Zandra van der Westhuizen. "Energy is thus the most expensive component in the total cost of compressed air, often costing more than the compressor's purchase price over its lifespan. Subsequently efficiency is integral to the design of our compressor technology."

"VSD presents the best solution for applications with fluctuating air demand and where the compressor regularly runs at below maximum capacity as is the case at GreenLine," continues Van Der Westhuizen. "While a traditional fixed speed compressor is either on or off, a VSD unit automatically adjusts its motor and element speed to the air demand. As it only runs at the required speed, it consumes less energy."

Atlas Copco delivered the GA55VSD+ FF only one day after receiving the order from GreenLine Distributors. "The fact that Atlas Copco had a machine in stock speaks volumes about the company and gives us confidence in what we can expect going forward," says Erasmus. Following a site inspection by Atlas Copco, GreenLine's technicians installed the compressor, including all air and electrical connections. Atlas Copco conducted a final check of all specifications before signing off. "In short, we were up and running with our new compressor within less than a month of placing our order. Atlas Copco service is as efficient as their product giving us peace of mind that we have selected the best air compressor partner."

"The efficiency benefits of the GA55VSD+ FF's advanced technology are clearly evident, especially if one draws a comparison between the old and the new compressor," confirms Erasmus. "The old machine used between 25 and 40 Amps and drew an average of 25kW while the new compressor, which is compact with a much smaller footprint,

uses 21 Amps and draws only 15kW with plenty in reserve; we have future-proofed our compressed air supply!"

Equally impressive for Erasmus and his team is the GA's new soft-start capability as well as the surprisingly large amount of water that comes from this self-draining compressor with an integrated dryer. "This tells us that the machine is doing its job; delivering clean dry air to our plant 24/7, five to six days a week!" He adds that quiet operation at a low 67 dB(A) also means a comfortable and safe working environment for GreenLine employees.

Erasmus confirms that Atlas Copco supplied quick but more than adequate training as the machine is extremely user-friendly. Atlas Copco will take care of all maintenance and service. As the compressor is Smartlink enabled, Erasmus and his team will conveniently receive maintenance notifications and information on machine status via email or text messages.

GreenLine was classified as an essential services provider throughout COVID-19 lockdown, providing face masks to other essential services companies such as food & beverage. Owing to the capability and flexibility of the factory, GreenLine was able to meet a request by Government to produce FFP2 masks for first responders and front line workers in South Africa's health care facilities, laboratories, etc. Erasmus explains that FFP2 is the minimum face mask specification by the World Health Organisation (WHO) to help prevent the spread of the Coronavirus, offering 94% filtration or better.

"As the FFP2 is in fact our standard middle range of masks, we did not have to produce a new product; we simply had to produce more of our existing FFP2 masks so it was easy for us to adapt. Most importantly, we were able to extend our production of FFP2 masks without affecting our regular manufacturing, ensuring that we continue to meet our customers' requirements."



Atlas Copco distributor, Mike Appel, continues to breathe new air into Zimbabwe's industrial compressor market

The appointment of Mike Appel Power and Industrial Solutions, a division of Mike Appel Industries, as Atlas Copco Compressor Technique's authorised distributor in Zimbabwe just over a year ago, has been a resounding success. Thanks to this valuable partnership, customers across the region continue to reap the rewards of superior quality product delivery supported by excellent after-sales service.

"There is no doubt that partnering with a company like Atlas Copco, a world-renowned pioneer in compressed air research, technology and sustainability, gives us a competitive edge, evidenced by our healthy supply of new capital equipment to Zimbabwean mining and industrial customers during the first year of our distributorship," states Mike Appel's Managing Director, Lindsay Chanakira. "This includes the delivery and installation of two GA250 screw compressors on a gold mine, with reports of satisfaction with both machines, as well as the upgrade of a GA200 compressor from 7.5bar to 10bar at a platinum mine." Alongside an order for a ZE4 blower, Mike Appel commissioned a new GA250 compressor for a cement giant and also won a tender for the supply of two ZT45 compressors to one of the biggest hospitals in Zimbabwe.

