

2020

PROFILE



MechChem
CROWN
PUBLICATIONS
AFRICA

Published by Crown Publications

INFORMING AFRICAN MANAGERS ON INTEGRATED ENGINEERING SOLUTIONS

02

MechChem Africa
PROFILE



MECHCHEM AFRICA: INTEGRATED, TECHNICAL, SMART AND CONNECTED

MechChem Africa sets out to support African industry in all issues informative and interesting to professionals across the full spectrum of engineering, chemical and mechanical trades.

- *MechChem Africa* adopts an integrated approach to technology solutions, with its content enriched by deliberately seeking out and unpacking technical areas of mechanical and chemical interest.
- Industry-focused, *MechChem Africa* promotes responsible engineering and highlights opportunities for African companies to become more internationally competitive. We promote and value: good design, decision-making and procurement practices; appropriate solutions at lowest lifecycle costs; energy and production efficiency optimisation; environmental responsibility; sustainable development; and smart, modern and innovative technologies and business practices.
- *MechChem Africa* remains a member of the ABC with a print circulation, based on combining the databases of its predecessors, of 5 057 printed and posted copies.
- *MechChem Africa* adopts a publishing service approach to digital content, through which we offer multiple digital platforms for the dissemination of rich and original content. These include: website and online publishing services; targeted distribution via enewsletters; social media – Twitter and LinkedIn publication – and we aim to make articles available in multiple formats – HTML, pdf or any other reusable format.

10 REASONS TO ADVERTISE IN MECHCHEM AFRICA

- 1 Specialists in technical communication and unafraid of writing technical articles
- 2 Understanding of engineering and engineers
- 3 High percentage of original content
- 4 Multi-disciplinary content spectrum
- 5 Ability to unpack subtle and complex product differentiators
- 6 Proud supporters of localisation
- 7 Advocates of high quality standards
- 8 Passion for unravelling integrated systems
- 9 Promoters of efficiency improvements and lowest TCOs/LCCs
- 10 Value sustainability and environmental responsibility

FREQUENCY

Every month, *MechChem Africa* is mailed to 3 000 subscribers all over South Africa.

CERTIFIED CIRCULATION FIGURES



Second quarter 2019 – Total circulation 5 057

ENDORSEMENTS

MechChem Africa is endorsed by:

