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Acquisition strengthens long term partnership



Celebrating the acquisition by Bearing Man Group (BMG) of Hansen Transmissions South Africa from Hansen Industrial Transmissions (HIT), part of the Sumitomo Group, part of Invicta Holdings Limited, are: Fritz Fourie (managing director, Hansen Transmissions); Gavin Pelsler (managing director: engineering, BMG); Charles Walters (CEO Invicta Holdings Limited); Byron Nichles (CEO, BMG); and Shaun Dean (CEO, Hansen Industrial Transmissions). This strategic acquisition – effective 30 September 2015 – has been approved by the South African Competition Commission. HIT SA, which assembles and distributes Sumitomo and Hansen-branded industrial gearboxes throughout Southern Africa, now forms part of BMG's electromechanical division. Through this acquisition, BMG broadens its mechanical drives range and strengthens its long term partnership with Sumitomo as the exclusive distributor locally of Sumitomo speed

reducers. "With the combination of HIT SA's established position in industry and BMG's technical engineering solutions service and extensive distribution reach, the Group is set to significantly extend its market share across Africa," says Mark Barbour, business unit manager : Electromechanical Division, BMG – Bearing Man Group.

In this issue:



DoL welcomes growth of AIAs to ensure compliance

THE Department of Labour "welcomes" the growth of Approved Inspection Authorities in the electrical industry as this means that more users of electrical installations will have access to the services provided by AIAs, says Pieter Laubscher, deputy director for Electrical Engineering Directorate Electrical and Mechanical Engineering in Pretoria.

"This will also allow our inspectors to focus more on those registered persons who do not ensure that electrical installations comply with the minimum requirements when they are issuing Certificates of Compliance as well as those persons who are operating illegally," says Laubscher, adding that DoL is still receiving complaints about users employing unregistered persons and unregistered electrical contractors.

There are currently only three registered AIAs in South Africa: RBI Technical Solutions in Durban (approved for single phase, three phase and specialised installations); Dricon Electrical Solutions in Gauteng (approved only for single- and three-phase); and Electrical Approved Inspection Authority Southern Africa (EAIASA) in Cape Town (approved for single phase, three phase and specialised installations).

The Cape-based EAIASA – which was formed after the founder and owner of the Western Cape Electrical Inspection Authority, Pieter Smuts, passed away in 2014 – is now owned and run by Mel Wilms, Max Koen, Nick du Plessis and Mark Palmer. This office currently serves the Western and Eastern Cape.

"The EAIASA has begun the process of opening offices across South Africa to apply consistent and fair enforcement of regulations within this country's electrical industry", says Mark Palmer.

Continued on page 3

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Personality of the Month

If you always do what you always did, you will always get what you always got



Warwick Webber.

WARWICK Webber is the newly appointed technical director and head of Aurora, South Africa. He thrives on pushing himself to the limit – whether it's working live or riding his mountain bike in extreme conditions – and he gets immense satisfaction from each challenge that he successfully overcomes.

A good part of his success is due to the ingrained ethics and integrity of his 'old school' background coupled with his fierce will to succeed.

Sparks: Where were you educated?

WW: I attended high school at King Edward VII School (KES) in Johannesburg and, when I left school, I started an apprenticeship through Webber's Electrical Contractors under the guidance of my father, Malcolm Webber. Working under your father can be rather

challenging but, in retrospect, the pressure he applied was to ensure an effective transfer of the 'old school' ideas and ethics. While doing my apprenticeship, I studied at Johannesburg Technical College and did practical courses through the Electrical Contractors' Association (ECA).

I received my wireman's license in 1995. In 2003 I did a Management Advancement Programme at Wits Business School and recently, I completed my specialised installation papers through 'self study'.

Sparks: How long have you been involved in the electrical industry?

WW: Officially, I have been in this industry for 22 years but, when I started my apprenticeship in 1993, I had already been involved in the family business for a number of years while I was still at school.

Sparks: When and where did you start your career?

WW: I always knew I would go into the family business so it just made sense to start my career at Webber's Electrical Contractors.

Sparks: What are the greatest changes you have seen over the years?

WW: I would say that the way in which this industry does business has changed significantly over the years. There seems today to be less trust put into qualified people and more trust put into the bottom line.

Sparks: What major projects have you worked on and what is your greatest accomplishment?

WW: I have been fortunate to work with many talented people and consultants. I have been involved in projects where we have had to change-out main low voltage distribution boards in buildings where the power supply is so critical that you can't turn off the power while working. Each time one of these

projects is successfully concluded, it's a great sense of accomplishment as the planning is intense and attention to detail is key.

My greatest accomplishment has most definitely been my children, Rhys and Hannah **Sparks:** Have you won any awards?

WW: I won the Fritz Leemans Memorial award for apprentice of the year in 1993. I was also involved with Aurora Lighting and Growthpoint Properties on a project where the largest single lighting retrofit rollout was undertaken in South Africa.

The project, which won the LUX awards 2014 International Project of the Year, used various technologies including LED, fluorescent and metal halide in order to reduce electrical load on the Eskom grid. A total of 100 500 light fittings in 157 separate buildings were retrofitted in 10 months and the project realised a total saving on the grid of 5.509 MW.

Sparks: Who has been your inspiration or have you had a mentor who has influenced your career?

WW: My father, Malcolm Webber. I could not have asked for better training and mentoring. Today, it's too easy to take short cuts and he taught me the importance of doing things properly and the value of ethics and integrity.

Sparks: What, to your mind, is one of the biggest challenges facing the industry at this time?

WW: LED technologies are advancing rapidly and the industry must keep up-to-date in order to make informed decisions within the lighting space.

Sparks: What do you enjoy most about your job?

WW: I have had insight into the future of LED lighting and the technology that will control it and find that very exciting. I also enjoy the challenge that problem solving creates: being

faced with a problem that doesn't seem to have a solution but, through discussion and planning, a workable solution is found and implemented.

Sparks: How do you motivate your staff?

WW: I do not manage with an iron fist. While there are times when a hierarchal structure is required, I prefer to work alongside my staff where each project or challenge is a collaboration and not an instruction.

Sparks: If you could 'do it all again', would you change anything? If so, what would that be?

WW: I think there are always things that you would like to change. Mostly, I am happy with my life and wouldn't change much.

Sparks: Would you advise a person leaving school to enter the electrical industry? And why?

WW: Yes, I would. The reality that countries are running out of enough power generation to supply the demand means that the future in this space holds tremendous possibilities.

Sparks: What is your advice to electrical contractors and/or electrical engineers?

WW: Contractors and consultants need to educate themselves with what to look out for within the LED space and look at the opportunities the new GOOEE technology will bring.

Sparks: What is your favourite quote?

WW: "If you always do what you always did, you will always get what you always got." – Henry Ford.

Sparks: Name three things on your 'bucket list' (things you want to do before you 'kick the bucket')

WW: I would like to see as many different countries as possible; experience the Northern Lights; and ride the joBerg 2c (900 km of 'proper' mountain biking across four provinces of South Africa).

Continued from page 1

DoL welcomes growth of AIAs to ensure compliance

"The DoL's role in the enforcement of electrical standards as well as the process of implementing Accredited Inspection Authority offices nationally was discussed recently with DoL directors Jakes Malatse and Pieter Laubscher," says Palmer, adding that DoL has given assurances that the Electrical Installation Regulations will be enforced. "We have already seen evidence of this from DoL inspectors in the Western Cape," says Palmer.

"The management of EAIASA's vision is to ensure that the AIA inspectorate – as envisaged by the Electrical Installation Regulations – is available to all consumers exposed to illegal or non-compliant electrical work."

Palmer stresses that the EAIASA's role is to ensure good electrical practice and says that legitimate, duly registered electrical contractors should not perceive the AIAs as punitive organisations.

He says that AIAs are the only mechanism that currently exists that has the means to 'level the playing field'.

"As was the case in years gone by with the municipal inspectorate, the EAIASA seeks to gain the respect of legitimate contractors by applying consistent and fair enforcement of legislation, ensuring that continuous offenders are sanctioned, and that unregistered electrical contractors are policed effectively."

Palmer says that the EAIASA has been accredited by the South African National Accreditation System (SANAS) as a consumer organisation to ensure good legal practice.

"The AIAs are not going to go away," cautions Palmer.

He adds that the AIA process document will be published on the DoL website in the near future and this will provide electrical contractors with information detailing the procedures that will be

followed should a complaint be laid against them.

Gauteng and Mpumalanga

Palmer reveals that the roll-out of AIAs in Gauteng has already been completed. "The EAIASA has incorporated the inspection services of the Gauteng Electrical Inspection Authority (GEIA) – a former DoL approved AIA – to cover the whole of Gauteng and parts of Mpumalanga bordering on Gauteng (Witbank and Middelburg)."

Free State and KwaZulu-Natal

The expansion into the Free State will be completed by November and initially will be based in Sasolburg. "This office will service the Vaal Triangle and it is anticipated that the inspectorate will extend into Bloemfontein at the beginning of 2016 as soon as we have streamlined operational services," explains Palmer.

It is anticipated that a Durban office to cover KwaZulu-Natal will be opened early in 2016 and inspectorates for North West Province and Limpopo will be operational by mid- to end-2016.

Networking expo

TECH University Innovators Expo, a one-day networking event to be held in in KwaZulu-Natal (19 November) W. Cape (24 November) and Gauteng (1 December) is a beneficial platform for anyone in IT and electrical or mechanical engineering. Companies, individuals and parents attending the event will see 200 student presentations in action, find out about innovative inventions and be able to network with industry specialists. Tickets available on www.techexpo-africa.com

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Working knowledge by Terry McKenzie-Hoy

Power line associated fires – call an electrical engineer and save on legal fees

EVERY year, there are at least ten legal cases involving Eskom – or local municipalities – brought about by farmers, claiming that their lands have been destroyed by fires, which they say were caused by nearby power lines.

Sometimes, when a runaway fire has swept across a few farms, the farmers band together and chip in to employ the services of a fire expert and they collectively appoint an attorney to sue Eskom or the local municipality for damages.

The fire expert, who knows nothing about

electricity, nevertheless concludes that the fire was indeed caused by a nearby power line and writes a report substantiating the farmers' claim.

Then something like an old-time boxing match takes place.

The farmers' legal team comes out of its corner and delivers the first blow, and then the legal team acting for Eskom (or the municipality) defends the action.

And the case drags on because the farmers' legal team does not want to settle the matter until the maximum fees have been extracted

from its clients.

The legal team points out to the farmers that there is legislation- the Electricity Act – which contains this ominous clause:

Clause 25 – Liability of licensee for damage or injury

In any civil proceedings against a licensee arising out of damage or injury caused by induction or electrolysis or in any other manner by means of electricity generated, transmitted or distributed by a licensee, such damage or injury is deemed to have been caused by the negligence of the

licensee, unless there is credible evidence to the contrary.

Accordingly, the farmers' legal team tells its clients that they have every chance of winning the case because the 'licensee' – being the entity licensed to sell electricity (that is, Eskom or a municipality) – has to prove that it was not at fault.

However, if the licensee is a member of a fire protection association, then this is not true; a fact often only discovered by the farmers' legal team when the case is heard in court.

What is generally missed by all parties is the degree to which Eskom and the municipalities design power lines to prevent fires. The standard power line, rated at 11 000 V, generally has insulators that can withstand an impulse voltage of 95 kV so the line is unlikely to fail due to lightning.

Secondly, the licensee will routinely fit dropout fuses at the supply point. The fire experts believe these fuses are to protect against overload. In point of fact, they are there to protect against catastrophic failure of the transformer or the supply cable to the metering point.

Protection against leakage current is normally provided by a sensitive earth fault relay located in a distant substation, which has other backups. However, the primary protection against transformer overload is not supplied by the licensee – it is the circuit breaker supplying the consumer's load on the consumer's side of the meter. Further, the cable from the meter to the consumer's distribution board is the property of the consumer.

Of all the power line associated fires that I have investigated, only once has the fire been caused as a result of negligence by the licensee. The majority of the other fires fall into one of the following categories:

- (a) The consumer has bypassed the meter to connect a load (very often an irrigation system) to the cable from the supply transformer. Thus an overload condition is not detected by the consumer's circuit breaker and the cable from the transformer secondary cooks up, melts and causes a fire.
- (b) The fire starts due to an act of arson. The consumer, however, tells the licensee that "sparks fell from the power line and caused the fire".
- (c) Unknown persons attempt to steal the secondary cable from the transformer. They cut away the steel wire armouring and, using bolt cutters, cut a phase or neutral wire.

They will have previously stolen any copper earth wire. Since the load is still connected, the imbalance current flows to earth through the poles supporting the supply transformer.

Since this current is relatively low, nothing trips but, after some time, the pole catches alight due to internal heating.

As a matter of routine, Eskom and municipalities defend every claim made against them. Very often, their legal teams know less about electricity than the fire experts and, after a huge legal dustup, there is no settlement.

It is only the legal people who have benefited – considering that legal fees in these matters can cost municipalities as much as R800 000 a throw and the farmers' legal teams don't come cheap, either.

I would have thought that if you believed your *veld* had been set alight by an electrical fault, your first move would be to get the opinion of an electrical engineer who has power line experience.

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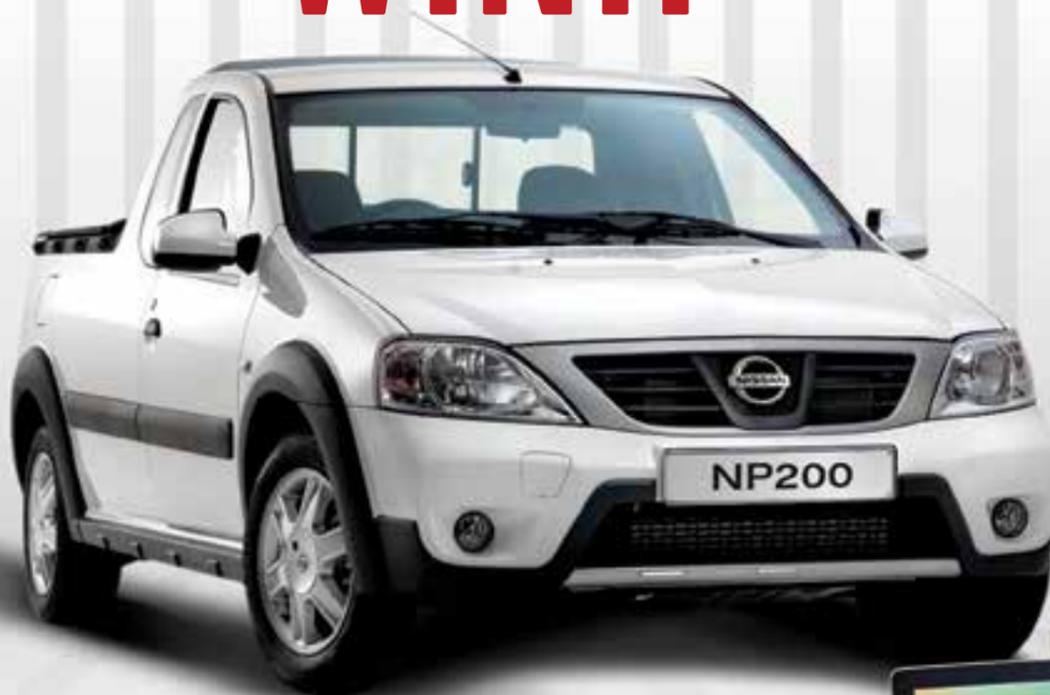
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Getting to grips with SANS 10142-1 by Hannes Baard

Incorporation of health and safety standards in regulations

YOU may well ask, what trucks, nightmares and totem poles have to do with legislation. Well ... they got us through the three previous instalments of this discussion on the Occupational Health and Safety Act (Act 85 of 1993) – not so?