The business relationship between the two companies started in 2015 with Mike Appel supplying Atlas Copco industrial diesel generators to Zimbabwe's mining, healthcare, agro-processing, construction,

manufacturing and telecommunications sectors. "Mike Appel's exceptional reputation in Zimbabwe's business arena that spans an impressive 72 years is what earned the company Atlas Copco's authorised distributorship," states Compressor Technique's Business Development Manager - Indirect, Daryn Jack. "As they have been actively servicing customers in our industry in various other avenues for many years, formalising the relationship by signing them on as our authorised distributor and in so doing, assisting and servicing customers in our portfolio, simply made sound business sense."

In line with the distributor agreement which was signed in October 2019, Mike Appel Power and Industrial supplies Atlas Copco Compressor Technique's extensive stationary electric compressor portfolio of oil-injected and oil-free piston, scroll, tooth, vane and screw type machines as well as preventative maintenance kits and accessories.

Mike Appel's footprint has expanded exponentially since its founding in 1948 to provide precision engineering services to the growing Zimbabwean motor industry. Today, the Mike Appel Group serves diverse markets across the country. Alongside compressors, other areas of specialisation include engineering services, motor spares, generators, light towers and solar solutions.

"Our vision to lead in the area of engineering services in Zimbabwe ensures that our approach to all our projects is driven by excellence, professionalism and quality," comments Lindsay. "Our proud reputation for the delivery of quality products coupled with excellent service from a team of highly trained, experienced professionals to our individual and corporate customers, is augmented by our strategic partnerships with reliable and trusted global brands like Atlas Copco."

Elaborating on the Atlas Copco brand, Lindsay points out that as founder of industrial compressed air back in 1873, the company possesses an unfathomable amount of knowledge and insight which they openly share with industries relying on compressed air. "Moreover, Atlas Copco compressors and spares typically operate beyond their design lifecycle and are accompanied by warranties, translating to lowest cost of ownership for customers."

According to Lindsay, Atlas Copco is the only and Original Equipment Manufacturer (OEM) that provides an after-market service for compressors in Zimbabwe so their machines are the preferred brand for heavy industrial applications, consequently attracting vast numbers of long-term customers and partners across the country. "Added to this, Atlas Copco compressors are equipped with SmartLink technology which facilitates remote monitoring of machines in the field."

Lindsay goes on to laud Compressor Technique's experienced team of technicians that cater to site inspections and preventative and breakdown maintenance for Mike Appel's vast clientèle. "We also receive back-up support from Atlas Copco's Product Specialists in South Africa," he adds.

According to Daryn, Atlas Copco considers distributor support as essential in

maintaining successful distributor partnerships and he elaborates on the various support channels available to Atlas Copco distributors: "Dedicated Product Managers from the new equipment divisions assist with technical information and share knowledge on new units and Sales Representatives render assistance with technical proposals, pricing, etc. Our distributors also have access to our Technical Specialists for advice on all troubleshooting issues on our machinery and there is also a dedicated contact for spare parts support. As their dedicated Business Development Manager, I am the direct liaison between Mike Appel and Atlas Copco Compressor Technique. I assist them to develop and grow the areas of business in their country by conducting regular regional visits to their premises and attending customer meetings with them to show customers that our distributors have Atlas Copco's full support."

Atlas Copco extends this support regular distributor training offering platforms such as online theory, self-training, online/virtual product (product launches) and technical training sessions to keep technicians up to date on technical knowledge. Advanced technical training is offered at Atlas Copco's training academy in Egypt. "Additionally, we conduct onsite training for the technical teams of both our distributors and customers and I provide support during customer visits as and when needed."

Atlas Copco's range of training programs for Mike Appel technicians and sales personnel has impressed Lindsay which he says helps them to continue expanding their scope and expertise in the field. "We found the weekly distributor online product training sessions hosted by Atlas Copco Compressor Technique South Africa's Industrial Air Division during October and November 2020 extremely valuable." Adding further value and convenience for distributors are Atlas Copco's online spare

parts ordering and processing systems. Distributors have access to the Global Business Portal that allows them to gain access to all Atlas Copco equipment, including new products and developments, accessories and compressor related information of a technical or sales nature which Lindsay describes as “extremely useful”, adding that this information is also readily available on the Atlas Copco website.

Turning to the subject of challenges and opportunities within the Zimbabwean landscape, Lindsay says, “Although we face a number of challenges in Zimbabwe, there are some great opportunities too. The fact that there is vast room for improvement and development in all major sectors of our economy such as mining, manufacturing and agriculture is providing an



opportunity for small and medium-scale start-up enterprises that would otherwise struggle to compete in saturated markets, as evident in developed countries, to thrive. In addition, Zimbabwe has large reserves of raw materials and minerals required to produce high value capital equipment as well as the personnel to implement such.”