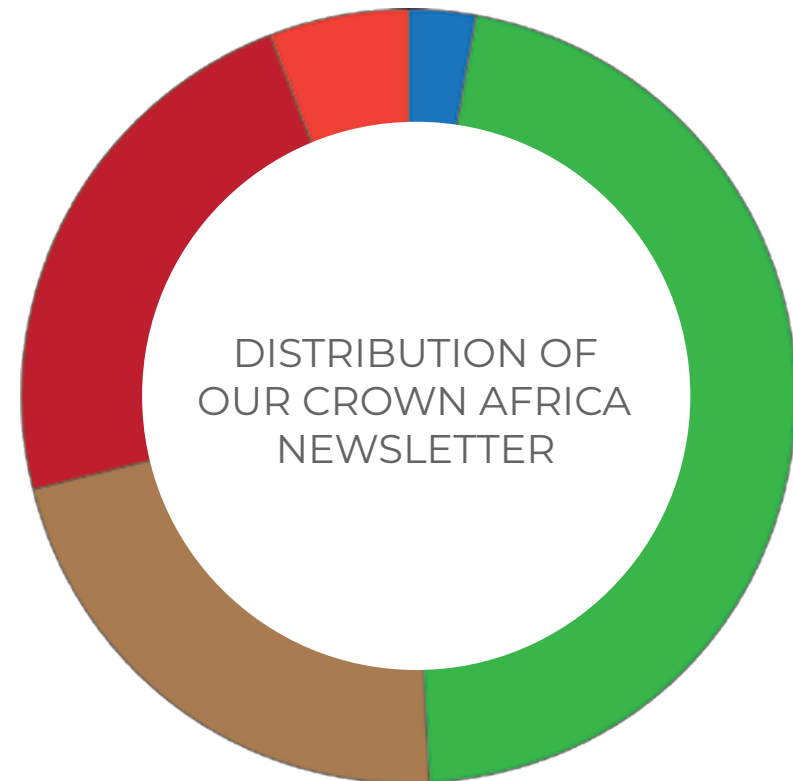


PRINT READERSHIP

Print readership profile of <i>MechChem Africa</i> based on 5 410 distributed copies	
Industry sector	Percent %
Chemical and mechanical engineers in industry	23.34
SAIChE IChemE, chemical and petrochemical processing	16.79
Associations and training centres	5.78
Product distributors	13.28
Welding and fabrication	10.20
Mining, metallurgy and cement	6.35
Corporate communication	7.41
Municipalities and local government	8.03
Food, beverage and pharmaceuticals	1.84
Water, wastewater and pollution management	2.70
Engineering consultants, designers and contractors	1.73
Power generation	2.54
Totals	100 %

AFRICA READERSHIP

Every month we email a growing number of PDF replicas into Africa (currently 945). This counts towards our audited circulation.



04

MechChem Africa PROFILE

Online magazine

The online replica of *MechChem Africa* is available on the Crown Publications website www.crown.co.za or directly at www.mechchemafricamagazine.co.za. The online version of *MechChem Africa* is read by national and international subscribers who do not receive the printed version of the magazine, by subscribers who can't wait for the magazine to arrive or those who want to find particular articles in past issues. Online readers can easily access back issues and, using the search facility, find past articles. For advertisers, hyperlinks to company websites offer a further benefit.

Newsletter



All stories click through to
www.mechchemafricamagazine.co.za

Published on multiple platforms



2020 QUARTERLY FEATURES

MechChem Africa covers a very broad range of technical topics and fields. To cater for this diversity, mechanical and chemical engineering topics are clustered into three groups of features, effectively dividing the magazine into three quarterlies, each with its own distinctive flavour. The features and their clustering are outlined below:

January, April, July and October

Power transmission

We interpret power transmission in the wider sense to include the prime movers such as engines, electric and hydraulic motors; as well as gearboxes, geared motors and reducers. We also see variable speed or variable frequency motor drives (VSDs and VFDs) as integral components of modern transmission systems. Bearings remain the most critical rotating shaft component, along with other drive train essentials, such as hubs, bushes, couplings (including fluid couplings), universal joints and taper locks. Sealing solutions, lubrication systems and contamination control solutions are also covered.

Computer-aided engineering

IT now embraces almost every aspect of engineering, including: solid and 3D modelling, digital or virtual prototyping, engineering analysis, digital simulation, finite element analysis (FEA) and computational flow dynamics (CFD); chemical process flow simulation; pipe and piping design; computer-aided manufacturing (CAM), injection mould design, rapid prototyping, numerical control (NC) simulation and verification; case studies in engineering, design for manufacturing; EPC-tools, plant and product lifecycle management (PLM) and product data management; IT tools for energy efficiency and proactive maintenance also feature.

Minerals processing and materials

From a chemical perspective, this feature will focus on the minerals processing techniques associated with beneficiating raw materials: chemical manufacturing and treatment processes; mill circuit processing and treatment,

separation, flotation and leaching baths, electrowinning/electroextraction, etc. Metallurgy, foundry processing and steelmaking, polymer processing and applications and future material trends are covered; as are plastics, rubber and composites; polymeric materials, coatings, chemicals, nylons, fabrics, printing, purification, separation, fibre reinforcing, fibre glassing, material properties and coatings.

Automation, process control and instrumentation

Instrumentation and process monitoring and control of mass flow, pressure, temperature, composition and more, are critical for the reactions employed at chemical process plants and laboratories. The reliability and control precision govern the operational efficiency of the plant or process. With the rise of Industry 4.0, this feature aims to promote appropriate automation for productivity and quality improvements via the use of robotics and custom-designed automation systems. The feature also embraces the integrated nature of mechanical systems with electronics and IT-based sensing and control systems.