You may remember I wrote that the minister may make regulations and I then roughly categorised the regulations. What is missing, though, is a reference to the fact that the Minister can also 'attach' South African Bureau of Standards' publications to these regulations.

In certain cases, even an international standard can be attached. What I mean by this is that, somewhere, someone has woken up and realised we are not always totally unique down here in South Africa and we form part of the bigger international community. This is reflected in, for example, SANS IEC 60335 – Safety of Household Appliances (for example, kettles, irons, stoves, and refrigerators) where IEC refers to the 'International Electrotechnical Commission'.

That said, we progress to this month's topic of the Occupational Health and Safety Act ...

Section 44 - Incorporation of health and safety standards in regulations

(1) The Minister may by notice in the Gazette incorporate in the regulations any health and safety standard or part thereof, without stating the text thereof, by mere reference to the number, title and year of issue of that health and safety standard or to any other particulars by which that health and safety standard is sufficiently identified.

One such standard is SANS 10142. In the past, there were many disputes as to the proper installation of electrical equipment, especially cables that operated at a higher voltage than 1 000 V. The reason for that was simple: anything above 1 000 V was regarded as 'Eskom territory'.

But lately SANS 10142 has evolved into a 'multi-voltage standard', namely SANS 10142-1 for installations below 1 000 V and SANS 10142-2 for voltages above 1 000 V. There is talk of a SANS 10142-3 for so called 'medium voltages', too.

(2) No health and safety standard shall be incorporated in the regulations except after consultation with the Council.

(3) Any health and safety standard incorporated in the regulations under Subsection (1) shall for the purposes of this Act, in so far as it is not repugnant to any regulation made under Section 43, be deemed to be a regulation, but not before the expiry of two months from the date of incorporation thereof.

(4) Whenever any health and safety standard is at any time after the incorporation thereof as aforesaid, amended or substituted by the competent authority, the notice incorporating that health and safety standard shall, unless otherwise stated therein, be deemed to refer to that health and safety standard as so amended or substituted, as the case may be.

(5) The Chief Inspector shall keep a register of particulars of every publication in which a health and safety standard incorporated in the regulations under subsection (1), and every amendment or substitution of any such health and safety standard, was published, and also of the place in the Republic where such publication is obtainable or otherwise available for inspection, and he shall make that register or an extract therefrom available free of charge to persons having an interest, for inspection.

The above subsection confirms that if you would like to know which standards have been incorporated, you are most welcome to contact the Chief Inspector at the Department of Labour who will gladly supply you with a complete list of all the incorporated standards.

(6) The provisions of Section 31 of the Standards Act, 1993 (Act No. 29 of 1993), shall not apply to any incorporation of a health and safety standard under this section.

(7) Any safety standard which was immediately prior to the commencement of this Act incorporated under Section 36 of the Machinery and Occupational Safety Act, 1983 (Act No. 6 of 1983), in the regulations made under that Act, shall be deemed to be a health and safety standard incorporated under this section.

Subsection (7) is very important, too. What this subsection says is that any standard that was incorporated into the Machinery and Occupational Safety Act of 1983 (Act 6 of 1983), fondly remembered by our 'Silver Club

members' as "the old MOS Act", still holds true.

Now, if you are called upon to 'please explain yourself', Section 45 is the section that contains the 'how to' instructions ...

45. Servicing of notices

Unless another method is prescribed, a notice under this Act shall be served -

(a) By delivering a copy thereof to the person upon whom it is to be served;

(b) By leaving such a copy at the usual or last known place of residence or business of such a person; or

(c) By sending such a copy by registered post to the usual or last known place of residence or business of such a person.

The above may sound simple enough, but believe me, that's not the case. Is it not ironic that the person or persons who really need to be hauled over the coals are the people who do not conform to the above when it comes to known places of abode and/or business?

Somehow, it always seems to be the 'soft target' that gets it in the neck - the guys with cell phone numbers that have been registered in their names since the early 90s and who have operated from the same neatly maintained, rented premises for the past 15 or more years ...

46. Jurisdiction of magistrates' courts

Notwithstanding anything to the contrary contained in any law -

(a) A magistrate's court shall have jurisdiction to impose any penalty or to make any order provided for in this Act;

(b) No magistrate's court shall be competent to pronounce upon the validity of any regulation made under this Act.

It is interesting to note that a magistrate's court cannot voice an opinion upon the validity of any of the regulations under the Occupational Health and Safety Act, yet it is required to rule on the compliance or non-compliance of the Act and Regulations.

47. State bound

This Act shall bind the State.

The interesting part of this one line Section is that, for many years in the past, Government entities such as the Railways and Harbours of yesteryear had their own sets of rules.

Now everyone has to comply with the Occupational Health and Safety Act.

48. Conflict of provisions

Insofar as any provision of the Explosives Act, 1956 (Act No. 26 of 1956), is repugnant to a provision of this Act the provisions of this Act shall apply.

Bear in mind that the above does not really cover Hazardous Areas, which are covered by their own set of codes and standards. The Explosives Act has to deal with an element of unlawfulness such as acts of terrorism and/or criminal activity.

Till next time ...

Or until you are called upon to please explain yourself.

Integrated energy management solution cuts downtime

ABB, a leading power and automation technology group, is supplying an integrated intelligent energy management solution to Petroamazonas EP, Ecuador's state-owned oil company, helping it gain up to an extra week of productivity annually by avoiding unexpected generator shutdowns.

Petroamazonas EP is installing ABB's Emax 2 air circuit breakers with integrated power management in four new facilities across Ecuador where diesel generators supply electricity for essential plant processes such as pumps and drills.

Maintaining continuous energy supply and process up-time are key success factors in the oil and gas sector. ABB's Emax 2 supports this by accurately protecting and supporting the balance between power consumption and power supply. As the only circuit breaker in the world with seven communication standards embedded, it can integrate into any automation or supervision system.

Emax 2 protects the power network, and its integrated communication modules also connect with Petroamazonas EP's local control systems, giving operators real-time



access to energy consumption data. Through a remote diagnostic function it can interface with the plant's

central intelligence to keep operations running smoothly by using preventive maintenance.

"ABB developed Emax 2, the only circuit breaker that monitors and controls power networks automatically, because energy management should be simple," said Giampiero Frisio, global managing director of ABB's Breakers and Switches business.

"With sensing, communication and new advanced protection capabilities built in, our solution improves productivity and energy efficiency. For its communication capabilities, it is also a great example of the Internet of Things,

Services and People at work, a crucial element of our Next Level strategy."

Petroamazonas EP is using the latest technologies and global standards of quality to optimize oil production in Ecuador.

ABB's engineers have worked closely with the customer to develop a tailor-made intelligent solution that meets the demands of Petroamazonas EP's challenging operating environment to help reduce non-productive time at their facilities.

ABB has installed more than one million air circuit breakers worldwide in the last five years.

As part of its Next Level strategy, ABB is seeking to expand deployment of its leading-edge devices in industries including oil and gas to help customers increase their flexibility, productivity and competitiveness. Emax 2 embodies this strategy because of its capability to be installed in the most advanced and intelligent plant networks and smart grids.

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FLIR Systems recently announced the release of the FLIR T1020, also known as the FLIR T1K, a premium thermal camera for use in a multitude of industrial and building diagnostics applications. The T1K is a high definition handheld instrument featuring exceptional measurement performance, outstanding image clarity, and a highly-responsive user-interface. The T1K allows users to find hot spots quickly, measure them precisely, and streamline their entire work process.

The T1K features outstanding image quality due to the 1 024 x 768-pixel uncooled infrared detector that offers twice the sensitivity of the industry standard for uncooled sensors. This resolution is further boosted by the addition of FLIR Vision Processing, which combines FLIR's unique UltraMax super resolution process with FLIR's patented MSX image enhancement software that overlays im-

portant visual details and perspective, such as numbers and labels, over the full resolution thermal image. The advanced image processing features provide the highest quality images available in a compact system.

High definition imaging requires high precision optics and the T1K's lenses deliver best-in-class performance. The T1K features FLIR's OSXTM Precision HDIR optics, which deliver superior image quality and range performance and allow for accurate temperature measurements from twice as far away compared to the industry-standard lenses. The T1K also features a new focusing system that offers continuous autofocus as well as a dynamic manual focus.

"With the T1K, FLIR has once again raised the bar in the premium thermography segment," said Andy Teich, president and CEO of FLIR. "Making that happen required designing a line of truly superb high definition optics and developing our most precise temperature sensors ever. The FLIR T1K has all the tools experts need to work quickly and efficiently."

The T1K is now available for purchase from select channel partners and directly from FLIR. To learn more about the T1K, visit www.flir.com/t1k.

Enquiries: +27 11 300 5622



Ekurhuleni Municipality places order for bulk consumer maximum demand meters



Lerato Kumalo, technical sales person in ACTOM Protection & Control's metering department, displays one of the maximum demand meters being supplied for Ekurhuleni's AMR system.

EKURHULENI Metropolitan Municipality has awarded ACTOM Protection & Control (P&C) a three-year frame contract for the provision of state-of-the-art maximum demand meters for measuring and monitoring electricity use by bulk consumers.

Bulk consumers comprise mainly large commercial and industrial businesses. The demand meters P&C has been contracted to supply are those produced by its China-based metering technology partners.

Ekurhuleni Municipality placed its first order with P&C shortly after the award of the frame main contract early last year. The order, for the supply of 1 150 three-phase current transformer- and/or voltage transformer-operated maximum demand meters in the voltage range of 58 V to 415 V, was supplied on schedule in October last year.

"The meters we supply form part of an integrated Automated Meter Reading (AMR) system that is being established at Ekurhuleni," explains Leon de Nysschen, P&C's manager, Electrical Metering.

"Another specialist service provider has been contracted to provide the AMR service, which collates and interprets the data provided by our meters and makes it available through a web interface to Ekurhuleni for billing and monitoring purposes."

The AMR system uses a General Packet Radio Service (GPRS) modem that interfaces with the bulk meter and, via an Access Point Name (APN) network, collects the metered data from the bulk consumers, processes it into the form required by Ekurhuleni and makes it available via the Internet to the municipality's data centre.

"As part of our bulk meters supply contract we are required to provide the metering protocol in order for the AMR system to be developed to translate the metered data into a form that the AMR system is able to read and interpret," says De Nysschen.

Enquiries: +27 11 820 5319

Versatile plier wrench with compound leverage jaw mechanism

WITH its patented parallel jaw, the Knipex plier wrench can be used as a spanner or as pliers and is unlike any other pliers or adjustable wrenches currently on the market. This tool's main advantage is its compound leverage jaw mechanism that delivers a great deal of pressure through the parallel jaws. The jaws are quickly and easily adjusted with just a touch of the push-button mechanism and the operation of the jaws allows for a ratchet action when tightening connections. The pliers wrench can be used almost like a ratcheting adjustable wrench, spreading the jaws slightly when rotating the pliers to a new position and then clamping down when turning. It can also be used for bending and twisting applications.

The smooth jaws grip all parallel surfaces

with a high degree of pressure if need be without damaging sensitive surfaces so the plier wrench is ideal for working on types of materials where a secure grip is needed without sharp teeth or grooves digging into soft, delicate, or chrome-finished surfaces.

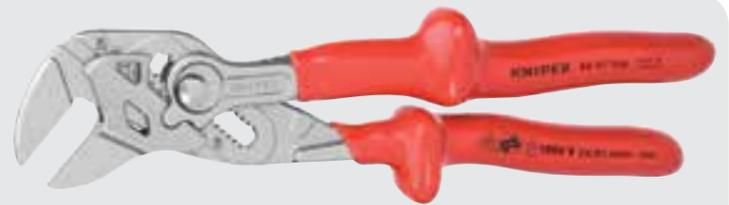
The Knipex plier wrench is available in sizes from 125 mm to 400 mm; a 250 mm VDE 1 000 V version is also available.

Features

- Replaces the need for sets of metric and imperial spanners.
- Smooth jaws for damage free installation of plated fittings even when working directly on chrome.
- Adjustable tightening tool.
- Excellent for gripping, holding, pressing and bending workpieces.

- No backlash jaw pressure prevents damage to edges of sensitive components.
- Pushbutton adjustment.
- Parallel jaws give a solid grip while its design allows flexible adjustment of all widths up to the specified maximum size.
- Reliable catching of the hinge bolt; no unintentional shifting.
- The ratchet type principle allows quick and easy tightening and release of all bolted connections.
- Lever transmission greater than 10 : 1 for strong gripping power.
- Chrome vanadium electric steel, forged, oil-hardened.
- Available in standard and 1 000 V VDE version.

Enquiries: +27 11 396 4065



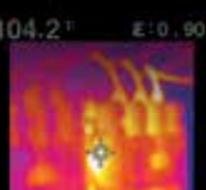
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Preventive maintenance: longer life for electrical distribution equipment at optimal cost

By David Morte, maintenance services offer management: Energy and Partner Business, global field services division at Schneider Electric

ELECTRICAL distribution equipment lies at the heart of every modern business, powering the machines and systems responsible for key processes. This vital equipment, from circuit breakers and protection relays to transformers, is also responsible for the safety and protection of people and equipment. When there is an unexpected failure, safety is compromised.

Implementing an effective maintenance strategy for your electrical distribution installation is therefore crucial. But, there are choices to be made.

Attitudes toward equipment maintenance have evolved alongside industry. The simplest approach, called reactive maintenance, involves repairing equipment only when it breaks down. Such interventions often result in prolonged downtime and high costs.