Wrapping up, Daryn says, “As distributors are ultimately an extension of our business, it is important that they share Atlas Copco's Vision and Mission and that their Core Values align with ours. In addition, the service they provide must be of sound product and technical expertise, all of which Mike Appel has most certainly upheld. Their professionalism and unparalleled service delivery combined with their impressive footprint and market presence in Zimbabwe

are win-wins for both companies and add value for our customers across the region. We are extremely privileged to have them as our authorised distributor in Zimbabwe; through this partnership we look forward to even bigger and greater things from Mike Appel to the ultimate benefit of our customers.”

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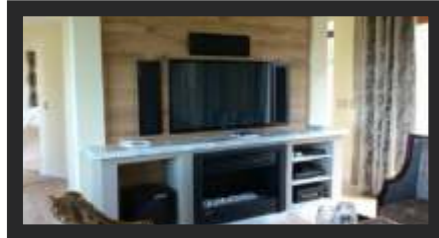



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Atlas Copco Surface Rock Drill – Solid as a rock!

Combining an ergonomic design with smart technology, Atlas Copco's Surface Rock Drill (SRD) range delivers everything that is required from this pneumatic tool to keep productivity high and operating costs low - reliability, efficiency, safety, low maintenance and serviceability.

Atlas Copco Power Technique's Business Line Manager for Portable Products, David Stanford, underlines Atlas Copco's zero-compromise approach when it comes to operator comfort and safety. "Atlas Copco places operators at the core of its tool design, incorporating standard features such as a Solid Body (SB) concept, a SOFTSTART™ trigger, HAPS™ (Hand and Arm Protection Systems) and a pneumatic Dust Collector into our comprehensive product portfolio."

Owing to the ergonomic Solid or Single Body design, Atlas Copco's light-weight 20kg and 25kg Surface Rock Drills boast a world-class power-to-weight ratio and perfect balance, enhancing handle-ability, comfort and safety. Furthermore, the solid housing eliminates leakages and increases cylinder lifecycle while fewer moving parts mean less wear. As these one-piece machines are also easy to assemble and disassemble, service is expedited, thus maximizing uptime.

Operators have full control thanks to the two-step SOFTSTART™ trigger which enables them to start a cut with surgical precision, allowing for seamless operation even in difficult working conditions.

"High vibration and noise levels are leading causes of operator fatigue which in turn, increases the risk of injury and curbs productivity," notes Stanford. "We have introduced HAPS™ to substantially reduce vibration levels on our SRD pneumatic handheld tool range. Furthermore, the tool's piston switches on air-cushions on both ends of the cylinder, thereby almost fully eliminating metal-to-metal contact when working off-load and subsequently further shrinking vibration as well as reducing wear. This substantial reduction in vibration makes it possible to extend working hours up to six-fold." According to Stanford, the vibration levels of the new generation SRD 25 rock drill is an impressive 50% lower compared to its predecessor.

Atlas Copco has also diminished the noise levels of the SRD tools by up to 75% with the development of the wear-resistant polyurethane silencer. Putting this into perspective, Stanford says that this equates to a 2dB reduction in noise which can make a substantial difference, especially when several drills are operating simultaneously.

Taking further cognisance of operators' health, Atlas Copco has developed a pneumatic Dust Collector for

the efficient removal, directly at the source, of silica dust that is produced during the drilling and breaking process. Powered by compressed air and utilising vacuum technology, the Dust Collector maintains dust levels below the permissible exposure limit, consuming no more than 12 litres of air per second. Suitable for indoor and outdoor use, this unit's recyclable collection bags lasts for an 8-hour shift and the semi-automatic filter cleaning mechanism requires very little maintenance.

The pneumatic Surface Rock Drills also feature Assisted Flushing Technology. This enables the operator to simply open the flashing valve to activate an additional flow of compressed air through a pathway in the cylinder to flush the drill hole while the tool is in operation. The fact that drilling and flushing happens simultaneously can increase productivity by up to 17%.

Engineered to perform optimally even under the toughest of working environments, these powerful and robust Atlas Copco pneumatic rock drills are ideal for drilling and breaking applications in the construction and quarry sectors. Fitted with eco-friendly power packs, several drills can also be conveniently and cost-effectively operated with a single compressor.