Hydraulic and pneumatic systems

This feature supports companies that specialise in developing systems and manufacturing, supplying and supporting hydraulic and pneumatic equipment for applications such as automating the water industry (via valve actuators); industrial presses; mobile equipment; hydraulic drives and motors; and pneumatic handling systems. Hydraulic pumps, motors and actuators, valves and control systems, manifold blocks as well as oil and oil-free air compressors, pneumatic motors and actuators, valves and pneumatic control systems, dehumidification and cooling are featured.

February, May, August and November

Maintenance and asset management

There is an increasing drive towards maximising productivity from equipment, extending its life and minimising energy use. The end goal is the lowest possible lifecycle costing. To achieve this, however, improved maintenance



and asset management practices are imperative, from equipment design and commissioning to end-of-life decommissioning. This feature highlights this increasingly important field. Topics include: modern maintenance; reliability engineering; condition monitoring and asset management; lubrication and contamination management; tribology, lubricants, lubrication systems, industrial oil solutions and oil quality; quality management and monitoring; corrosion/thickness testing; remote diagnostics; environmental management systems; and inspection skills training.

Materials handling

With mining dominating business across Africa, the mining industry is the end customer for many engineering companies and original equipment manufacturers. This feature focuses on the equipment and solutions for handling bulk materials as well as for screening, lining, conveying, sorting and separating. Some topics covered include: bulk materials handling equipment (stackers, reclaimers, train and ship loaders and unloaders); belt conveyor systems and apron feeders; crushers and screens; sampling and weighing solutions; pneumatic conveying; overhead gantries; earthmoving equipment, wheeled and tracked loaders. Factory, warehouse and logistics handling solutions are also included.

Corrosion control and coatings

Appropriate corrosion control leads to better reliability and longer life, protecting metal components from degradation because of moisture, salt spray, oxidation or exposure to a variety of environmental or industrial chemicals. This feature deals with the anti-corrosion coatings that act as barriers between attacking agents and structural materials and the treatment and corrosion protection techniques employed to minimise corrosion damage.

Heating, cooling, ventilation and air conditioning (HVAC)

Combined, HVAC comprises some of the world's most energy-intensive applications. This feature focuses on future energy-efficient solutions that reduce the cost and reliability of heating, cooling and ventilation technologies.

Increasingly, this also includes renewable solutions such as concentrating solar power, combined cooling and heating (CCH) and tri-generation (CCHP).

Water and wastewater solutions

As a consequence of the global warming debate, water is now being indentified as a scarce resource. In South Africa, acid mine drainage (AMD) problems as well as acid rain contamination of water resources are ongoing problems. This feature aims to highlight the technical solutions available for water and wastewater treatment for both municipal supplies and industrial wastewater. Water purification systems, testing and monitoring solutions, recycling and conservation are also highlighted.

March, June, September and December

Pump systems, pipes, valves and seals

Pumping systems are intensive energy consumers and the modern trend is to optimise pumping efficiency in every way possible. Mining, slurry and dewatering pumps dominate the industry, but water and wastewater are also becoming critically important. From the chemical perspective, safe pumps are a vital component of all chemical, petrochemical, chemical and food-grade transfer systems and these all require fit-for-purpose materials, coatings liners and seals.

Chemical, petrochemical, oil and gas

With the development of synthetic fuel production processes such as Sasol Synfuels' CTL coal liquefaction process, the petrochemical industry has become a flagship industry in South Africa. Oil and gas finds in both East and West Africa and shale gas exploration in the Karoo are likely to lead to significant growth of the industry. Biofuel production facilities and waste-to-gas plants are also emerging to reduce our dependence on non-renewable energy sources. As well as dealing with the technologies for distilling, refining and blending different fuels, this feature will look at the extended chemical and petrochemical industry offering, including plastics, fertilisers, lubricating oils and waxes.