As industry has matured, the idea of "prevention is better than cure" has seen the introduction of preventive maintenance, supporting regular equipment checks to reduce the probability of failure. This approach, combined with regular on-site diagnostics, called on-site condition maintenance, optimises your plant's performance and keeps equipment reliable, productive, and safe at an optimal cost. Preventive maintenance of electrical distribution equipment brings universal benefits to your business. On-site condition maintenance of each installation minimises the risk of unwanted events, increasing the safety of employees and protection of equipment. It also helps ensure the reliable performance of safety-connected devices, such as circuit breakers.

Regularly maintained equipment wastes less energy while running. Preventive maintenance of hardware allows it to function more efficiently by reducing wear and tear of the components. Also, the cost of the spare parts is reduced, as the number of complex faults in crucial areas is limited.

By scheduling equipment downtime and mitigating the risk of emergency shutdown, preventive maintenance secures service continuity and helps optimise costs. As a result, the annual total cost of ownership (TCO) is lower, as the costs of both equipment acquisition (CapEx) and shut-down (OpEx) are significantly reduced.

To provide maximum care to your electrical distribution equipment, preventive maintenance should be supported by on-site condition maintenance. Regular diagnostics make it possible to identify symptoms of an undetected malfunction or degradation in an installation before a fault happens. Implementing diagnostic solutions

provided by equipment manufacturers also lets you collect and manage reliable data across your ED installation thanks to:

- Customised test kits and software for conducting inspection, testing, and analysis.
- A technical database of historical equipment available for comparing original and current performance levels.
- Expert field service representatives providing the best recommendations and instructions to prolong equipment life.
- Comprehensive information on equipment obsolescence and original spare parts availability to enable extensions, upgrades, and retrofit (such as ECOFIT by Schneider Electric).

With an advanced maintenance strategy, you get a complete picture of your electrical distribution equipment's condition, diagnostic tools to accurately assess risk, and peace of mind that critical areas of your plant are constantly supervised.

Enquiries: +27 11 254 6400



Mobile substations – not a simple exercise



Due to the complexity of mobile substation solutions, Zest Energy follows an in-depth engineering design and modelling process to ensure all risk areas are identified and understood.

ENGINEERING a mobile substation is not a simple exercise. It requires a clear understanding of the specific requirements not only from an electrical perspective but also from a road ordinance viewpoint of the country in which the solution will be deployed.

This is according to Coenraad Vrey, managing director of Zest Energy, who explains that the company's interaction with various utilities including Eskom for more than ten

years has keenly developed its understanding of the stringent design requirements on both electrical and mechanical components. As a result, Zest Energy is able to develop fit-for-purpose mobile substation solutions.

According to Vrey, the two most important components of a mobile substation are the high-tech transformer and the trailer, which must comply with road ordinance legislation in regard to weight and equipment dimensions. The effects

of trailer deflection and movement on the integrity of the transformer are also important design considerations.

Since each country's road ordinance specifications are different, mobile substations need to be designed in accordance with the relevant requirements of the country in which they are intended for use. "Zest Energy utilises trailer designs with proven industry technology to assist with manoeuvrability.

We make use of combination trailer configurations to better distribute the overall weight and to ensure that we do not exceed the axle weight limitations of the specific country," says Vrey.

The heart of the mobile substation is the trailer itself. This comprises a gooseneck, articulated steerable axle system, air suspension, ABS braking system, trailer stabilisation legs and fold away type access platforms, which allows safe access to the secondary plant.

Essentially, a mobile substation should meet all or most of the attributes of a fixed substation, with the added benefit of mobility, which affords the customer the flexibility to move the unit to wherever it is needed.

Vrey explains that while the standard configuration of a high voltage substation is consistent, certain customers have specific requirements which are informed by their own reticulation requirements and specifications. It is not difficult to adjust the design to conform to these requirements, but it is essential to have an understanding of these requirements up front. "Mobile substations are custom engineered to ensure that they can be configured for individual

applications and will seamlessly integrate into the existing electrical network," he says.

The main idea is to facilitate the deployment of a mobile substation as quickly as possible, and these units therefore need to be engineered to ensure the highest level of mobility for transportation without the need for escort vehicles and special permits. This means that the weight and the physical size must be taken into account, as well as the weight distribution of the substation components. Height is also a restriction, both from an installed space perspective as well as in terms of safe passage of the trailer under bridges and other structures during transport," says Vrey.

Another factor that needs to be considered is that the components that make up the installation need to be able to withstand the impacts of being transported on road networks. "When it comes to ensuring the optimum mobility of the substation, it is essential to take into consideration the forces applied to the equipment during transportation. This requires an in depth understanding of each of the elements and how these are affected, to minimise internal movement," Vrey points out.

Electrical network considerations are critical and Zest Energy leverages WEG's 20 years' of experience in engineering transformer technology that allows for multi ratio primary and secondary voltage transformers. This will permit customers to use the mobile substation in areas where different voltage reticulation networks are found, thus improving operation flexibility.

"We also factored into the design the specifications of the utility with respect to electrical equipment. Every utility has its own specifications for primary and secondary plant and Zest Energy strives to ensure that we offer equipment that is in line with these standard specifications" he adds.

Vrey cites the example of Eskom's standard protection schemes, which were incorporated in the overall mobile substation solution. Zest Energy ensured that all these specifications and standards were analysed as part of the overall design process, to ensure complete compliance with Eskom's requirements.

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Looks can be deceiving AND OFTEN DEADLY



There is a very large choice of lighting products available to contractors, specifiers, distributors and users.

Many products, particularly non-decorative ones, are barely distinguishable from each other and, from appearances, it is difficult for most people to judge whether a product is safe or not.

Light fittings are subject to compulsory specifications but a number of shortcuts can be and are being taken by unscrupulous suppliers to reduce cost and offer products at seductive prices, for example:

- Sub-standard insulation that risks electrocution of installers and users
- Poor mechanical construction that compromises safety
- The use of flammable materials that present fire risk
- Careless design and assembly of cable routing and connections that risk safety

What can you do? Some guidelines:

- Be suspicious of prices substantially below the going rate for comparable product on offer
- Look for proper markings: Manufacturer's name; Lamp type and wattage; Rated supply voltage and written installation & maintenance instructions and precautions
- Look for authentication of quality: Notably protection-level markings (Class I, II or III)
- Purchase brands you can trust.
- Consult the SAFEhouse lighting guide **
- Contact the SAFEhouse Association for assistance.

** Available on our website or contact SAFEhouse

SAFEhouse members have signed a code of conduct: Your assurance of commitment to offer only safe electrical products



The SAFEhouse code of conduct includes:

- To offer only products that are safe
- To advise customers if any of their sold products fail this undertaking
- To recall unsafe products
- To replace unsafe products or render them safe

The SAFEhouse Association is a non-profit, industry organisation committed to the fight against sub-standard, unsafe electrical products.

For more information contact:
Pierre Nothard Cell: 083 414 4980
Tel: 011 396 8140 | Email: pierren@safehousesa.co.za

www.safehousesa.co.za



Mark Palmer – Electrical Approved Inspection Authority Southern Africa (EAIASA)

Compliance on larger installations to be under more 'diligent scrutiny'

WHEN I look historically into general electrical compliance – and certainly before the promulgation of the Electrical Installation Regulations of 1992 – enforcement was an accepted fact and was done by the municipal electrical inspectorates. With the implementation of the new Act, and in particular the Electrical Installation Regulations, self-regulation was placed in the hands of the electrical industry and compliance was then administered by the electrical contractor or accredited persons as they were known then. Inherently this is a skewed principle whereby the same person who constructs an electrical installation or does the installation work, certifies that he has indeed done the work correctly and in accordance with the applicable Regulations.

Notwithstanding this principle and the obvious deterioration of electrical standards since then, the Department of Labour realised that this

're-regulation' was perhaps misguided and then amended the Electrical Installation Regulations in 2009, which to a large extent removed the self-regulation element to some extent and placed certain control mechanisms back into the hands of the Department of Labour. Although some of these control mechanisms are not yet in place, the Regulations are now five years old and are due for amendment, which I believe will further enhance the application of the Regulations.

Within the current Regulations, however, an area of major concern is the regulations that pertain to the enforcement of compliance on larger installations. In particular here, it is important to refer to Regulation 5 Sub Regulation 6 (EIR): *Where the intention is to supply five or more users from a new point of supply, the user shall appoint an approved inspection authority for electrical installations or a person deemed competent in terms of*

paragraph (b), (c) or (d) of the definition of a competent person in regulation 1 of the General Machinery Regulations, 1988, or a person registered in a professional category in terms of the Engineering Profession Act, 2000, who shall ensure the compliance contemplated in subregulation (1) from the commencement to the commissioning of the electrical installation.

The first area of concern here is that the installations contemplated by the above Regulation extends primarily to townhouse/cluster type developments, shopping centres, etc, and it is these very installations that are to a large extent being ignored by developers.

I have, over the last few months, noted that many developers, understanding that a consulting engineer may have been involved in the initial design, are under the impression that the consulting engineer is also taking responsibility for this aspect (Regulation 5, sub Regulation 6 (EIR)).

I raise this issue as in many

discussions with consulting engineers involved in these projects, they are only taking responsibility for the design aspect of the installation. This responsibility is clearly outlined in the responsibility section of the test report attached to the required Certificates of Compliance:

SANS 10142-1

Clause 8.2.1 – Design

Section 5.1 of the test report provides for the designer of the electrical installation to verify that the design complies with the requirements of this part of SANS 10142.

5.1 Design – I, being the person responsible for the DESIGN of the electrical installation, particulars of which are described in Section 3 of this form, CERTIFY that the work for which I have been responsible, is to the best of my knowledge and belief in accordance with the relevant legislation. The extent of my liability is limited to the installation described in Section 3 of this form.

The responsibility relating to compliance enforcement as contemplated by the EIR is however more specifically dealt with under Clause 5.5 and which responsibility is something completely different and has a direct link to the actual construction of the installation itself i.e.

8.2.3 – Construction

Section 5.3 of the test report provides for the installer of the electrical installation to verify that the installation was constructed in accordance with the requirements of this part of SANS 10142.

NOTE: *In South Africa, it is a statutory requirement that an approved Inspection Authority (AIA), or a defined competent person, or a person registered in the professional category in terms of the Engineering Profession Act, 2000 (Act 46 of 2000), ensures compliance from commencement to commissioning of an electrical installation where the intention is to supply five or more users from a new point of supply (Regulation 5(6) of the Electrical Installation Regulations, 2009, of the Occupational Health and Safety Act).*

5.5 Compliance of installation from commencement to commissioning.

I, being the person responsible to ensure that the electrical installation, particulars of which are described in Section 3 of this form and which is one of five or more installations on the same supply, CERTIFY that the installation was done in accordance with SANS 10142-1.

In determining compliance therefore, it is clear that although

the person responsible for Section 5.1 of the test report may very well be the same person responsible for the responsibility detailed under Section 5.5, this is very seldom the case as the consulting engineer involved in the design aspect will not be ensuring installation compliance from commencement to commissioning. I think that it would be prudent for consulting engineers involved in such projects to ensure that they understand the limitations of their responsibility in terms of Section 5.1 and to confirm with developers whether this responsibility is going to extend to Section 5.5

The second concern that I have identified is that many Registered Persons are under the impression that they are also competent persons as described by the Regulations and therefore are in a position to undertake this responsibility. The Regulations clearly define such competence and specifically excludes a competent person in the (a) category as defined in the General Machinery Regulations 1988 (GMR).

The (a) category of competence does include Registered Persons but they are excluded from the responsibility detailed in Section 5.5 unless they are also competent persons as defined in paragraphs (b), (c) and (d) of the GMR.

However, what is becoming increasingly apparent, is that the EIR in relation to compliance enforcement on larger installations is either not being complied with due to the lack of understanding of this requirement; or is being ignored.

In either case, this aspect is going to be under more diligent scrutiny by the Department of Labour in the future and cost implications to offenders after the fact could be detrimental.

I believe that clarity in this environment was more easily achieved in the draft regulations of 2009 where reference was made to compliance enforcement on installations exceeding 25 KVa and perhaps the Regulations should move back to this clarity when they come under review.

I urge any professional persons involved in the design of such installations to contact me directly should they need any assistance with the clarification of responsibilities in Section 5.5.

Launch of new training academy for surge and lightning protection

DEHN Africa, the local subsidiary of Germany-based lightning and surge protection, earthing components and safety equipment manufacturer, Dehn + Söhne, is pleased to announce the launch of the DEHN Academy in South Africa. The Academy will offer workshops, trainings, seminars on surge protection and lightning protection, covering the basics of lightning, surges, risk analysis, and the design of lightning and surge protection applications in different sectors.

The Academy, which is set to offer weekly training sessions and quarterly seminars, is aimed at engineers, end-users, consultants, electricians, and architects across Africa. "Essentially it will target anyone who wants to learn more about lightning protection," says Hano Oelofse, technical manager at DEHN AFRICA.

"Since DEHN AFRICA was established in 2013, we have noted that many of our continent's engineers, consultants and end-users lack sufficient experience in the design of compliant lightning protection systems. We hope that with the launch of the DEHN Academy we can sufficiently upskill and inform all of these parties on lighting and surge protection," he continues.

The Academy's seminars will focus on the content of the IEC/EN 62305 2010-12 standard, which includes four distinct parts: general principles, risk management, physical damage to structures and life hazard, and electronic systems protection. This standard was fully adopted by SANS.

The quarterly seminars will also allow participants to gain one accredited CDP (Continuing Professional Development) point.

For more information, please contact Hano Oelofse at hano.oelofse@dehn-africa.com.



Hano Oelofse, technical manager at DEHN AFRICA.

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Flexicurity – a concept from Japan

I RECENTLY attended the 21st World Congress of the International Society for Labour and Social Security Law held in Cape Town where I was privileged to attend a session in which Prof Takashi Araki of the University of Tokyo, Japan, presented a paper on Japan's industrial relations.

The focus of this presentation was on a concept of 'flexicurity'. This word is a combination of two concepts: (1) Flexibility – this depicts flexibility in adjusting working conditions by the employer; and (2) Security – depicting security of employment where dismissals are avoided at all costs.

In South Africa, the fairness of a dismissal is judged on two grounds: substance and procedure. If a dismissal is found to be 'on reasonable grounds' and that a fair procedure was followed in effecting the dismissal, the entire dismissal would be judged by any adjudicating forum in South Africa as having been fair.

Given the concept of security of employment in Japan, which is part of the culture of Flexicurity, the courts frown upon dismissals that are found to be socially inappropriate. The 2003 Labour Standards Act makes dismissals that are socially inappropriate null and void *ab initio* (from the beginning).

In other words, such dismissals have no force or effect.