Atlas Copco offers a professional after-sales service portfolio that includes high-quality Air Line accessories such as air hoses, hose nipples, couplings, water separators and Air Oil lubricants, to support its SRD pneumatic tool range.



Authorised Distributor, Bolt & Engineering Distributors (Group) (B.E.D.), increases customer awareness of SKF tools with MaPro/Power Transmission 'toolkit' initiative



In a bid to promote SKF's MaPro and Power Transmission sales within their branch network as well as various markets, SKF South Africa's Authorised Distributor, Bolt & Engineering Distributors (Group) (B.E.D.) in Rustenburg, took the initiative and decided to group a series of SKF tools into a useful and practical 'toolkit'.

B.E.D. called on SKF's expertise in putting the MaPro/Power Transmission 'toolkits' together. Working in collaboration with SKF's respective MaPro and Power Transmission Product Managers, Eddie Martens and Frans Odendaal, they assembled a kit made up of a TKBA 10 belt alignment tool, a PUBSDC1007 Tensioner Tester and a PHGT/C1 006 Pulley Gauge.

According to Martens and Odendaal, the MaPro/Power Transmission 'toolkit' has been a great success, serving as a draw card for customers in the Rustenburg area. "B.E.D. is now able to effectively showcase these products to their customer databases. In addition to strengthening the relationship between the two companies, B.E.D.'s resourcefulness has unquestionably led to an increased awareness of our MaPro and Power Transmission product portfolios amongst end-users."

On the back of this handy 'toolkit', B.E.D. offered further specials on other MaPro products such as the TWIM 15 heaters and TLGB 20 grease guns to customers and end-users during December 2020. Martens and Odendaal reveal that there are further great specials on the cards that customers can look forward to during Q1 2021.



Extend machine and equipment life with progressive automatic lubrication systems from Lincoln Lubrication South Africa

Progressive automatic lubrication systems from SKF Group Company, Lincoln Lubrication South Africa, are specially designed for the continual lubrication of stationary and mobile machines and systems to ensure sustainable operation even in harsh and unforgiving environments.

"The continuous delivery of the correct amount of lubricant to the correct points at the right time offers monumental savings for end customers," says Lincoln Lubrication SA's Sales Consultant, Joe Barnard. "Alongside extended machine and equipment availability and life span, customers will also reap the benefits of increased uptime and productivity and reduced operational costs."

By delivering the correct amount of lubricant, the progressive automatic lubrication system eliminates the common and costly problem of under- and over-lubrication that is normally associated with inaccurate and irregular manual lubrication. Barnard explains that under-lubrication can lead to component wear and tear and equipment failure while over-lubrication is wasteful and pollutes the environment. "Furthermore, the utilisation of our lubrication systems will prevent unnecessary stoppages to perform lubrication tasks and manpower is no longer required to lubricate the points."

A progressive automatic lubrication system consists of a pump connected to at least one

primary metering device. A second level metering devices can be connected to the outlets of the primary metering device if required, to increase the number of lubricated points, depending on the pump's operating pressure. The outlets of the primary and second level metering devices are connected via branch lines to the lubrication points of the machine. The pump supplies lubricant to the metering devices with pressure of up to 550 bar (8 000 psi), depending on the pump model.



The metering devices split the lubricant into even or predefined amounts of lubricant (depending on the metering device), that are positively displaced to the lubrication points or to the inlet of a connected secondary metering device.

According to Barnard, these progressive systems can dispense a precise, metered amount of lubricant to up to 150 lubrication points over distances of approximately 15m, depending on case values. For oil applications, even in connection with flow limiters, distances of over 100m can be covered. Barnard goes on to explain that the progressive systems will provide continuous lubrication as long as the pump is in operation. "Once the pump stops, the pistons of the progressive metering device will stop in its current position and will carry on from there as soon as the pump starts supplying lubricant again. The progressive circuit of one outlet of the pump will stop when only one lubrication point is blocked, alerting personnel to service the system."