MechChem Africa

PROFILE

Power generation, sustainable energy and energy management

Fear of global warming is driving the energy sector towards increased efficiency, lower emissions and more cost-effective renewable solutions. These are all associated with more complex and interesting technologies. *MechChem Africa* supports the drive towards cleaner technologies, but understands that these must remain cost-effective and sustainable in the long term. This feature deals with: demand side management (DSM), reducing peak demand, load-shaping and demand side efficiency, distributed energy generation, net metering and feed-in technologies; efficient and renewable power generation, coal-fired and nuclear power stations, steam and gas turbines, generator technology, power plant automation systems, concentrated solar power, photovoltaic systems, wind turbines, sterling engines, hybrid systems, fuel cell technology, diesel generators and alternative fuel.

Environmental management and cleaning technologies

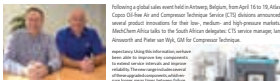
Disposing of waste in a way that does not impact on the environment

is an imperative for the planet and a legal requirement for industry. Recycling of waste streams has also now moved from being a chore to an income-generating opportunity. This feature aims to promote technologies and best practice waste management solutions: pollution control, emissions scrubbing; treatment and disposal of effluents; sorting, shredding and recycling solid waste; and waste-to-fuel services and plant.

Local manufacturing and food processing

High quality manufacturing machinery and processes are essential for any African country, including South Africa, wanting to be globally competitive, which is key to economic growth and prosperity. This feature focuses on successful manufacturing solutions and experiences with a view to fostering localisation. Topics covered include: process control equipment and monitoring, plant software and sensors, production management and plant efficiency, local manufacturing success stories and processes, NC-machines, lathes, milling machines, boring machines, bending, forming, pressing, stamping and cutting processes and machinery, plasma and laser cutting equipment and joining techniques.

Smart Air Solutions and 12 innovations

[illegible]

comparisons are needed instead. The 3000 series engine is designed to be a "modular" engine, meaning it can be configured to produce the number of horsepower needed for a particular application. The 3000 series engine can be configured to produce 100 to 150 horsepower, which is the range of power needed for most construction applications. The 3000 series engine is designed to be a "modular" engine, meaning it can be configured to produce the number of horsepower needed for a particular application. The 3000 series engine can be configured to produce 100 to 150 horsepower, which is the range of power needed for most construction applications.

[illegible][illegible][illegible]

Vibrating equipment and the development mindset

MechChem Africa visits the Spartan facilities of Kvaerner and talks to COO, Kenny Mayhew-Ridgers, about the company's industrial offering, the research and development mindset and some key aspects of vibrating product design.

[illegible][illegible][illegible][illegible]

Products and industry news | **VACFOX VC vacuum pump range**



A new version of the KIMOVC 30240 fixed-mount vacuum pump from Elm-Seitz.

Oil-lubricated rotary vane vacuum pumps, designed and built by Elm-Seitz in Germany, are used in a wide variety of industrial applications. Elm-Seitz offers the largest range of oil-flooded vacuum pumps for industrial vacuum operation.

The KIMOVC 30240 is one of three different designs with varying bearing ranges with rotary vanes using flexible vanes, pumps with rotary vanes, flexible coupling cylinders for improved.

The KIMOVC 30240 is a fixed-mount version, all of which are for high ambient, under load services. The design is suitable for long separation operation in all work.

During service, the oil

LED mobile tower lights available in

[illegible]

be changed quickly into the maintenance cover, which is located by a 50 mm ring. For sizes 100-1500, driven from the outside with a clamping fitting.

All pumps from 300m³/h up to 1000m³/h are gas ballast rated as standard. This optimizes the water vapor temperature and when the pumps operate. Its operating temperature, air and water vapor passes through at gas, without condensing.

Standard features of the WMOCK VC range include: vases made from special alloy for long service life; oil separators with permanent oil-air-ventilation; gas ballast; vases from VC 300 to 1500 m³/h and up to 40 m/s; filters with bypass; being ISO 9001:2000 VC 300 to VC 3000.