In the Kachi Broadcasting Case of 1977 a newsreader arrived late for work and could not read the news at the allocated time. The newsreader's explanation was that she overslept. The broadcaster dismissed the employee. The court found that the dismissal was too harsh and socially inappropriate and ordered back pay and reinstatement. This shows the extent to which the Japanese culture prevents dismissals. The April 2015 statistics shows unemployment in Japan sitting at 3.3% with the majority of the employees in what is called, 'life time' employment.

This security of employment culture is also promoted by the trade union movement. According to Prof Araki, "The most frequent request made by workers employed by a company in bad shape, is not a wage hike but a guarantee of employment". The employees would rather agree to a lowering of employment conditions to keep as many of them employed as possible rather than to chase higher wages and compromise the continuing employment of their colleagues.

This security of employment is balanced by flexibility – the other leg of Flexicurity. The employer is given flexibility in adjusting working conditions. The Supreme Court of Japan decided in 1968 that, in instances of reasonable modification, the employer can ask the union opinion but the actual modification decision is unilateral.

To guarantee justice, the courts scrutinise reasonableness in the modification. Such reasonableness would be based on the business conditions as objectively assessed by the courts against the existing material conditions on the ground as evidenced by

the courts own assessment and any submission made by interested parties.

In South Africa, the business would be bound to act only in terms of the provisions of Section 189 or 189A, whatever the case may be. These sections dictate how changes brought about by operational requirements of the business are to be effected.

Section 189A(9) even goes to the extent of giving the employees a statutory right to strike in the face of dismissals occasioned by

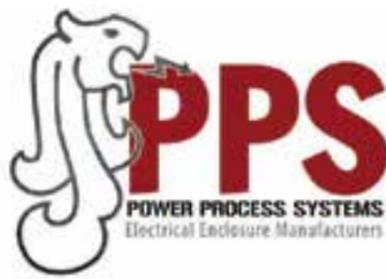
Section 189 proceedings. The section dictates the timetable for the changes as well as the players involved. The irritation I have with this provision is that it has got no relationship with business realities. I have been involved in many restructuring proceedings and, without exception, timing is everything.

Flexicurity is a good concept and a culture to promote. Business is forced to consider the social impact of any decision to dismiss. Should the courts find this to be socially unac-

ceptable, such decisions would be overturned by the courts.

At the same time, the courts give the business people the right to amend the conditions of employment to give businesses the best chance at survival to ensure that life time employment is made a reality.

It would be great when all parties concerned avoid dismissals at all costs subject to flexible adjustment of working conditions. A profound lesson from Japan.



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Assemblies manufactured to SABS 1765 for the safety of distribution boards

Training and development by Nick du Plessis

General workers: Know your legal obligations

Many of us have picked up a 'casual labourer' on the side of the road when we have needed someone to do general work – painting, gardening, digging a trench, mixing concrete or drawing cables to name but a few.

While it may seem that we are only employing someone on a temporary basis, we must be mindful of our responsibilities and legal obligations as employers in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), which include:

Section 13

Duty to inform

Without derogating from any specific duty imposed on an employer by this Act, every employer shall:

- a As far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted

to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards ...

Definitions supporting this section:

- **Hazard:** A source of or exposure to danger.
- **Danger:** Anything which may cause injury or damage to persons or property.
- **Plant:** Includes fixtures, fittings, implements, equipment, tools and appliances, and anything which is used for any purpose in connection with such plant ...

When hiring casual labour, it is not enough to ask:

"Can you do ...?" or "Have you worked with ...?" because the answer you get will always be a resounding "yes". These questions, in my opinion, fall into the dumb question category. Remember, the person is on the side of the road hoping to get work because he needs the money and will do anything for the remuneration you have offered.

It remains your responsibility to ensure that every employee is **conversant** with the **hazards** to his health and safety attached to **any work that he has to perform**.

Another section of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) to be aware of is:

Section 8

General duties of employers to their employees

Part 2. Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular

e) Providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees ...

It is important to remember that the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) requires that you are able to prove that you, as the employer, have complied with the requirements; and the only acceptable proof includes records, attendance registers, assessments and similar documents.

So, to ensure that you, as the employer, are compliant with the OHS Act, I would recommend that you develop a training programme along with supporting documentation; then train any new employees in the tasks they will be required to perform as well as training them to use the tools and equipment they will be working with – and this will ensure that you do not fall foul of the law.

The outcome of this – besides ensuring compliance with the OHS Act – is that you will most likely find that your staff will perform at a higher level of efficiency without abusing the tools or equipment they are working with because, after training and assessment, there can be no excuse to misuse or abuse any of your tools. In the long run, you will save money and improve productivity. If you need assistance with developing a training programme or you need a facilitator to oversee the training and assessing of general workers, I would advise that you contact a reputable, accredited and competent training provider or contact me for advice.

Whatever you do, do the right thing: inform your employees of their duties and responsibilities.



BURSARY COMPETITION

Five Training Bursaries

The Copper Development Association Africa and the ECA(SA) are proud to bring to you a bursary to prepare for and do a traditional Trade Test C to qualify as an artisan at no cost to you or your employer. We want to recognise your prior learning and enhance your movement to the top of the practical qualifications' ladder, whilst contributing to the growth of the National Skills Base of South Africa. We aim to contribute to the empowerment of Black Women by reserving two of the five bursaries for Black Women. Employers are encouraged to help their employees whose candidacy they support with motivations in the relevant area of the form.

Minimum entrance criteria:

- Full N2 – Mathematics, Science, Electrical Trade Theory plus either Industrial Electronics or Engineering Drawing attained at an FET College; or
- Grade 11 in the electrical field from a Technical High School
- Five years' relevant experience as an employee in the Electrical Contracting Industry
- He/she must be currently employed by an ECA(SA) member company in good standing

Please note that this competition will close on 10 November 2015 and no entries will be accepted after this date. The judges' decision is final and no further correspondence will be entered into.

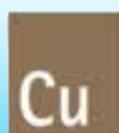
Results will be announced by 12 November 2015. The winners will be invited to the 2015 Presidential Excellence Awards Gala Dinner on 19 November at Emperors Casino.

Entry forms available at all ECA(SA) regional offices and on the website

Entries must be forwarded to:

FLORENCE MABENA

1074 Francis Baard Street
(Schoeman Street)
Hatfield, Pretoria 0020
Telephone: (012) 342 3242/3358
Email: florence@ecasa.co.za
Website: www.ecasa.co.za



Copper Development
Association Africa
Copper Alliance



An automatic wire stripper that doesn't damage conductors



The Knipex automatic wire stripper is a well-priced compact stripper for single, multiple and fine stranded wire from 0.2 to 6 mm². The blades adapt automatically to the cable's cross-section preventing damage to conductors. The wire stripper has a narrow head designed for use in confined areas and has an adjustable length stop. The unit also features a built-in wire cutter suitable for cutting wires up to 2.5 mm². The blades are made of special tool steel and can easily be replaced.

Enquiries: +27 11 396 4065

Energy specialist provides complementary access to energy training at ECA

MONTHLY and at no charge, Schneider Electric, a global specialist in energy management, is providing training on its access to energy solutions to learners at the Electrical Contractors' Association of South Africa (ECA). The modules are taught by Schneider

Electric's specialists and entail the operation and installation of its renewable energy products, as well as the concepts required to become an entrepreneur. With this theoretical and hands on training, learners can start their own informal businesses on the side when

they identify an opportunity to create access to energy in their community. The ECA's accredited training centres are located across South Africa and provide a wide range of training and skills development courses, aimed at both the technical and business aspects of

the electrical contracting industry. The ECA has been representing electrical contractors in South Africa for 60 years.

Says George Senekal, regional training manager at the ECA: "The training provided by Schneider Electric not only focuses on the normal protective equipment used by electrical contractors but has taken this a step further by initiating a joint venture training programme with the ECA, which exposes our learners throughout the yearly training programme on a topic that is highly important to global energy saving techniques."

He says the topic deals with the "very basics to solar energy generation principles" and that after one session candidates have a sound understanding

of the meaning of solar energy generation.

"Our candidates are also clearly informed by the Schneider Electric training staff on how to be a successful entrepreneur in this specific field of solar energy distribution," says Senekal, adding that current technology as well as future technology is well presented by the Schneider Electric training staff.

"We look forward to enhancing this initiative to a more advanced and hands on approach. Our industry is represented by our learners, and more specific training techniques will ensure a better knowledge and implementing of renewable energy resources," concludes Senekal.

Enquiries: +27 11 254 6400

Sierra Leone contract for local company



JB Switchgear Solutions was recently awarded a contract for the design, manufacture and supply of various motor control centres destined for the Gangama Dry Mine in Sierra Leone.

Mineral Sands producer, Sierra Rutile, awarded Phase 1 of the project to global engineering company DRA, on a lump sum turnkey basis, with first production targeted for the end of the second quarter of 2016. Ultimately, the project will be developed in two phases, each a separate 500 tph operation. Sierra Rutile's lease in Sierra Leone is the world's largest known deposit of natural rutile,

and has been mined since the early 1960s.

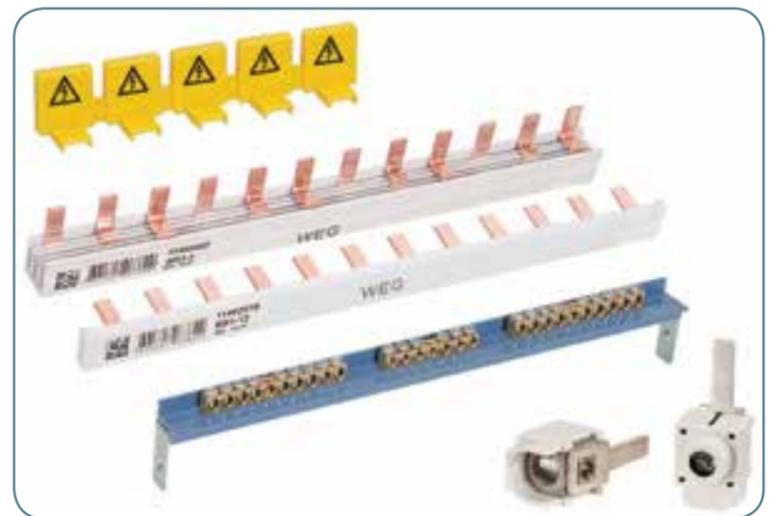
As opposed to dredge mining, which targets ore that is submerged in water, dry mining involves the excavation of ore in a dry environment. The Gangama dry mining project involves the excavation of Sierra Rutile's Gangama deposit using conventional earth moving equipment, which will deliver mineralised ore to a concentrator located on site. The mineral concentrate will then be processed in the existing mineral separation plant along with feed from the Lanti Dredge mine and the Lanti Dry mining project.

In this instance, JB Switchgear's scope includes three 'Eagle Series' motor control centres, two of which are installed in modified marine containers, and one is an outdoor kiosk type MCC.

The incomers are rated at 2 500 A for a 480 V/60 HZ system, with a fault level of 50 kA. Electronic overloads with Ethernet communication protocol is used for control. The order also includes a number of variable speed drives (VSDs) soft starters and distribution boards. Completion of the order is scheduled for October 2015.

Enquiries: +27 11 027 5804

Full range of approved miniature circuit breakers for a complete solution



A FULL range of approved miniature circuit breakers, offering protection against overload and short circuit in electric conductors, is available from Zest WEG Group. The WEG MDW and WEG MDWH miniature circuit-breaker line comply with the tripping characteristic curves B and C, according to Standards IEC 60898 and IEC 60947-2.

These miniature circuit breakers have been developed to be used in low voltage circuits with direct or alternating

current from 2 to 125 A and short circuit breaking capacity up to 10 kA. The full range includes all accessories in both 5 kA and 10 kA, making it possible for the Zest WEG Group to supply customers with complete solutions for specific projects.

All the WEG MDW and WEG MDWH miniature circuit breakers can be used in both commercial and domestic applications.

Enquiries: +27 11 723 6000

New remote, simultaneous, recordable wireless test tool system



THE Comtest Group, Fluke's authorised test and measurement distributor for South and southern Africa, has introduced Fluke CNX, a customisable, troubleshooting tool set of wireless test tools that work together, recording live measurements remotely and simultaneously on a single screen.

CNX modules measure ac voltage, temperature and ac current with a standard clamp or flex clamp. Possible

applications include:

- Detection of power interruptions
- Single phase measurement
- Determining current imbalance
- Measurement of incoming current

A wireless multimeter displays readings from up to three wireless modules, plus the meter measurement at the same time, on the same screen, from as far as 20 m away. To get a holistic overview of the situation, readings from 10 tools measurements can be reviewed simultaneously on PC View. Users are able to mix and match the wireless-enabled modules to suit their unique measurement needs.

The CNX system can record up to 65 000 sets of min/max/avg readings in either single or multiple logging sessions. CNX isolates intermittent events or records signal fluctuations automatically, using the module's log function. Measurements can be viewed in a location separate from the point of measurement, for safety purposes, as well as be viewed repeatedly from either remote locations or on-site.

Fluke CNX meets Category 1 000 V CAT III and Category IV 600 V safety standards.