In order to recommend the optimum lubrication solution including the best lubricant for each individual application, trained Lincoln Lubrication SA application engineers will first determine a number of variables such as the number of lube points, back pressures at the lube points, operating temperature range, the feed pump's drive energy, and control and monitoring. "We prescribe different lubricants i.e. oil, fluid grease or grease which have different viscosities to suit each application," says Barnard. The different types of oils include mineral, organic and synthetic which are classified in ISO VG viscosity classes from 2 to 3200. NLGI grade 000, 00 and 0 greases are known as fluid greases. Greases classified as NLGI grade 1-6 are consistent lubricants which are soft to hard, triple-component mixtures of a base oil as the lubricating fluid, a thickening agent and additives. "In most instances, greases of NLGI grade 1 up to 3 are suitable for use in a lubrication system but we do recommend a compatibility check prior to using any oil or grease with our lubrication systems," advises Barnard.

These ultra-reliable robust progressive automatic lubrication systems do not miss a beat even in the most stringent operating

conditions such as potentially high lubrication-point back pressure, low temperatures and dirty, wet or humid environments. The systems are extensively used in wide range of small, medium and large machines and equipment:- Mobile machines (wheel loaders, excavators and trenchers), construction machines (concrete and mortar pumps), agricultural machines (harvesters, balers, manure spreaders and sugar cane loaders); wood reclaimers, materials handling machines (reach stackers and crane carts), on-road trucks (waste press) and buses.

Additional applications of these versatile lubrication systems include hydro-electric plants (wind turbine generators), asphalt mixing plants, food & beverage facilities (fillers and washing machines), quarries (screens and crushers) as well as in the Oil & Gas industry (reciprocating compressors).

Lincoln Lubrication South Africa recently secured an order to supply and install 13 progressive automatic lubrication systems at a newly built coal processing plant in Mpumalanga in April 2021. "The plant is building a new conveyor belt system with take ups, pulleys, drives, etc. which will travel from the new mining area to the old existing plant. This is a large area which requires lubrication and we will be installing the durable, versatile and reliable P205 and P215 525v pump stations with 30kg reservoirs to meet the application requirements," concludes Barnard.



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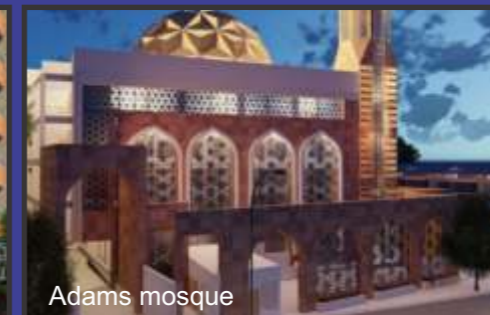
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Lincoln Lubrication SA cements deal to install automated fire suppression systems at Nigerian cement plant

SKF Group Company, Lincoln Lubrication South Africa's Africa Export division recently received approval from a leading cement producer in Africa to supply, install and commission 51 Muster II Automated Fire Suppression (AFS) systems at its cement plant in Nigeria. The systems will be installed on drill rigs, crawler excavators, dump trucks, wheel loaders and other mobile equipment. The scope of work also includes a twelve-month maintenance contract.

Lincoln Lubrication SA's Export Sales Manager, Joseph Kumwimba, who was instrumental in securing the order, explains that he has been working with the cement producer on this project since 2015 when he did his very first presentation. "An opportunity then arose to introduce the same system to the cement producer's Senegalese company and my proposal was accepted. This gave us a foot in the door to approach the Nigerian counterpart who happened to invite me to site for assistance with lubrication. I noticed that the customer did not have any kind of protection against fire on their large mobile fleet, resulting in costly machine damages and losses as a result of fires. In addition to unwanted downtime, the customer faced high repair and replacement bills."

Kumwimba decided to point out the importance of having a fire suppression solution on their mobile machines and the

associated cost and time saving benefits. SKF Nigeria and Lincoln Lubrication SA proposed the Muster II AFS system and recognising the unquestionable value add, the customer did not hesitate in placing an order to equip 51 mobile machines on the cement plant with the AFS system.

Kumwimba describes the Muster II AFS system as "a one a kind and one of the best in the AFFF (Aqueous Film Forming Foam) fire system category." The system boasts a host of features including a 24/7 integrity (sensing cylinder actuator) monitoring system and a data download capability (system diagnostic) which are fully monitored by an alarm panel. The system has an independent power source and uses state-of-the-art transducers. Featuring a fast manual and automated actuation point in case of fire, Muster II is also designed to reduce false discharge and alarm. All components are manufactured from high quality stainless steel to ensure robustness, reliability and long life span.