At W. Muecke Technologies is an appointed distributor for the entire Europe. Kärcher range of products and spare parts.

www.muecketechnik.de



Integrated Pump System from industrial division of EPC mobile power lights in the control room.

assembly are integrated into a maintenance-free axle and suspension.

The Urban MLE2202X-MAC is equipped with a X-Element, a shock absorber, maximum support for reaching the work area to provide optimum productivity and safety. The 20" air seat rotation with lighter 100 capacity is included. Powered by a Perkins engine, the 242 V at 1500 light delivers 220,000 lumens through four powerful 500 W LED lamps.

The unit is equipped with four adjustable outriggers, facilitating optimum stability in all working conditions.

The inclusion of the Urban lower light system installed in a natural progression and is aimed at addressing customer needs, "low-ups", adding that they are also available for purchase.

www.pompaolite.es

Innovative DGA monitors enter SA market

[illegible]

The measurement of dissolved gases in the transformer oil. Moisture content is directly measured in the oil through a moisture sensor.

The High-voltage rated single DGA modules are designed with low mechanical parts for maximum operability and it virtually maintenance free with no such calibration required. It also quickly and easily installed on the transformer with only

transformer dipping, which is protected from the elements and has communications from PROFIBUS-DP, RS-485 or CAN BUS to facilitate remote access. This is enabled via dedicated modules connected directly to SCADA systems, or one of our electronic distributed data view smartphone, notebook or tablet, to also provide remote access.

www.sensormonitorsolutions.com

Partnership for industrialisation of fibre optic sensing systems

DGC and Sensormonitors AG, a technology leader in fibre optic sensing systems, have entered into a partnership to develop and commercialise innovative solutions for the industrial sector.

The two parties will work together to combine 350-nm ultra-violet laser lighting technology with Phenix's application integration experience and knowledge for the development and production of advanced fibre optic sensors and data collection hardware units.

William King, CEO of CTO and president, innovation and business development, says, "Fibre-optic sensing technology is becoming an opportunity and a market

and we are pleased to have established a development partnership for the advancement of fibre optic sensing technology."





Products and industry news | HART 7 temperature

transmitter launched

The T22 all-in-one transmitter from HOKIT is now also available in a version which communicates via the new NMEA-2 protocol.

Its new functions include an extended measuring point description (Long Tag), while all the features included in the standard T22 all-instrument remain unchanged.

TGV Rheinland has once more certified the T22 all-in-one for compliance with safety applications up to 10 kV. Due to its compatibility with almost all open-source and hardware tools, the transmitter can be used universally.

This universal instrument, which has more than one million uses and has already been delivered, is also still available in its previous version with NMEA S.

www.hokit.de



The T22 of temperature transmitter with the use

meanings to become precise, and quality control instruments. We have worked for more than five decades to develop three sensors and to taking the world's largest data sets and reduce it to speed up the process of integrating these into customer applications."

Flow-optic technology allows for real-time integration into existing learning production environments, collaboration with other technologies and applications allowing manufacturing to be more sustainable for the safe handling of electronics.

www.dflow.com



EDITORIAL MANAGER:

Phila Mzamo

Tel: +27 (0) 11 622 4770

Cell: +27 (0) 81 840 3663

Email: philam@crowns.co.za

EDITORIAL CONSULTANT:

Peter Middleton

Tel: +27 (0) 11 622 4770

Cell: +27 (0) 84 567 2070

Email: peterm@crowns.co.za

ADVERTISING MANAGER:

Brenda Karathanasis

Tel: +27 (0) 11 622 4770

Cell: +27 (0) 83 740 0617

Email: brendak@crowns.co.za



African Fusion Capital Equipment News Construction World Electricity + Control
Lighting in Design MechChem Africa Modern Mining Modern Quarrying Sparks Electrical News

Informing industry across Africa

Crown Publications (Pty) Ltd, 2 Theunis Street, Bedfordview
PO Box 140, Bedfordview, 2008
www.crown.co.za