Enquiries: +27 10 595 1821

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WEG Group

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Matelec
NewElec
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Silicon Engineering
Zest Electric Motors

Distributors

AC/DC Dynamics
ARB Electrical Wholesalers
Atlas Group
Bellco
Citilec
Cummins SA
Denver Technical Products
Electromechanica
Eurolux
Magnet Electrical Supplies
Magnitech
Major Tech
Mantech Electronics
Matelec
MCE Global Supplies
Radiant Lighting
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Silicon Engineering
Voltex
Voltex Lighting
Waco Industries
Zest Electric Motors

Pumps for emergency applications

ACDC Dynamics
 Variety of pumps for most applications including solar pumping systems

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Lighting for hazardous areas

AC/DC Dynamics
 Distributor of Halo Lighting Solutions including LED strip lighting systems; wide range of flameproof and explosion-proof lighting
ARB Electrical Wholesalers
 Full range of lighting for hazardous areas
Atlas Group
 Distributors of luminaires for hazardous areas
BEKA Schröder
 Full range of luminaires for hazardous areas
Bellco
 Distributors of luminaires for hazardous areas
Citilec
 Full range of lighting for hazardous areas
Denver Technical Products
 Wolf safety lamps and Smith Light LED lighting for industrial work areas
Eurolux
 Vapour-proof fluorescent fittings; CFL enclosed 'bullet'
Major Tech
 Full range of tripod mounted gully enclosed floodlights in halogen, energy saving and LED models
MCE Global Suppliers
 O-Lite range of LED floodlights from 10 W to 200 W
Nordland
 Full range of lighting for hazardous areas
Radiant Lighting
 Full range of lighting for hazardous areas
Voltex
 Distributors of luminaires for hazardous areas
Voltex Lighting
 Distributors of luminaires for hazardous areas

Batteries for emergency applications

AC/DC Dynamics
 Full range of batteries and backup solutions such as UPS systems, inverters, etc
ARB Electrical Wholesalers
 Full range of batteries for emergency applications
Atlas Group
 Distributors of Solid State Power inverters in various sizes
Bellco
 Distributors of inverters in various sizes
Citilec
 Full range of batteries for emergency applications
Electromechanica
 Full range of batteries for emergency applications
Mantech Electronics
 Full range of sealed lead acid (SLA) batteries in regular, deep cycle and gel types
Regal Distributors
 Batteries for emergency applications
Silicon Engineering
 HBL power systems (nickel cadmium batteries) BAE lead acid batteries, Varta lead acid batteries
Stone-Stamcor
 Yuasa sealed lead acid batteries
Voltex
 Distributors of inverters in various sizes



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UPS

ACDC Dynamics

Comprehensive range of UPSs

ARB Electrical Wholesalers

Full range of UPSs

Atlas Group

Distributors of Solid State Power UPSs in various kVA ratings

Bellco

Distributors of UPSs in various kVA ratings

Citilec

Full range of UPSs

Eurolux

UPS inverters

Legrand SA

Available in versions with a power rating from 0,5 to 120 kVA; the versions with on-line double conversion technology ensure a supply voltage free from network disturbance; line-interactive UPS systems ensure high performance also for domestic or small commercial applications

Mantech Electronics

Vast stocks of inverters and UPSs

Regal Distributors

Stockists of UPSs

Voltex

Distributors of UPSs in various kVA ratings



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Gensets and accessories

AC/DC Dynamics

Wide variety of domestic, commercial and industrial generators and accessories

ARB Electrical Wholesalers

Full range of gensets and accessories

Atlas Group

Gensets and accessories available according to customer specifications

Bellco

Gensets and accessories available according to customer specifications

Citilec

Gensets and accessories

Cummins SA

Full range of gensets and accessories

Electromechanica

Full range of gensets and accessories

MCE Global Suppliers

MCE petrol generator sets

Silicon Engineering

HBL power systems (xcell generator sets and nickel cadmium batteries); BAE lead acid batteries; Varta lead acid batteries; Silicon Engineering D (series intelligent batteries)

Voltex

Gensets and accessories available according to customer specifications

Zest Electric Motors

Full range of gensets and accessories



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08 61 62 5678

Other

AC/DC Dynamics

Large lighting offering including decorative, LED and general lighting applications

Alstom Protection and Control

General protection relays

ARB Electrical Wholesalers

Full range of cables and cable accessories

Atlas Group

Full range of cables and wires as well as a range of overhead line equipment, mini subs and transformers

Bellco

All electrical industrial and commercial products as well as the associated accessories; Elespec power quality PFC and monitoring; MV and LV panels

Citilec

LED energy efficient lighting

Denver Technical Products

Hannay reels for cable management

Eurolux

Inverters

Major Tech

Major Tech's three-in-one emergency sensor light can be used as an emergency power failure light, infra motion sensor light and flashlight

Mantech Electronics

Large range of solar panels, solar regulators, power supplies, instruments, meters, cabling and accessories

NewElec

Three-phase motor protection and control relays for low voltage motors

Nordland

Full range of LED luminaires



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Emergency lighting

AC/DC Dynamics

Extensive range of emergency lighting in various brands and options including Gewiss; emergency lighting for buildings, mining and automotive applications

ARB Electrical Wholesalers

Full range of emergency lighting

Atlas Group

Distributors of Voltex Lighting emergency exit and other signs; emergency control gear for fluorescent lights

BEKA Schröder

Full range of emergency lighting

Bellco

Distributors of emergency exit and other signs; emergency control gear for fluorescent lights

Citilec

Full range of emergency lighting

Denver Technical Products

High power mains fail safety lighting for fire trucks, civil defence, construction, general maintenance, ie rail, electricity, water, etc; high power handheld floodlights, battery operated; trailer mounted floodlighting for construction, civil defence, rail maintenance up to 4 x 1 000 W high pressure sodium lamps powered by onboard diesel generator; handheld explosion-proof (intrinsically safe torches) for inspection, petro-chemical industry, sewers, water, aircraft, shipping, etc

Eurolux

LED emergency light; rechargeable portable emergency lights

Legrand SA

Indoor and outdoor weatherproof self-contained emergency lighting luminaires – LED, 6 W fluorescent, 11 W fluorescent

Magnitech

Emergency lighting; battery backup and battery cycling units; bulkheads

Major Tech

Full range of portable lighting ideal for power outages, camping, fishing, hiking hotel, office and warehouse applications; available in fluorescent and LED models

Matelec

Duotech (dual par 38 lamps with motion sensor); maintained and non-maintained fixed 8W emergency lighting; rechargeable and removable 2 x 8 W emergency lighting

MCE Global Suppliers

O-Lite T8 LED emergency tubes with battery back-up; O-Lite rechargeable portable LED floodlights

Nordland

Full range of emergency lighting

Radiant Lighting

Full range of emergency lighting

Voltex

Distributors of emergency exit and other signs; emergency control gear for fluorescent lights

Voltex Lighting

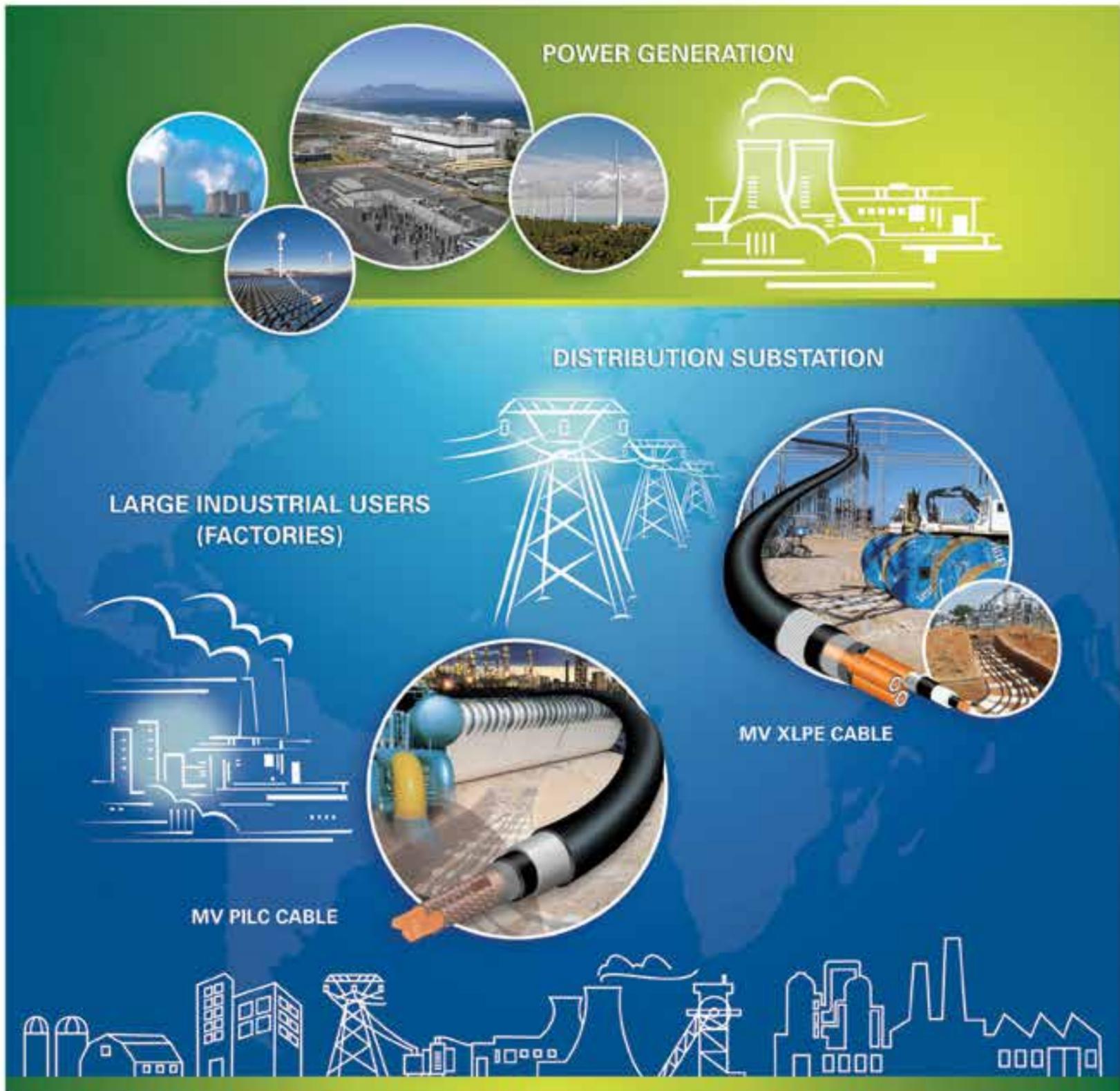
Distributors of emergency exit and other signs; emergency control gear for fluorescent lights

Waco Industries

Distributors of emergency exit and other signs; emergency control gear for fluorescent lights

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Aberdare Cables, a leading cable manufacturer since 1946, brings you medium voltage electric cable of the highest standard in quality, safety and reliability.

Paper insulated lead covered (PILC) cables and cross-linked polyethylene (XLPE) cables are used in many electrical distribution and reticulation applications including:

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- Mining (special construction with water blocking as well as flame retardency for shaft installations available)
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CABLES

Driven by Powertech

New, innovative design for industrial connection system

ACDC Dynamics, sole distributor of the Gewiss product range in South Africa, has launched a new range of IEC309 High Performance plugs and sockets.

"The new Gewiss IEC 309 High Performance range is a high-end range of industrial connections, which deliver outstanding performance, functionality and technical features," says ACDC Dynamics' brand manager, Charlton Opperman.

"The range includes a comprehensive assortment of products to create any kind of service or industrial system and is designed to make installations simpler and more efficient," he says.

The new range expands the Gewiss assortment of 16 A and 32 A mobile plugs and mobile and flush-mounting socket-outlets giving IP44 and IP66, IP67, IP68 and IP69 protection in both the quick and screw wiring versions.

"The range can be wired and assembled quickly and simply, which is a unique feature in the market," says Opperman, adding that the range has also been restyled as a single, modern, functional line.

"The range includes 63 A and 125 A plugs and socket-outs with polarity, voltage and nominal frequencies suitable for all systems up to 500 V, and with IP44 protection and IP67 watertight versions, multipliers and adapters, low voltage versions, as well as 90°, straight flush-mounting and 10° surface-mounting versions."

He explains that the main features of the IEC 309 High Performance range are:

Safe lock closure: The ¼ turn screw guarantees practical, simple use with quick assembly and safe closing due to the readily identifiable reference system. In addition, the same screwdriver for conventional wiring can be used. Manufactured from reinforced technopolymer, the safe-lock system ensures maximum resistance to abrasion, which ensures a long lifespan and eliminates the problem of the metal closing system becoming corroded, even in aggressive environments such as water and steam.

Tying quality and simplicity together



THE self-locking KE922 Ball-lok tensioning tool eliminates the need for additional tools when tensioning and cutting off stainless steel ball-lok ties, thereby ensuring improved turnaround times and reduced costs.

Banding & ID Solutions Africa business manager Rosa Remendos says that the KE922 Ball-lok Tensioning Tool is reliable and easy to use. "The lightweight tool tensions and cuts off ties regardless of material or coating. Once the desired tension is reached, the tool has a manual lever to cut off tail excess tie length."

The KE922 Ball-lok Tensioning Tool is ideal for applying Band-It 304 and 316-grade stainless steel Ball-lok ties, which are also available locally through Banding & ID Solutions Africa. The ties are corrosion-resistant, and are available in 4,6 mm and 7,9 mm widths and 200 mm to 1 100 mm lengths. They are available in coated and uncoated options, and can also be supplied with enhanced corrosion resistance as well as abrasion and vibration protection.

The user first loops the cable tie around the cables and inserts the tail into the cables, pulling tight by hand. The next step is to slide the tail into the side entry of the tool and position it against the base of the cables, squeezing the handle to tighten the tie to the required tension. Maintaining the final handle pressure, the cutter bar should be rotated upward to cut off excess material.

Enquiries +27 11 974 0424

Practical and ergonomic: All mobile socket-outlet covers are designed with a special shape, which makes them safe and easy to open – even with one hand.

New functional coupling system: The units feature a nibbed screw – a product requirement for secure socket-outlet covers. The innovative shape of these new products enables them to be coupled to fencing and scaffolding when being used in trailing systems.

Raised earth terminal: The new IEC309 High Protection range features a raised earth terminal and, in the event of a connection cable being accidentally pulled out, the earth cable will be

the last to be released, preventing the user from sustaining an electric shock and avoiding electrical discharge on devices.

New cable clamping system: The new external cable clamp on all versions secures the cable and maintains the IP rating. It can easily be closed by hand without the use of tools while the anti-loosening device prevents the accidental unscrewing or loosening of screws – even when subjected to considerable vibration or mechanical stress. The cable gland accommodates a range of cables above regulatory requirements.

Nickel-plated pins and contacts: All IEC309

High Performance range products feature nickel-plated pins and contacts for more efficient contact on elements with a higher degree of oxidation. The nickel-plating guarantees maximum product life and allows for use in environments with critical climatic conditions (marine environments) or aggressive substances.

Single pack: Each IEC 309 HP range item is individually blister-packed, which ensures that the product remains clean in storage.

Halogen-free: All products are manufactured using halogen-free technopolymer and conform to EN50267-2-2.

Enquiries: +27 10 202 3300

THE CONNECTION SYSTEM OF THE FUTURE



Practical, safe and robust



Quick: opening with a 1/4 rotation, screw or fast spring wiring



New Cable Fastener Clamp



IEC 309 HP Range

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Distributors and Franchises throughout Southern Africa

GEWISS has updated its connection systems with a unique design, introducing the new range of industrial plugs and sockets IEC 309 HP- HIGH PERFORMANCE offering. These products are the fore runner in the market in terms of performance, practicality and technical characteristics. They are available with screw or fast spring wiring - the most advanced technology available today, in these ranges. The core features of this industrial plug and socket offering have been revamped, providing an innovative solution for both the 16A and 32A connectors, straight or flush mounting, providing an IP compliant rating of up to IP68/IP69. Truly unique technology.

www.gewiss.com

GEWISS



LV switchboards meet technology demands

MARKETS are constantly demanding more from low voltage switchboards. Today's switchboard is at the crossroad of internal and customer demand for increasingly sophisticated applications on the one side, and external demand related to changes in legislation on the other side.