Kumwimba explains that the particular system that will be installed on the plant equipment will make use of a LOP (Loss of Pressure) sensor; the system updates the Alarm Panel with information every second. Tubing is strategically positioned above the areas identified in the risk assessment. When the pressurised tubing is exposed to fire, the rapid elevation in temperature causes the material to plasticise and rupture.

The resulting sudden release of pressure to the actuation circuit then acts to open the actuation valve to release the foam mix. The pressure drop in the system sets off the fire alarm. After deployment, the cylinder must be refilled with water and 2% foam and then pressurised, ready to get back to work as soon as possible to keep machine downtime to an absolute minimum. Kumwimba adds that the water and foam quantities are dependent on the size of the cylinder which varies between the different types of mobile machines.

Kumwimba confirms that all 51 Muster II systems have already been shipped to Nigeria and are expected to reach site soon. "We are preparing a team of three senior technicians who will carry out the installation which is expected to commence before the end of March 2021."

Once installation is complete, Lincoln Lubrication specialists will provide training to the cement company's team on day-to-day maintenance procedures and practices over the first year. "We will also be conducting annual site visits," adds Kumwimba.

Kumwimba says that although most countries are not under strict Covid-19 lockdown measures, the African Expert team is finding that freedom of movement is hampered. "We are currently relying on various distributor networks in different countries to assist us with visits to end-users where travel is

restricted."

Wrapping up, Kumwimba says, "The fact that this project took six years to come to fruition bears testament to the fact that our type of industry presents numerous challenges. It requires a lot of time and patience, perseverance, consistency, regular customer visits, mental toughness and most importantly, a very purpose-driven personality, especially when it comes to the African market where trust needs to be earned!"



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Machine learning-based predictive maintenance changes the game

SKF's AutoML-based offering combines machine process data with vibration and temperature data to reduce costs and enable new business models.

Automated Machine Learning, AutoML, is enabling a completely new way for machine and factory operators to approach performance and machine output. At the center of this development is the combined expertise resulting from SKF and an Israeli start-up which was acquired by the Swedish bearing manufacturer in 2019.



Eitan Vesely,
SKF AI Offering Manager

Automated Machine Learning (AutoML) applies pretrained Machine Learning algorithms to real-time process data to identify anomalous patterns and warn technicians of evolving asset failure. AI is responsible for choosing which machine learning models are applied and maintaining these models over time while they run in production. This capability enables quicker modelling and higher accuracy.

Eitan Vesely, SKF AI Offering Manager, says: "What's really exciting about this development is that we are able to combine asset vibration data with temperature and other types of process data generated by the asset. Essentially, 2+2=5 in terms of extrapolating value from the combined data set and what it means in terms of actionable insights."

"For customers, this means earlier failure alerts and insights that provide maintenance technicians with the time and information they need to plan maintenance and establish a diagnosis, before a machine breaks down."

AutoML supports new business models. On its own, AutoML-based predictive maintenance is a powerful tool for anticipating failure and gaining a thorough understanding of asset health at the sensor, asset and plant levels. What it means in terms of business models is something altogether different. The AutoML solution from SKF - SKF Enlight AI - enables the implementation of outcome-based business models, where customers pay a fixed fee for a combined offer from SKF. This can include bearings, sensors, lubrication, seals and remanufacturing.

With SKF Enlight AI in place, and the decision-making knowledge it creates, the customer and SKF can work together to improve the performance of the machine, both from an output and sustainability point of view.

"With the knowledge and understanding of a machine's performance that AutoML enables, we can work with the customer to plan maintenance and optimize inventories of spare parts in a completely new way. Simply put, avoiding unplanned downtime is a significant gain for everyone involved," explains Vesely.

SKF Enlight AI in action: A pulp and paper use case

A major pulp and paper company in Latin America wanted to pilot the SKF Enlight AI solution on a set of critical assets: motor pumps operating the pre-bleaching system, crucial machines for the entire production process.

Due to recurring unexpected failures, the pumps were becoming a production bottleneck, causing annual losses of hundreds of thousands of dollars. The interdependencies between the pumps forced the entire pre-bleaching system offline every time a pump failed.

The mill urgently needed to reduce unscheduled downtime of the pumps and their growing impact on annual downtime costs. To this end, the mill wanted to receive early failure predictions in an easy-to-use interface and attain greater visibility into asset process data.

Typically, AI applies pretrained Machine Learning algorithms to real-time sensor data to identify evolving asset failure. In this case, the customer wanted to evaluate the solution's effectiveness by testing it out on process data from existing failures.