"Today's switchboards simply have to be capable of adapting to parameters such as the capability to adapt to both environmental impact constraints and more difficult operat-

ing conditions," says Jacques van Eeden, vice president: Power at energy management specialist, Schneider Electric South Africa.

"Also critical in the design and development of LV switchboards is engineering technology to ensure that switchboard products incorporate sufficient technological advantages to carry them forward into the future."

Eeden adds that the company has focused on tackling these issues with its range of Okken LV switchboards, which feature segregated modular construction, main busbars

up to 7 300 A, dropper busbars up to 4 000 A, a fixed semi-withdrawable or fully withdrawable pattern and up to form 4b separation.

"The Okken switchboards are earthquake tested, internal arc tested at 90 kA/300 mS, have a rated insulation voltage of 1 000 V ac, impulse withstand of 12 kV and short circuit withstand of 150 kA/1 sec. The degree of protection for the Okken meets IP31/41/54 and it is internal arc tested at 90 kA/300 mS," says Eeden.

In addition to the company's B100/ C100 motor control centres, the offering includes the latest range of fixed, demountable or withdrawable Okken low voltage solutions. "Our Okken range of motor control centres are fully type tested to the latest IEC 61439-1 specifications, including internal ARC tested to IEC 61641. We are pleased that recent metals, minerals and mining orders in excess of R30-million have been awarded to Schneider Electric South Africa for African-based projects in Mozambique, Ghana, Burkina Faso, and Zambia," he highlights.

Enquiries: +27 11 254 6400

Smaller, lighter insulation resistance testers



MEGGER'S new MIT515, MIT525 and MIT1025 insulation resistance testers are smaller and lighter than previous models yet offer advanced features and rapid charge capability. The range consists of three models: an entry level 5 kV and two fully featured units, one 5 kV the other 10 kV. Resistance measurement is up to 10 TΩ for the 5 kV models and 20 TΩ for the 10 kV model.

A key productivity feature is the ability to take measurements when connected to line power/ mains with a dead battery. Intelligent battery charging ensures the optimum charge rate as a function of battery level, resulting in minimum charge times. The rugged case provides ultimate protection for a portable instrument and a clip-on lead pouch ensures that leads remain with the instrument at all times. The case lid is removable for improved terminal access. IP rating is IP65 with the case closed preventing water and dust ingress.

High reliability and safety are built in and all models are safety rated to CATIV 600 V and are double insulated. Five pre-set voltage ranges are provided in insulation test mode, plus a user settable lock voltage range. Preconfigured diagnostic tests include polarisation index (PI), dielectric absorption ratio (DAR), dielectric discharge (DD), stepped voltage (SV) and ramp test. Simplicity of operation is achieved with two rotary switches and the large backlight display enables multiple results to be displayed simultaneously.

Advanced memory storage includes time and date stamping of results, logging of data and recall of results to screen. A fully isolated USB device interface (type B) is used for safe transfer of data to Megger's PowerDB/Pro, Advanced and Lite asset management software.

Megger is represented locally by Surgetek. Content courtesy of Megger.

Enquiries: +27 11 792 1303

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P-touch LABELS
TESTED TO THE EXTREME ✓

| | |
|------------|---|
| NEW | <div style="border: 1px solid white; padding: 5px;"> <p>HSe Heat Shrink Tube Tape HSe tube is a printable heat shrink tubing designed for the PT-E300 and PT-E550 handheld labelling machines to mark cables, fiber and wires. Will not work in other models.</p> </div> |
| | <p>TZe Laminated Tape Unlike ordinary labels, our unique laminated tape technology ensures that your text is sandwiched between a layer of super-clear polyethylene and the durable base layer.</p> |
| | <p>Flexible Designed for wrapping around small diameter curved surfaces such as power cables and conduit/pipes. They are also perfect where the label needs to be stuck onto itself (flagging).</p> |
| | <p>Strong Adhesive Our strong adhesive tape demonstrates 50% more adhesive strength on average compared to our standard tape.</p> |
| | <p>Acid Free Safe for photo-labelling, scrapbooking, and other photo-sensitive materials.</p> |
| | <p>Fabric Tape Letters printed on cloth tape can be adhered by ironing onto other cloth.</p> |
| | <p>Security Tape Security Tape has a tamper evident substrate so when the label is disturbed it leaves a checkerboard pattern. Use it for labels that must not be removed such as company assets.</p> |

PT-E300VP

PT-E550WVP



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The ARB Electrical Toolkit

Is a useful, feature-packed reference and utility application for electrical engineers, electricians and technicians.

The toolkit offers a wide range of electronic reference material, with an additional collection of calculation, lookup and conversion tools all in one place.

Some of the many features found in the app include unit conversion for numerous types of measurements, cable splicing guides, gland and cable rating charts, motor and transformer sizing guides, as well as a convenient national ARB Branch Finder.

Search "ARB Electrical Toolkit" in your app store



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Easy identification of cables and components



AN installation professional knows what a nightmare unidentified cables and components can be. Professional identification labels take away this frustration and increase job efficiency. With a Brady Portable Printer any label can be printed on-site in mere seconds, even die-cut and custom labels.

A flexible wire identification solution

Wrap around labels in multiple colours equipped with a quality adhesive are the most popular solution to professionally identify cables and wires. The identifying text or code can be printed multiple times on each label, enabling 360° information visibility. Often self-laminating wrap-around labels are used for extra durability and legibility. Brady offers self-laminating labels and wrap-around labels in many colour varieties, both die-cut and on continuous rolls, and all of them printable on location with a Brady Mobile Printer.

Relocatable identification

Sleeves are a relocatable identification solution with strong durability and staying power. Slide them over a cable before termination. After cable termination, slide the sleeves into position and heat shrink to fix them into place. Any Brady Mobile Printer can print a selection of quality sleeves in various colours

that are halogen-free, diesel resistant or high temperature resistant to suit specific requirements and standards.

Brady also provides on-site printable identification solutions for components, like the engraved plate replacement label, which is made out of polyethylene foam and laminated polyester. It offers a raised profile similar to an engraved plate, but at a much lower cost and greatly increased flexibility.

There are many ways to source the identification solutions you need, but the most flexible way is to print your own labels on-site and on demand. Modern portable label printers, such as the BMP21-PLUS and BMP41 Label Printer, or the BMP51 and BMP53 Label Maker, auto-calibrate so the user can easily call on the entire versatile label range, including continuous labels and die-cuts, to identify any cable or component with ease. Larger mobile printers, like the BMP71, even print custom labels and a great variety of sleeves, wrap-around labels, flags, tags and component labels for maximum flexibility.

With a quality Brady printer and a few cartridges of durable identification solutions, identifying cables and components is easy and prepares installations for fast future upgrades or maintenance.

Enquiries: +27 11 704 3295

Standard and custom electrical products available locally

QUALITY electrical products – perforated copper strips, Taper-Tite, steel junction boxes, die cast products and aluminium clamps, amongst others – are available locally from SW Products, a specialist in standard and custom copper lugs and ferrules, says Louis Pelsler, business development manager.

“In line with our commitment to quality and excellence, SW Products only uses the highest grade of virgin copper tube in the manufacturing process, which ensures consistently high standards are maintained,” he explains.

SW Products offer standard lugs and ferrules, ranging from 1.5 mm² to 1 000 mm². In addition, the manufacturer offers a complete XLPE range for heavy duty cables. “We offer complete solutions for our clients and, should customers have special requirements – such as a longer palm with multiple holes, for example – we are able to manufacture these bespoke products to clients’ specifications,” he adds.

Pelsler says the company’s strength lies in its versatility and a flexible manufacturing process. “We are able to offer unique and special products to our customers with a quick turnaround time. This in turn enables our customers to offer a complete basket of standard and non-standard products to their clients. Also, being a local manufacturer, the need for our customers to carry large stock levels is eliminated,” he adds.

Pelsler, who has been with SW Products for the past 10 years, has extensive mechanical designing experience and he actively assists clients with technical

enquiries regarding new products and projects. “SW Products has been supplying the electrical industry since 1953 and the experience and wisdom gained over the past six decades means that we understand our clients’ needs and have the technical expertise to supply any special requirements from our fully operational factory,” he says.

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Capacitance meter for field calculations

The easy-to-read 11 000 count display MT957 LCR and Capacitance meter provides direct and accurate measurements of inductors, capacitors and resistors with different frequencies and is selectable for auto ranging. This handheld, battery operated meter has convenient front panel push buttons and controls that include functions such as data hold, maximum and minimum record and relative mode. This meter is designed for general applications especially in field maintenance and service applications," says Major Tech's Werner Grobbelaar.

Enquiries: +27 11 872 5500



Cable protection for solar PV installations

DESPITE the harsh environmental conditions that many PV installations are subject to, cable protection is often overlooked, says Mike Cronin, managing director at Elquip Solutions.

“Cable damage and degradation can affect the long-term viability of a PV installation and have serious safety issues. All of this could leave the installer liable for future maintenance plus fines for lost revenue due to the installation’s downtime,” he says.

“Most PV installations are expected to last at least 25 years so a great deal of care is generally taken when selecting the major components for solar PV but cable protection is often an afterthought.

Flexicon’s conduit systems provide superior cabling protection, particularly in high-demand, hazardous environments he explains.

“Flexicon has developed two product ranges – metallic and non-metallic – from 10 mm to 106 mm in diameter and the wide range of patented fittings and connectors, locking and non-locking, are designed for ease of use and are adaptable for any application.”

Cronin warns against cutting corners and opting for “cheap imports” when it comes to cabling protection. “Get it right and you



will prolong the life of the cabling and, importantly, protect people from electric shock. It pays to select a system that will withstand a wide range of hazards to ensure prolonged cable life, personal safety and long-term cost-savings,” he concludes.

Enquiries: +27 11 826 7117

Reliable distribution and effective service continuity

LEGRAND'S power solutions ensure protection of electrical equipment and continuity of service during planned and unexpected power outages.

"These modular systems include certified low emission (CLE) cast resin transformers, busbar trunkings, enclosures for power switchgear and controlgear assemblies, as well as uninterruptible power supply (UPS) units," says Marc Naidoo, projects and technical co-ordinator, Legrand SA.

"An important advantage of selecting Legrand components for efficient, safe and flexible power distribution, is the immediate integration between the company's busbar trunking systems, cast resin transformers and XL³ cabinets."

"All Legrand power solutions systems encompass the latest technology for energy efficiency, quality power supply, optimum safety and enhanced aesthetics."

Legrand's environmentally friendly, dry type cast resin transformers, transfer electrical power between two different voltage systems at the same frequency, with low environmental impact. These HV/LV transformers offer significant savings on electricity costs and can reduce electricity consumption by up to 20% during off-peak activity.

The absence of flammable insulation liquids, the use of self-extinguishing materials exempt of toxic gas emissions, reduced noise levels and low electromagnetic emissions, ensure enhanced environmental protection in all installations.

Legrand's standard distribution transformers have rated power between 100 and 3 150 kVA, primary rated voltage up to 36 kV and secondary rated voltage up to 433 V. Special transformers have rated power up to 20 000 kVA, primary rated voltage up to 36 kVA and secondary rated voltage on request. Unlike oil transformers, these cast resin units, with reduced overall size dimensions, can be installed inside buildings and do not require additional building structures. This means optimum flexibility in any environment. Because no cooling fluids are necessary, maintenance costs are minimised.

For climate conditions these transformers can withstand severe conditions: E2 – environmental class; C2 – climatic class; and F1 – fire-behaviour class.

Legrand transformers are enhanced by pre-fabricated busbar trunking systems, which provide synergy for a direct connection.

These busbar trunking systems, with minimum overall dimensions, provide flexibility in all areas of an installation, including confined spaces. Aluminium or copper busbars and cast resin transformers are equipped with various accessories to provide maximum versatility for any type of power application, including areas which are subjected to high thermal stress and where equipment is sensitive to electromagnetic interferences.

Safety is important in the design of all Legrand components. The absence of fuel masses in Legrand's cast resin transformers is combined with a low fire load typical of busbars. This feature increases the intrinsic safety of a building against the propagation of a possible fire. This fire retardant range is tested for fire resistance according to DIN 4102-09 and EN 1366-3 standards.

The connections of high power busbar line elements have reliable mechanical interlocks for easy installation. This design eliminates errors and prevents potential dangers which can occur with conventional systems when starting up the system.

There are other critical Legrand devices for optimum protection, reliable distribution and effective service continuity in the event of a mains power failure. These include DMX³ air circuit breakers, DMX³ MCCBs, supply inverters, isolating switches and XL³ enclosures for sites between 160 A and 6 300 A.

XL³ distribution enclosures comply with every part of the standard IEC 61439 to guarantee reliability and total protection of

the installation.

Legrand's UPS system also ensures continuity of service, in terms of power and back up time. Optimum sizing of power stages, the latest electronic components and thorough testing of each unit, ensure dependability and safety of the new system. High performance batteries and an efficient charging system have extended battery life by up to 50%.

This UPS system encompasses three ranges – the Modular series for a reliable power supply up to 120 kVA, the Conventional series

up to 10 kVA and the Line Interactive series, which is a UPS system up to 3 kVA.

Legrand power solutions systems are also available from the company's national distributor and wholesaler network, which provides a comprehensive solutions-based service that encompasses technical consultation and system support.

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XL³ power distribution enclosure for sites up to 6 300 A.



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UPS vs AVR and why your business needs both

By Marco Da Silva, managing director of Power Solutions, the Jasco Group

GIVEN the current and very real power crisis in South Africa, and the fact that it is set to continue for the foreseeable future, a generator coupled with an uninterruptible power supply (UPS) is fast becoming essential equipment for both businesses and households.

Minimising the disruption caused by load shedding is the ultimate goal, and utilising a UPS in conjunction with a generator can create seamless failover between utility and backup power. However, power assurance solutions such as these are not enough on their own, as even when utility power is running, it may be unstable. This causes voltage fluctuations such as transients, harmonics, surges and dips that can seriously damage sensitive electronic and computer equipment and cause data corruption, not to mention shortening the lifespan of all appliances. An automatic voltage regulator (AVR), which offers power quality, in conjunction with power assurance solutions, is the ideal solution for ensuring a consistent supply of clean power.

When it comes to power assurance solutions, each organisation will have

its own unique requirements as well as challenges with regard to electrical and environmental circumstances. While the majority of organisations understand the need for a UPS to act as a bridge between utility power and generator power, ensuring a smooth and seamless transition, the role of the AVR is not as well understood. One of the most common misconceptions for businesses looking to purchase a UPS is that it will automatically include AVR functionality. The reality is that this is often not the case, and while some UPS solutions do incorporate AVR, many do not, which requires the AVR unit to be purchased separately. UPSs with included AVR also tend to have very basic AVR functionality, which is often limited in bandwidth to deal with unstable mains, resulting in the UPS using batteries to ride these situations out.

An AVR's primary purpose is to stabilise voltage fluctuations caused by unstable mains supply from the local utility. While load shedding and power outages cause an instantaneous cut off of power, even when power is available it is often not

delivered at a stable voltage. This has a number of implications. Firstly, dips in available power may cause generators to start up unnecessarily and run even while utility power is available. In addition, fluctuations in voltage can degrade the life of electronic components, potentially causing premature failure, and can cause data corruption on hard drives. Large surges can also burn equipment out, causing instantaneous failure. An AVR not only adjusts voltages to safe levels, it ensures a steady and constant power supply by automatically regulating the voltage at the appropriate level, by the decline during the surge or the increase when voltage drops in the power line.

An AVR will extend the life of sensitive equipment. It will also ensure that the 'automatic mains failure (AMF) panel on generators, which is responsible for starting the generator when utility power fails, does not activate unnecessarily. The AMF is typically set to start up if more than 10% of the voltage is lost, however, in South Africa this is not an uncommon occurrence and does not necessarily

necessitate generator power. An AVR will condition the power and prevent this from happening. An AVR can also be installed in front of the UPS to ensure that the UPS does not go into battery mode due to excessive high or low voltage, thereby extending the life of the UPS batteries.

An AVR has many applications, and can be used with any type of electrical equipment in a number of environments. These include data centres and other IT infrastructure, communications solutions and industrial equipment. An AVR can also be used in inductive applications, such as low frequency equipment, heating and cooling systems, where a UPS is not compatible. AVRs are either installed at the main distribution board or directly in front of the connected equipment. AVRs can also be installed in front of the UPS or the UPS bypass in online double conversion technologies so should a static bypass occur one still enjoys stable voltage. Ensuring your business obtains the right AVR solution for power quality, and implements these solutions in the most appropriate manner, will require



Marco Da Silva.

partnering with a reputable power solutions provider. Such a provider will be able to effectively assess, design and implement a compatible AVR solution depending on the electrical and environmental circumstances of a particular business.

Enquiries: +27 11 746 6800

Are you using the correct batteries in your UPS / inverter?

POWERMAN has been one of the leading suppliers of UPS solutions in South Africa since 1984. "Rather than resting on our laurels we are always looking for ways to improve our product and our service level to our clients," says Jonathan Palmer, managing director of PowerMan.

"Any product can only be as good (or as bad) as the sum of its parts, and one of the main components of any UPS or inverter system is the batteries, so we are looking at ways to improve this component," he says.

"For many years, all the standard backup units have used the fully sealed valve-regulated lead-acid batteries (VRLA) but the most cost-effective solution for customers looking for extended backup on their UPS was to use the maintenance-free battery, but in recent times this has caused a few problems."

Palmer says the maintenance-free battery is essentially an automotive battery. "But the design of certain products was done in such a way that they had thicker plates and, therefore, would work on a low current, long discharge application such as a UPS, as opposed to the high current short discharge required in automotive applications. With the recent load shedding problems that South Africa has experienced, these types of batteries have shown their weakness.

Price tag

"They are not good in multiple discharge situations and have a life of around 200 cycles.

If the batteries are turned over (in transit, for example) then they will leak battery acid. Lead acid batteries contain sulphuric acid, which is very dangerous and highly corrosive.

"When charging, the lead acid battery produces some hydrogen

gas but the amount is minimal when charged correctly. Hydrogen gas only becomes explosive at a concentration of 4%, but this is only likely to happen if large lead acid batteries were charged in a sealed room," he explains, adding that some suppliers of automotive batteries are now refusing to give warranties on their batteries used in UPS or inverter applications. "There are certain batteries that are designed for UPS and inverter applications, and they all come with different price tags. Essentially, the batteries used in the smaller UPSs, the VRLA batteries, offer users the best value for money when a comparison is done taking into consideration, price, capacity, run time, number of cycles, and safety. The VRLA technology has now become cost-effective for long run time UPS and inverter applications."

OEM distribution agreement

"To this end, PowerMan has recently entered into an OEM distribution agreement with a leading battery manufacturer overseas. Initially

the range will have 12V 55 Ah batteries and 12V 100 Ah batteries available. The batteries are both designed for 10 years' life and, under certain conditions, will allow the user in excess of 1 000 cycles," says Palmer.

"It is, however, not our intention to move our primary focus to become a battery supplier, but rather to make sure that our UPSs, inverters and solar solutions have the best possible batteries to ensure the quality and reliability of our products," he says.

Another consideration is the type of installation of the batteries. "In a nutshell, batteries are dangerous and, quite simply, the bigger the battery the higher the danger level. All PowerMan external battery packs are steel cabinets (on wheels for units over 25 kg) and have a fused output for safety. All panels are securely fastened so they cannot be inadvertently opened, thus ensuring a higher level of safety."

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Portable solar power for commercial and residential markets

THE way power, and portable solar power in particular, is consumed has changed, says Paul Hubers, founder and director of the Sungrid Group. "We are seeing an increase in demand, particularly across the building and residential estate market where the use of diesel generators is either not allowed or simply no longer the preferred option due to environmental concerns."

Whilst the use of diesel generators as an alternative supply was a common occurrence, this is no longer the case. In fact, many estates and office parks as well as camping and recreational sites no longer allow the use of diesel generators onsite."

Previously, solar power was the domain of costly and cumbersome installations, placing it out of range of many who could benefit. However, with recent and ongoing technical developments, the ability to harness the sun's energy and make it easily available for all to use, via simple plug-and-play products, is shaping the way in which consumers are approaching the use of solar as an alternative and viable option.

The recently launched Ecoboxx 1500 EcoTank, capable of up to 350 hours of power, is a 'plug-and-play' with no installa-



tion required. "Place the unit in the sun, or charge via the more conventional grid method, and your home becomes immune to load-shedding schedules," says Hubers.

Enquiries: +27 21 447 6849

Reliable alternators for demanding applications



VERT Energy has extended its range of electric power generation (EPG) components to meet growing demand from generator set builders and electro-mechanical power transmission industries.

"Increasing energy requirements have placed power utilities under enormous pressure throughout the African continent, which is why companies are investing in alternative sources of electricity production," says Vert Energy's managing director, Grant Robertson. "Vert Energy has established turnkey solutions partnerships in diverse sectors, including mining, shipping, agriculture, general engineering, shipping, the railways, gas and petrochemicals.

"Through an extensive range of quality branded EPG products and a highly skilled team of technical experts, the company plays a major role in providing dependable power to companies, even in Africa's most remote regions.

"As part of our commitment to the genset manufacturing sector, for the swift supply of reliable components, Vert Energy has made a substantial investment in sourcing the finest components that produce electric energy from mechanical energy and which withstand harsh operating conditions.

"The company has been appointed exclusive distributors in sub-Saharan Africa for leading power generation brands, complemented by genuine spare parts and accessories. EPG components include Leroy Somer alternators, DEIF generator controls and Covrad heat exchangers.

"A critical part of our service is the availability throughout Africa of factory and OEM trained technicians who cope efficiently with any electro-mechanical breakdown situation or routine preventative maintenance procedures."

Leroy Somer, the largest producer of alternators for gensets globally, provides clean energy solutions. LS alternators, with ratings in excess of 20 000 kW, are suitable for all drive systems – whether for supplying electrical power on board a ship, electricity to deprived regions, or for preventing interruptions in the mains supply.

LS alternators, which are known for ease of integration and enhanced energy savings, are also recognised for high performance and reliability in demanding applications and harsh environments.

The modular design of these alternators means that the basic universal unit can be adapted to suit any make of prime mover.

The LS industrial range of low and medium voltage alternators (50 and 60 Hz, 4 and six-pole, from 10 kW to 3 900 kW) are designed for gensets driven by diesel or gas engines.

The AREP excitation system is a brushless, self-excited system known for its efficient performance and enhanced safety. It enables a short circuit current of about three times the rated current to be maintained for 10 seconds. This means that a circuit breaker can be tripped if there is a fault, without disturbing other loads supplied by the alternator.

Customised high, medium and low voltage LS alternators (50 or 60 Hz, 4 – 24-pole, from 500 kW to 25 000 kW) are driven by diesel or gas engines, or by gas, steam, wind or hydro turbines.

Also in the LS range are alternators designed for specialised applications, for example, in agriculture. The robust Tractelec is a generator driven by a tractor's power take-off shaft, providing an alternative source of energy production. This three-phase Partner alternator, which operates efficiently in demanding farming environments, is coupled to a gearbox with oil cooled lubrication and an electrical protection and distribution box.

Enquiries: +27 11 453 9669

Two new diesel-driven generator ranges launched

Renttech South Africa has recently launched two new ranges of diesel-driven generators, which include a heavy-duty range covering 10 to 30 kVA in single- and three-phase sound-attenuated models, and an extra heavy duty 'rental spec' series for extreme conditions. "The smaller units are popular for domestic and small business use, whereas our standard units are popular with larger businesses and site use. The 'Rental spec' units are aimed at heavy-duty on-site applications," explains Martiens Opperman, Renttech South Africa's operations manager. "The 10 – 30 kVA range is small and compact, 1 500 rpm, sound-attenuated and fitted with a Kubota/Newage Stamford power pack," he explains. "The heavy-duty 'Rental spec' units can be double-stacked, painted to marine container specifications and can be supplied as dual frequency units (50 / 60 Hz) fitted with either Perkins/Newage Stamford or Cummins/Newage Stamford power packs."

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Exclusive contemporary designs in new lighting range



THE latest Eurolux outdoor EGLO range will bring life to any outdoor entertainment space with striking, yet elegant lighting. Whether it is lighting up a patio, backyard, walkway or pool, this contemporary range is designed to illuminate and inspire. EGLO is exclusively distributed locally by Eurolux.

Sevilla

The Sevilla round wall light has a rustic yet modern feel with its galvanised

steel finish and satin glass shade. The brushed silver look lends a somewhat industrial feel to the lamp, which will suit both contemporary and more traditional spaces equally well. It is a robust and highly weatherproof outdoor light and comes with a 15 years' manufacturer's guarantee against corrosion. This 40 W lamp is dimmable and offers an IP rating of 44.

Pardella

Another modern lamp in the EGLO

line up is the Pardella. The energy efficient Pardella light also comes in galvanised steel finished and a white powder coat shade. This sleek wall mount has a light reflecting surface that projects from an oblong secondary front mounted light emitting head, causing light to be scattered effectively.

Beverly

The Beverly wall sconce features a frosted, opal glass shade to diffuse the incandescent light and create a warm ambiance in a patio or backyard area. This lamp has a standard, wall-mount design and can be installed in wet or dry places. Its silver components add a touch of sophistication to the design and it is easy to install, offering excellent weather resistant qualities.

Laterna

The webbed effect of the EGLO Laterna will add some old world charm to any outdoor space. It can be utilised as either a ceiling or a wall lamp, featuring a circular shape, black web finish and white opal glass shade. Offering an IP54 rating with a projection range of 140 mm, this light is designed for outdoor use.

City

The EGLO City light fixture has a curved, galvanised steel body with rectangular cut-outs and a white, frosted-glass shade. The contemporary feel of the lamp can be used to compliment any outdoor décor and is ideally suited to light up an outdoor deck, patio or walkway. It offers a

standard, wall-mount design for easy exterior installation in dry or wet locations.

"In our latest EGLO outdoor range you will find iconic shapes and designs, which will compliment most patio furniture and landscaping needs. Despite it being quite a contemporary range, even those with

more traditional tastes can incorporate modern lighting elements in your outdoor landscaping and design," says Shaun Bouchier, director at Eurolux.

Visit www.eurolux.co.za for a look at the complete range of EGLO products on offer at Eurolux.

Enquiries: +27 21 528 8400

Online lighting foundation course

THE South African Institute of Lighting (SAIL) has partnered with a renowned lighting engineer and trainer to offer quality, current and relevant educational content in a step-by-step programme.

Designed to help lighting students achieve success in the various lighting fields, the programme begins with a foundation course and then takes students through a comprehensive series of 'building blocks' and ends with master classes.

Online

The user-friendly courses are available online and students can study at their own pace, in their own time.

In addition, the courses are registered with various professional bodies and attendees earn CPD points.

Course content

- Introduction and lighting requirements;
- Lighting standards;
- Light sources;
- Interior luminaires;
- Light distribution and introduction to calculations; and
- Exterior luminaires.

Cost

Members pay a once-off fee of R600 or pay R325 per month for two months.

Non-members pay a once-off fee of R750 or pay R412.50 per month over two months.

Companies that enrol three or more students receive a 5% discount.

For more information visit the 'SAIL - South African Institute of Lighting' Facebook page.

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Prestigious energy efficient lighting range from Germany available in SA

MAGNET now distributes SLV's range of energy efficient lighting products for commercial and domestic sectors and Brian Howarth, managing director, says the addition of SLV's modern luminaires to Magnet's extensive portfolio of lighting products "enhances the company's specialist lighting solutions service for residential and commercial installations".

"SLV's technical and decorative lighting devices, with the latest technologies and coloured lighting effects, are available in various designs, colours, shapes and light sources, to suit individual requirements in interior and exterior applications.

"An important advantage of this prestigious brand to the local market is the massive stocking holdings in Germany, which makes the product available in South Africa with a two week lead time.

"There are over 3 500 products in the SLV range, all with a contemporary design and new illumination technology, to meet the trends of the constantly changing lighting market globally. 98% of this range offers energy efficient LED and retrofit solutions, of which 80% has integrated LEDs."

The SLV range encompasses lighting fixtures with elements which are individually adjustable to enhance the aesthetics and area illumination of any environment. Components include surface mounted and recessed profiles and fittings; decorative lights and lamps that can be styled personally with a selection of designs and colours. LED solutions and dimmable products with retrofit lamps, as well as devices with integrated dimmable LEDs are also available.



The SLV control system enables remote control of all connected devices in the installation, including roller shutters and lighting.

All SLV luminaires meet stringent international quality and safety specifications.

Enquiries: +27 31 274 1998

South Africa gaining momentum in green buildings

By Valerie Geen, head of Energy, National Business Initiative

SOUTH Africa has, over the last eight years, joined the rapidly growing green building movement, driven by factors such as sustainability and the country's current energy constraints. Buildings are the heart of every urban city and for many years making them green or sustainable has been one of the prevailing topics of the long-standing energy efficiency debate.

According to the United Nations Environment Programme, nearly 60% of the world's electricity is consumed by residential and commercial buildings and the building sector is the single largest contributor to greenhouse gas emissions. Green buildings have become a necessity as the energy constraints worsen and become a part of our daily lives.

In 2007, when South Africa had just started getting involved in sustainable buildings, the Green Building Council of South Africa (GBCSA) certified one building.

Today, eight years later, 100 buildings have been certified.