Two pump failures were used to assess SKF Enlight AI's capabilities. The first pump, Pump A, had an oil leak detected during a visual inspection on 26 December. The leak was determined non-critical and a planned shutdown was scheduled for the end of January. Operational losses for this planned shutdown amounted to \$150,000.

Pump B failed unexpectedly on 31 December, two days after vibration analysis had first detected an evolving fault. Root cause analysis revealed that a bearing failure was responsible for the shutdown. In total, the operational cost

of Pump B's unscheduled downtime was \$250,000.

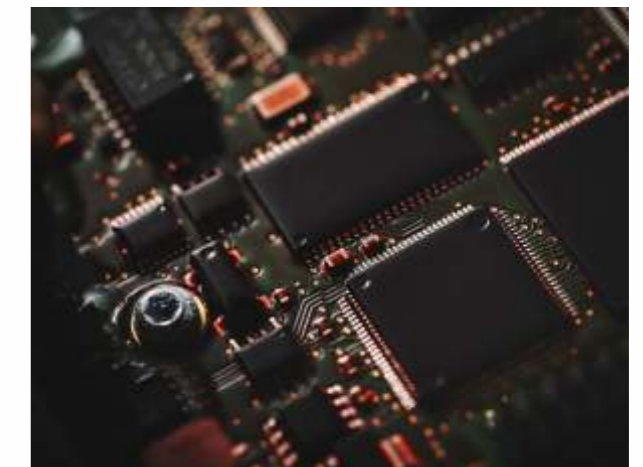
These failures dramatically increased maintenance costs and disrupted routine work orders over the course of several weeks. However, SKF Enlight AI proved that this situation could have been alleviated using machine learning-based predictive maintenance.

SKF Enlight AI detected anomalous asset behavior in the historical data of both pumps from mid-December. Based on the time to failure estimations provided for each pump, maintenance could have scheduled the planned maintenance for Pump A for an earlier date, before the estimated failure of Pump B. This would have left sufficient time to schedule the necessary resources and spare parts and execute a planned shutdown at the end of December to fix problems in both pumps.

In this way the total loss, which was about \$400,000, would have been only \$150,000, the smaller value of the two shutdowns. In the best-case scenario, the potential savings would have been \$250,000.

Eitan Vesely explains: "During this evaluation process, both vibration and process data were analyzed, and the conclusion was clear: using both data sources, more failures were predicted than if only one data source would have been used."

"Based on the value demonstrated in this pilot project we are now in process to roll out the solution across hundreds of assets in three different plants".



New SKF Lincoln grease injector raises productivity in harsh applications



The latest addition to SKF's single-line lubricant injector range contributes to increased productivity in tough applications. The new SKF Lincoln SL-6 injector has been designed for ease of use and maintenance in mind, with outstanding leak protection and service life, even with harsh EP (extreme pressure) greases. The SL-6 can easily be retrofitted to existing single-line pump systems.

SKF Product Manager Jordan Butler explains: "With higher demands on productivity, less time for maintenance and low tolerance for unplanned stops, lubrication performance is an important key to machine performance. Reliable lubrication solutions are a must to get the uptime you have invested in."

Innovations in the SL-6 are focused on supporting the harsh environments for which it is designed, including in dump trucks, excavators, and other mining and construction equipment.



Quick maintenance features include a highly visible red indicator pin, an adjusting screw requiring only basic tools, and a hex-shaped body which maximizes working space, making it easy to handle and work with.

For optimally effective lubrication, its vent speed is faster than that of any competitor. This is aided by a daisy-chain effect: as soon as each injector finishes venting, it helps the next one to complete its cycle by consuming grease from the main line.

Improved sealing reduces the risk of lubricant bypass. In the unlikely event of a failure, the injector's closed structure channels bypass lubricant to the bearing. Repair is then possible by simply replacing two components.

Jordan Butler describes the benefits of automatic lubrication: "Lubricating manually takes extra time, requires the machine to be stopped, and tends to swing between wasteful initial over-greasing and, over time, damagingly low lubrication."

"The SL-6 injector and SKF Lincoln lubrication system help customers to take a giant step toward increased productivity. With less maintenance, less time spent on manual greasing, reduced grease consumption and longer component life, customers will soon see a return on their investment."



These images are an artist's impression



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