Government is following global trends through its implementation of the SANS 10400-XA regulations that were added to the National Building Regulations for Energy Usage in Buildings in 2011 to improve the energy efficiency of our country's buildings.

SANS 10400-XA outlines that buildings should be designed and constructed in such a manner that they are capable of being energy efficient while fulfilling user needs in relation to vertical transport (if any) thermal comfort, lighting and hot water. The regulations also focus on services which facilitate the efficient use of energy appropriate to their function and use, internal environment and geographical location.

The majority of South Africa's buildings are old and generally use more electricity because they were built before energy efficiency became a challenge. Retrofitting these buildings to make them energy efficient makes financial sense – the costs involved

are relatively low compared to the potential savings that could be achieved. Results of research conducted in December 2014 by the Investment Property Databank and the Green Building Council of SA indicates that energy efficient buildings have higher net income growth and capital value per square metre as well as higher occupancy levels compared with less efficient buildings.

The survey estimated that the country's uptake of green buildings grew from 16% in 2012 to 52% by 2015. With the ever-increasing scale of developments taking place across the country, this trend is

expected to continue to grow exponentially. This is crucial because green buildings not only create more sustainable and productive environments but are also helping businesses that operate in energy efficient structures to realise financial benefits.

By moving toward a low-carbon economy, not only are we increasing our energy independence, we are also helping to create a whole new sector with job opportunities, which in turn benefits the economy as a whole.

Enquiries: +27 11 544 6000



Valerie Geen.

Report vandalism of streetlights

THE rampant damage, cable theft and vandalism of timing devices on street lights is derailing ongoing efforts to save electricity and it costs the City Power millions of rands every year to replace this equipment says Sicelo Xulu, managing director of City Power.

"Street lights across Johannesburg have been fitted with timers that switch the lights off during the day and turn them on when it becomes dark. However, over past few months, these timers have been deliberately damaged and this has led to the lights illuminating throughout the day and night. This allows criminal syndicates to use these circuits for illegal connections," Xulu explains.

"This has drastically reduced the normal lifespan of the light bulbs which now need to be replaced on an ongoing basis and it has also hampered efforts to curtail electricity consumption. The widespread vandalism of electricity infrastructure impacts negatively on the security of neighbourhoods."

Xulu says this hampers City Power's efforts to provide quality service to the residents of Johannesburg and it is the law-abiding ratepayers who are paying the costs. "The theft and vandalism of public lighting infrastructure is not a victimless crime, but it is an act of economic sabotage against the law-abiding ratepayers of Johannesburg," Xulu says.

"City Power appeals to the residents of Johannesburg to report these acts of criminality and illegal connections to their nearest police station or to call City Power anonymously on the toll-free number 0800 00 251 or the 24-hour hotline (011) 490 7553."

Xulu says the theft and vandalism of infrastructure also has a disruptive effect on the economy and contributes to increased tariffs for ordinary South Africans.

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Light is OSRAM



LEDs in mining and industrial applications make sense

IN a drive to use less energy and reduce costs, various industries are moving to LED-based lighting and selecting lighting products that have a longer lifespan and are less prone to damage.

LED lighting uses 60 to 90% less energy than incandescent lighting and is more durable. Although LED products are more expensive, they last about a hundred times longer than an equivalent halogen light.

"As one of the most energy-efficient light bulbs on the market, LED is the most environmentally friendly because it has a lower carbon footprint, and when discarded, does not leach poisonous mercury into the ground," says Leonard Chester, product manager, Vehicle Accessories, Torre Automotive, the sole VisionX distributor.

"Although energy efficient, CFLs contain mercury and must be safely discarded. LEDs on the other hand contain no mercury or hazardous materials. In addition, LEDs last 35 to 50 times longer than incandescent lighting and about four to 10 times longer than fluorescent lighting. Reducing energy usage by using just one light bulb keeps a half ton of carbon dioxide out of the atmosphere through the LED's lifecycle," he explains, adding that LEDs are also 98% recyclable.

"LEDs have no off-state power draw, meaning that the fixture does not use power when turned off, with the exception of external controls, where power should not exceed 0.5 watts in the off-state.

"Even if you paid the highest price available, the LED light bulb, with its energy savings and longer lifespan, will save money over the life of the bulb," says Chester.

The VisionX range of mining and industrial lights includes the Pit Master series, designed for applications ranging from rope shovels to structural lighting and the Ripper, designed for high-vibration applications and named after the ripper mount on a bulldozer.

VisionX has extended the versatility of the

popular Duralux LED light (DURA) with new 10, 40 and 60 degree beam pattern models. The DURA is IP68 water-proof rated, has a 50 000 hour lifespan and a high 8.6g rms vibration rating, suitable for mounting on almost any type of machinery.

The four or six LED units provide extended light projection and more light output compared to a 100 W halogen light and are operational from -40 °C to 80 °C.

"The rugged die-cast aluminum housing provides superior protection against the elements and a universal single-bolt mount provides a range of adjustment options," concludes Chester.



Enquiries: +27 11 627 2500

LED streetlight retrofit for Swartland Municipality

SWARTLAND Municipality has retrofitted 69% of the existing streetlights in its municipal area with BEKA Schröder's locally designed and manufactured LED streetlights.

Roelof du Toit, director: Electrical Engineering Services of Swartland Municipality, who managed this project, says that "positive feedback from ratepayers was received about the improved lighting levels".

The Swartland Municipality, which comprises the electricity supply areas of Malmesbury, Darling, Yzerfontein and Moorreesburg, has, over the past two years, retrofitted the majority of existing streetlights with LED streetlights.

This has resulted in a significant annual energy saving of 2 091 MWh, as measured by an independent M&V specialist. BEKA LEDlume-mini 36 W LED streetlights, BEKA LEDlume-midi 41 - 144 W LED streetlights, and Zela 37 W LED

post tops with asymmetrical light distribution, were supplied.

According to Du Toit, it was initially perceived as "a risk" to use LED technology for street lighting. However, he has found that the implementation of LED streetlights has proved to be "exceptionally successful", under the following specified project requirements:

- LED streetlights should be sourced from reputable manufacturers with local service and maintenance support.
- Surge arresters of adequate rating and capacity should be individually fitted to protect each LED streetlight.
- Protection should be incorporated to prevent overheating of the LEDs and electronic drivers, especially if the streetlights are powered during daylight conditions.
- The design should be based on achieving equal illuminance compared with that of the existing streetlights by comparing average lux levels on the street surface and not luminous flux production, as LED technology streetlights utilise luminous flux more efficiently.

Du Toit explains that the retrofitting of mercury vapour and high pressure sodium luminaires with LED streetlights has proved to be "exceptionally effective and successful".

"In addition to the significant energy savings achieved and reduced maintenance requirements, it is evident that LED technology streetlights utilise luminous flux much more efficiently to the extent that the illumination achieved in the streets where LED streetlights were retrofitted, is visibly improved. Due to the continuous development of LED technology for public lighting, the efficiency improves and costs will decline," he says.

BEKA Schröder locally develops and manufactures LED lighting products, designed and suitable for harsh local conditions. "We are proud to be associated with Swartland Municipality in providing a successful lighting solution for this significant project," concludes BEKA Schröder's Deon Maritz.

Enquiries: +27 21 510 8900



BEKA LEDlume-midi luminaires were installed as part of the Swartland Municipality street light retrofit project.



Zela LED post tops with asymmetrical light distribution were supplied.

Corrosion-proof luminaires with unique reflector design



The JBLS-LB from Nordland is a range of enclosed corrosion-proof luminaires available in 600 mm; 1 200 mm and 1 500 mm LED strips. The luminaires have a unique reflector design which optimises light distribution from the LED modules. The luminaire is dust and moisture proof and, with mounting heights of up to 10 m, it is ideal for indoor and outdoor applications such as warehouses, storage areas and cold rooms. The clear, flat glass cover

makes it especially suitable for corrosive atmospheres and UV exposure. The luminaire comes complete with cable and mounting studs so it does not have to be opened when being installed. Various wattages are available from 28 W to 92 W and the rated life is >50 000 hours, reducing maintenance costs. The luminaires feature stainless steel vandal-proof clips and have a five-year warranty.

Enquiries: +27 11 662 4300

NEW



NF616-LED

Circuit watts 100W / 150W / 200W
50000hr. Rated Life (L70/B10)
Ambient temperature -20°C ; 45° C



NGBLEED

Circuit watt 45W
50000hr. Rated Life (L70/b10)
Ambient temperature 30°C

November Special



JBLED-T Vapour proof fitting IP65

Circuit watts 2x18W (1200mm) 2x24W (1500mm)
35000hr. Rated Life

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1200mm (4ft) Light fitting including LED tubes - R 549.90 (Ex. VAT)

1500mm (5ft) Light fitting including LED tubes - R 688.55 (Ex. VAT)

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BIG SAVINGS, HIGH ROI, LOW ENERGY... INTRODUCING THE ENLITE ANTI-CORROSIVE

57% Power consumption savings
18 month ROI
3 Year Warranty

Warwick Webber, Aurora's Technical Director, reveals why Enlite's LED LinearPac offers the best long-term low cost solution.

For car parks, the challenge usually lies in implementing a lighting system that provides acceptable levels of illumination, maximum customer and vehicle safety, and is suitable for continuous operation over long time periods, whilst all at a reasonable cost of investment.

Energy and maintenance costs are usually the main factors considered by the car park owner/operator. To reduce both, LED lighting offers the optimum solution; it's efficacy provides more lumens per watt than T8 linear fluorescents, and, if a quality product is installed, virtually no maintenance is required.

Many multi-storey car parks still use linear halophosphate fluorescent fittings operating on electromagnetic control gear, considered to be an inefficient installation with high energy and maintenance costs.

Replacing each light fitting on a one for one basis is the ideal solution as the current wiring installation can often be used, reducing the cost of implementation. Retrofitting the lighting to an LED solution can incur an initial up-front cost. However, with the energy savings that LED lighting provides over the long running hours required by a carpark, airport or hospital, together with low maintenance, these costs can be covered well within accepted periods.

So, how much will the change cost, what are the benefits to car park users and when will a ROI be delivered?

CASE STUDY

We review the benefits of retrofitting the existing installation in a basement car park with no natural illumination, compared to a new installation of LED LinearPac™ non-corrosives, ascertaining the potential customer benefits, cost implication, ROI and Life Cycle Cost Analysis.

Car Park: 50 x 30 x 2.4m

No. of spaces: 72

Existing installation:

52 x 5ft Twin 58W, Switch start Non-Corrosive fittings using 5ft 58W White Halophosphate T8 Linear Lamps.

Whilst no initial installation investment is required, approximately 6750 hours per annum will require annual lamp changes, especially in cold temperatures. Light output of fluorescent lamps is calculated based on an environment temperature of 25°C. Operating closer to zero results in a reduction of illuminance, meaning the actual achieved level will be lower.

Illumination level:

approx. 115 Lux at floor level (in excess of specified car park lighting requirements)

Power consumption:

144W each, a total of 7488W

Efficacy: 4.9W/m²

Power density: 4.2W/m²/100Lux

NEW CAR PARK LIGHTING - ENLITE REPLACEMENTS

If existing fittings are replaced with 5ft 60W LED Non-Corrosives, 52 x Enlite EN-ANT1554/60 fittings, which is 60W with a performance of 5400 Lumens and 100% efficiency, these will provide greater illumination than the fluorescents, at approximately 120 Lux. As LED lighting is not affected by cooler conditions, illumination values will be those actually achieved.

Illumination level: 120 Lux at floor level

Power consumption:

62W each, a total of 3224W

Efficacy: 2.1W/m²

Power density: 1.7W/m²/100Lux

FINDINGS

Whilst an initial installation investment is required, virtually no on-going maintenance during the product's lifetime will be necessary.

Power consumption savings: 57%

Payback: 18 months (approx)

Enlite's LED non-corrosives come with a 3-year warranty period and a payback of around half of that. Although there is likely to be a dent

in pockets for the first half of the product's warranted lifetime period, greater financial benefits overall and during the second half of the term makes this change worth considering.

Additionally, a lighting system that provides an installation unaffected by temperature conditions will enhance feelings of safety amongst car owners, potentially making users choose this car park over another.

Working with Aurora makes it easy to implement the right system. Installing the Enlite LinearPac Anti-Corrosive fitting offers the benefit of a globally recognised quality manufacturer together with a cost effective solution.

Contact:

E: warwick.webber@auroralighting.com

M: 083 383 0022

T: 011 234 4878



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LED LINEAR ANTI-CORROSIVE

EN-ANT1236 36W 1260mm
EN-ANT1554 54W 1550mm

Emergency & Microwave option available

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- IP65 Vandal resistant polycarbonate body
- Ideal for interior & exterior applications
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national executive
assistant.

BEKA Schröder



Kingsley Segoane,
technical sales
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Pretoria branch.

Bright Spark

A riddle party

"Ooh, this is creepy!" said Cathy, reading out loud.
"The man who made it did not want it, the man who bought it did not use it and the man who used it never saw it. What is it?"



"Here's another," said Barry.
"You can only hold me for seconds, sometimes you lose me, and yet I am with you all your life. What am I?"
"What belongs to you, which you would never want to get rid of, but which other people use far more than you do?" asked Peter, joining in.
"I know that one!" said Linda. "What is broken as soon as you name it?"
"What animal eats the least?" asked Garry.
"What will grow if you feed it, but dies if you give it water?"
"The more you take, the more you leave behind. What are they?"
Can you say?

A hairy situation

Uncle Jack knew that the number of hairs on a human head is at most about 200 000, while the total population of the world is more than 5 000 000 000.
Therefore on average, you can expect about 25 000 other people to have the same number of hairs on their heads as on yours. The chance that no-one has the same number is so small as to be insignificant which is why Uncle Jack was smiling to himself even though he had never counted the hairs on Gary's head.

DECEMBER FEATURES

TOOLS OF THE TRADE

Power tools, hand tools, tool storage, scaffolding, test and measuring instruments/tools and accessories (DMMs, impedance testers, etc.) measuring supply quality, tool calibration, bakkies, trailers, protective clothing standards.

DISTRIBUTION BOARDS, SWITCHES, SOCKETS AND PROTECTION

Enclosures, earth leakage devices, circuit breakers, fuses, surge and lightning protection, metering switches, dimmers, sockets, disconnectors, Certificate of Compliance, testing and measuring instruments, tools and accessories, cabling glands, flameproof.

Editor:

Erika van Zyl

Advertising:

Carin Hannay

Production & layout:

Colin Mazibuko

Consultant:

Ian Jandrell PrEng, BSc(Eng), GDE, PhD, FSAIEE, MIEEE

Director:

Jenny Warwick

Publisher:

Karen Grant

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